Phase Two Environmental Site Assessment
1770 Heatherington Road, Ottawa, Ontario
The City of Ottawa

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Legal Notification

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Executive Summary

EXP Services Inc. (EXP) was retained by the City of Ottawa to complete a Phase Two Environmental Site Assessment (ESA) of the property located at 1770 Heatherington Road in Ottawa, Ontario, (hereinafter referred to as the 'Phase Two Property'). The Phase Two Property is currently designated as industrial land use, as it forms a portion of a former municipal works yard. The intention is to change to a mix of residential and parkland land use.

The objective of the Phase Two ESA was to assess the areas of potential environmental concern (APECs) identified in EXP's (2024) Phase One ESA and to obtain soil and groundwater data to further characterize the Phase Two Property to support the filing of a Record of Site Condition (RSC) on the Ontario Ministry of the Environment, Conservation and Parks (MECP) Brownfields Environmental Site Registry. The need to file an RSC is to support a change in land use from industrial to residential and parkland.

This Phase Two ESA was conducted in accordance with the Phase Two ESA standard defined by Ontario Regulation 153/04, as amended (O.Reg.153/04); and in accordance with generally accepted professional practices. Subject to this standard of care, EXP makes no express or implied warranties regarding its services and no third-party beneficiaries are intended. Limitation of liability, scope of report and third-party reliance are outlined in Section 8 of this report.

The Phase Two Property is located on the west side of Heatherington Road, at 1770 Heatherington Road, Ottawa in an area of mixed residential and commercial land use (Figure 1 and 2). The Phase Two property is an irregular shaped parcel of land with an area of approximately 2.7 hectares (6.7 acres) and has a generally flat topography with a gentle north to south grade. The Site was most recently used as a works yard by the City of Ottawa (City) and has been used for such purposes since around the mid-1960s. There are and were no built structures on the Phase Two Property. North-south and east-west trending soil berms, designed as a noise and visual barrier, were previously present on the east and south sides of the Phase Two Property, but have since been relocated to the west part of the property.

For assessment purposes, EXP selected the MOE (2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Community Property Use and medium-to-fine textured soil. Additionally, given the minimum depth to groundwater identified in the overburden groundwater unit at the Site (i.e., 1.54 m bgs) volatile groundwater impacts were also assessed against the MECP (2011a) Table 7 Full Depth Generic SCS for Shallow Soils in a Non-Potable Groundwater Condition, all types of land use and medium/fine textured soil.

The following potentially contaminating activities (PCA) were identified on-site and within the Phase One Study Area, as per Schedule D of O. Reg 153/04, and are thought to contribute to an area of potential environmental concern (APEC):

Table EX-1: Potentially Contaminating Activities

PCA Identifier	Address	Location of Activity (in Relation to Site)	Potentially Contaminating Activity (PCA)	Approximate Timeline That PCA Occurred	Contribution to APEC at the Site
PCA 1: Former On-Site Garage	1770 Heatherington Road	On-site (northeast corner)	#27: Garages and Maintenance and Repair of Railcars, Marine Vehicles	The site had operated as a public works yard and garage since approximately the 1960s. A three - door garage was used for the light maintenance and storage of City of	Yes - PCA is located on-site

Table EX-1: Potentially Contaminating Activities					
PCA Identifier	**Address**	**Location of Activity (in Relation to Site)**	**Potentially Contaminating Activity (PCA)**	**Approximate Timeline That PCA Occurred**	**Contribution to APEC at the Site**
(Location of Remedial Pit No. 1)			and Aviation Vehicles	Ottawa public works vehicles and equipment. Based on a reviewed Phase I ESA (JWEL, 2008a), completed during the operation of the Site garage, various light chemicals (cleaners, motor oils, antifreeze, etc..) were stored in sealed containers within the garage. A catch basin was connected to a former dry-well east adjacent to the former garage. Based on reviewed City of Ottawa building plans from 1960 a fuel oil powdered heating system was present in the north portion of the garage. The heating system was powered by a 500-gallon fuel oil storage tank (identified as PCA 2 and described below). Soil and groundwater within the footprint of the former garage was remediated in 2012 - 2014. The impacts included petroleum hydrocarbons, metals and volatile organic compounds.	
PCA 2: Former On-Site UST (Location of Remedial Pit No. 1)	1770 Heatherington Road	On-site (northeast corner)	#28: Gasoline and Associated Products Storage in Fixed Tanks	At the time of the 2012 remedial investigation, the former UST had already been removed from the Site. The date of removal is unknown, however based on a review of City of Ottawa Site plans from 1960 the UST was identified to a 500-gallon buried, steel wall fuel oil tank. The tank was identified to service the heating system in the former garage structure (PCA 1, outlined above). The UST was constructed of steel and was situated on top of a subgrade concrete foundation. The UST was located north adjacent to the former garage structure.	Yes – PCA is located on-site

Table EX-1: Potentially Contaminating Activities					
PCA Identifier	**Address**	**Location of Activity (in Relation to Site)**	**Potentially Contaminating Activity (PCA)**	**Approximate Timeline That PCA Occurred**	**Contribution to APEC at the Site**
PCA 3: Surficial granular fill material of unknown quality present across the Site Former excavation (Pit 2) – located in central portion of the Site Former excavation (Pit 3) – located in southeast portion of the Site Former excavation (Pit 4) – located in southwest portion of the Site	1770 Heatherington Road	On-site (across the entire Site)	#30: Importation of Fill Material of Unknown Quality	Based on review of aerial photographs and prior ESA reports, fill materials are present across the entirety of the Site. The Site has used soil from public works operations to re-grade the property and for stockpiling at the former public works yard. Fill of unknown quality and street sweepings were stored on-Site, street sweepings were reportedly disposed of at off-Site landfill facilities each year while soil stockpiles were stored and reused for ongoing public work projects (JWEL, 2008a). Based on review of historical aerial photographs between 1958 and present day, fill piles and soil berms change locations during operation of the Site. Evidence of fill materials being re-worked and stored across the majority of the Site is evident from review of the historical aerial photographs. In addition, it is assumed that fill materials of unknown quality were also used to regrade the property to accommodate new structures built during the course of Site operations. As such, given that fill materials have been located across the majority of the Site during operations and that it is suspected that the majority of the Site has been graded with fill materials of unknown quality, PCA 3 has been identified to be associated with the entire Site. Several remedial excavations were completed to address exceedances suspected to be associated with the fill materials present at the Site:	Yes – PCA is located on-site

Table EX-1: Potentially Contaminating Activities					
PCA Identifier	**Address**	**Location of Activity (in Relation to Site)**	**Potentially Contaminating Activity (PCA)**	**Approximate Timeline That PCA Occurred**	**Contribution to APEC at the Site**
				Impacts at Pit 2 included PAH and PHC. Impacts at Pit 3 included V and Co. Impacts at Pit 3 included PAH.	
PCA 4: Historical salt related exceedances, Former salt dome, salt use and salt storage	1770 Heatherington Road	On-site (across the entire Site)	#48: Salt Manufacturing, Processing and Bulk Storage	The site had operated as a works yard since the 1960s, including the use and storage of de-icing salts. During the operation of the Site as a municipal public works yard for the City of Ottawa, de-icing related infrastructure was formerly present at the Site and de-icing salts were applied to the Site across paved regions during winter months. A former Quonset hut, salt storage dome and calcium chloride AST were all located within the northwestern portion of the Site. Salts were stored on-Site, within these structures, and were loaded into vehicles for application on municipal streets during winter months. In addition, based on review of historical ESA reports (JWEL, 2008b) salt-related impacts have been identified across the majority of the Site in surficial soils and overburden groundwater. As such, the entire Site was identified to be related to PCA 4.	Yes – PCA is located on-site
PCA 5: Former Dry Cleaner	1574 Walkley Road	Off-Site (north adjacent property)	#37: Operation of Dry Cleaning Equipment (where chemicals are used)	Betty's Brite Cleaners (formerly located at 1574 Walkley Road) operated between approximately 1980 and 1990 based on the reviewed City Directories and ERIS report, provided with the Phase One ESA (EXP, 2016a). Based on the proximity to the Site, duration of operations and suspected presence of halogenated solvents, the	Yes, however this APEC was previously assessed by JWEL in 2008b and EXP in 2016b. The results of the prior investigations indicated VOCs in all groundwater samples collected along the northern property line

Table EX-1: Potentially Contaminating Activities					
PCA Identifier	**Address**	**Location of Activity (in Relation to Site)**	**Potentially Contaminating Activity (PCA)**	**Approximate Timeline That PCA Occurred**	**Contribution to APEC at the Site**
				property at 1574 Walkley Road was identified as a PCA. No information on the location of former infrastructure or other operations occurring at the property were identified. The approximate location PCA is identified to be the entire building at 1574 Walkley Road.	were less than the applicable SCS.
PCA 6: Former Retail Fuel Outlet and UST	1594 Walkley Road	Off-Site (north adjacent property)	#28: Gasoline and Associated Products Storage in Fixed Tanks	A former retail fuel outlet was present along the northern property boundary at 1594 Walkley Road as identified in the ERIS report, the City Directories and prior environmental investigations completed at the Site (JWEL, 2008a). This PCA occurred at 1594 Walkley Road between the 1960s - 1990s. Locations of storage tanks or other associated infrastructure related to the retail fuel outlet are unknown. However, the approximate location of the former retail fuel outlet is provided on Figure 4.	Yes, however previously assessed by JWEL in 2008b and EXP in 2016b. The results of the prior investigations indicated metals, PAH, PHC and VOC in groundwater samples collected along the northern property line were less than the applicable SCS.
PCA 7: Former remediation contractor	1606 Walkley Road	off-Site (north adjacent property)	#28: Gasoline and Associated Products Storage in Fixed Tanks	Triangle Pump was formerly located at 1606 Walkley Road, north adjacent to the Site. Triangle Pump is an environmental contractor with services that include solid and liquid waste removal, tank removals, and Site remediations. It is unknown if any former infrastructure or operations occurred on the property at 1606 Walkley Road. This PCA occurred between the 1960s - 1980s. Based on review of the JWEL (2008a) Phase One ESA an approximate location of the	Yes, however, previously assessed by JWEL in 2008b and EXP in 2016b. The results of the prior investigations indicated metals, PAH, PHC and VOC in groundwater samples collected along the northern property line were less than the applicable SCS.

Table EX-1: Potentially Contaminating Activities					
PCA Identifier	**Address**	**Location of Activity (in Relation to Site)**	**Potentially Contaminating Activity (PCA)**	**Approximate Timeline That PCA Occurred**	**Contribution to APEC at the Site**
				former building is shown on Figure 4.	
PCA 8: Former Automotive Sales and Services	1620 Walkley Road	off-Site (north adjacent property)	#27: Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	A Nissan dealership was formerly located at the intersection of Walkley Road and Heatherington Road at 1620 Walkley Road. This PCA occurred between the 1960s - 1980s. No information on the location of historical infrastructure, storage tanks or other operations were identified.	Yes, however, previously assessed by JWEL in 2008b and by EXP in 2016b. The results of the prior investigations indicated metals, PAH, PHC and VOC in groundwater samples collected along the northern property line were less than the applicable SCS.
PCA 9: Reported Spill (Motor Oil)	1620 Walkley Road	off-Site (north adjacent property)	#Other: Spill	Based on the reviewed ERIS report a historical spill of 150 L of motor oil was identified at the property located at 1620 Walkley Road. This PCA occurred in 1988. Given the proximity of the PCA to the Sites northern boundary, the spill of motor oil was identified as a PCA.	Yes, however, previously assessed by JWEL in 2008b and by EXP in 2016b. The results of the prior investigations indicated metals, PAH, PHC and VOC in groundwater samples collected along the northern property line were less than the appliable SCS.

Ontario Regulation 153/04 defines an area of potential environmental concern (APEC) as an area on a property where one or more contaminants are potentially present. The following APEC were identified on the Phase One property.

I. Table EX-2: Areas of Potential Environmental Concern					
Area of Potential Environmental Concern (APEC)	**Location of APEC on Site**	**PCA Identifier & (Potentially Contaminating Activity)**	**Location of PCA (on-site or off-site)**	**Contaminants of Potential Concern (CPOC)**	**Media Potentially Impacted (Groundwater, Soil and/or Sediment)**
APEC 1: Former garage in the northeast corner of the Phase One Property. All impacted soils and overburden groundwater were removed during various remediation programs (Pit 1).	Northeast Corner	PCA 1 (PCA #27: Garages and Maintenance and Repairs of railcars, Marine Vehicles, and Aviation Vehicles)	On-site	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 2: Former UST. All impacted soils and overburden groundwater were removed during various remediation programs (Pit 1).	Northeast Corner	PCA 2 (PCA #28: Gasoline and Associated Products Storage in Fixed Tanks)	On-site	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 3: Placement of surficial granular fill of unknown quality across the entire Site.	Across the Site	PCA 3 (PCA #30: Importation of Fill Material of Unknown Quality)	On-site	Metals, PAH, PHC	Soil
APEC 4: Salt Dome and Use on-site. Previous Phase Two ESAs by both **EXP** and others identified salt impacts in the shallow soil across much of the site.	Across the Site	PCA 4 (PCA #48: Salt Manufacturing, Processing and Bulk Storage	On-site	Soil (SAR and Electrical Conductivity), Groundwater (Na, Cl-)	Soil and groundwater
APEC 5: Former off-site dry cleaner.	Northwest corner of site	PCA 5 (#37: Operation of Dry Cleaning Equipment where chemicals are used)	Off-Site	VOC	Groundwater
APEC 6: Former off-site retail fuel outlet and UST.	North central portion of site	PCA 6 (#28: Gasoline and Associated Products Storage in Fixed Tanks)	Off-Site	BTEX, PHC	Groundwater
APEC 7: Former fuel dispenser and remediation contractor.	North central portion of site	PCA 7 (#28: Gasoline and Associated Products Storage in Fixed Tanks)	Off-Site	BTEX, PHC	Groundwater

I. Table EX-2: Areas of Potential Environmental Concern					
Area of Potential Environmental Concern (APEC)	**Location of APEC on Site**	**PCA Identifier & (Potentially Contaminating Activity)**	**Location of PCA (on-site or off-site)**	**Contaminants of Potential Concern (CPOC)**	**Media Potentially Impacted (Groundwater, Soil and/or Sediment)**
APEC 8: Former automotive sales and services	Northeast portion of site	PCA 8 (#27: Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles)	Off-Site	PHC, PAH, metals, VOCs	Groundwater
APEC 9: Former reported motor oil spill	Northeast portion of site	PCA 9 (#Other: Spill)	Off-site	PHC, PAH	Groundwater

The Site investigative activities consisted of numerous investigations over several year and included the following:

- Test pit and surface sample advancement to facilitate the collection of soil samples for geologic characterization and/or chemical analysis.
- Borehole drilling to facilitate the collection of soil and bedrock samples for geologic characterization and/or chemical analysis; and,
- Monitoring well installation for hydrogeologic property characterization and the collection of groundwater samples for chemical analysis.

Summary of Results

The results and findings of the Phase Two ESA conducted at the Phase Two Property are summarized as follows:

1. The investigations included the advancement of 74 test pits into the sub-grade; 41 test pits into the soil berm, 53 boreholes (up to a maximum depth of approximately 18.6 m below grade) of which 47 were completed as monitoring wells and 16 surface soil samples.
2. Below the asphalt, topsoil layer, or sand and gravel granular sub-based, a layer of native silty clay was encountered across the Phase Two Property. The silty clay was approximately 1 m to 4 m thick. Below the silty clay layer was the silty clay till layer, which became progressively coarser with sand and gravel at depth. The final stratigraphic layer encountered on the Phase Two Property was the Carlsbad Formation, which is composed of shale bedrock. The bedrock was encountered at approximately 6.2 metres below grade.
3. Based on the field and analytical testing, much of the soil across the Phase Two Property was found to be impacted with SAR and EC. The source of this impact is attributed to the former storage and handling of road salt within the former works yard.
4. The intention is to address the soil impacts through a Risk Assessment

5. Overburden groundwater was detected between 1.54 m and 2.82 m bgs. Static elevations for bedrock groundwater ranged between 1.59 m bgs and 11.79 m bgs Direction of groundwater flow was measured as southeast in the overburden and south in the bedrock.
6. Based on the field and analytical testing, salt impacts exist in both the overburden and bedrock horizons across the majority of the site extending from the source (northwest corner), and continuing downgradient to the southeast corner of the site.
7. Based on analytical testing one (1) volatile parameter was identified to exceed the Table 7 SCS in groundwater at the Site, cis-1,2-dichloroethylene. Cis-1,2-dichloroethylene was only identified to exceed the Table 7 SCS at one (1) monitoring well location, MW14-7, during the post-remedial sampling events. MW14-7 is screened within the native silty clay till soil at a depth of 1.3 – 4.3 m bgs and is located in the northeastern portion of the Site.
8. The intention is to address the groundwater impacts through a Risk Assessment

Current Site Conditions

Contaminants of concern that exist on-site include those related to salt storage and handling on the Phase Two Property and the former maintenance garage. For soil, specific contaminants of concern include SAR and EC whereas in groundwater, the contaminants of concern include Na and Cl^- and cis-1,2-DCE for Table 7 SCS.

With respect to receptor exposure to salt impacted soil, Table 3 generic standards are driven by ecotoxicity models as opposed to human health models. There are no human health standards for SAR and EC and consequently, there are no human health concerns associated with these parameters.

With respect to the receptor exposure salt impacted groundwater, Table 3 generic standards are driven by drinking water standards. The Phase Two Property and surrounding properties, however, rely on the municipal water supply for drinking water as opposed to local groundwater. Consequently, the exposure pathway for those parameters are incomplete.

With respect to the cis-1,2-DCE impacted groundwater, it is noted that vinyl chloride was not identified at a measured concentration at this monitoring well or any others. This indicates that anerobic degradation is not occurring at an appreciable rate. Furthermore, the concentrations of cis-1,2-DCE at MW14-7 appear to be decreasing since the post-remedial Site maximum identified in 2019 and all post remediation groundwater sampling events met the Table 3 SCS for all VOCs analyzed.

As previously indicated, it proposed that the Phase Two Property may be redeveloped, for parkland/residential land use, which will include some landscaping areas. The potential on-Site ecological receptors that may be present on-Site comprise terrestrial vegetation, soil invertebrates, birds and mammals.

The potential on-Site exposure pathways for terrestrial vegetation are via root uptake of soil or groundwater, and stem and foliar uptake of vapour. The potential on-Site exposure pathways for soil invertebrates are via soil dermal contact, soil ingestion, groundwater dermal contact, groundwater ingestion and inhalation of vapour. The potential on-Site exposure pathways for birds and mammals are via soil dermal contact, soil ingestion.

It is noted that the EC/SAR impacts in soil and the Na/Cl and cis-1,2-DCE impacts in groundwater remain on the Phase Two Property and will be managed as a part of the Tier III risk assessment.

Soil Management

The aforementioned RA provides risk management measures, including capping specifications, associated with managing soil in place.

It is noted that the linear soil berms previously located on the east side of the Phase Two Property has been relocated to the west portion of the 1770 Heatherington Road property and are suitable for use as fill, provided it meets geotechnical requirements.

It is recommended that any excess soil that is generated during the redevelopment of the site be managed in accordance with the MECP document entitled *Rules for Soil Management and Excess Soil Quality Standards* with particular reference to the conditions related to salt-impacted excess soil (Section D 1, (3)).

The Qualified Person can confirm that the Phase Two Environmental Site Assessment was conducted per the requirements of Ontario Regulation 153/04, as amended, and in accordance with generally accepted professional practices.

This executive summary is a brief synopsis of the report and should not be read in lieu of reading the report in its entirety

1 Introduction

EXP Services Inc. (EXP) was retained by the City of Ottawa to complete a Phase Two Environmental Site Assessment (ESA) of the property located at 1770 Heatherington Road in Ottawa, Ontario, (hereinafter referred to as the 'Phase Two Property'). The Phase Two Property is currently designated as industrial land use, as it forms a portion of a former municipal works yard. The intention is to change to residential and parkland.

The objective of the Phase Two ESA was to assess the areas of potential environmental concern (APECs) identified in EXP's (2024) Phase One ESA and to obtain soil and groundwater data to further characterize the Phase Two Property to support the filing of a Record of Site Condition (RSC) on the Ontario Ministry of the Environment, Conservation and Parks (MECP) Brownfields Environmental Site Registry. The need to file an RSC is in support of the intended change in land use from industrial to residential and parkland.

This Phase Two ESA was conducted in accordance with the Phase Two ESA standard defined by Ontario Regulation 153/04, as amended (O.Reg.153/04); and in accordance with generally accepted professional practices. Subject to this standard of care, EXP makes no express or implied warranties regarding its services and no third-party beneficiaries are intended. Limitation of liability, scope of report and third-party reliance are outlined in Section 8 of this report.

The Site investigative activities, as incorporated into this Phase Two ESA, were conducted between 2005 and 2023.

1.1 Site Description

The Phase Two Property is located on the west side of Heatherington Road at 1770 Heatherington Road, Ottawa in an area of mixed residential and commercial land use (Figure 1 and 2). The Phase Two Property covers an area of approximately 2.7 hectares and consists of a vacant and undeveloped portion of a former City of Ottawa Works Yard as shown in Figure 3A. North-south and east-west trending soil berms, designed as a noise and visual barrier, were previously present on the east and south sides of the Phase Two Property, but have since been relocated to the west end of the site.

Former structures that previously existed on the site included a 3-bay maintenance garage, salt storage dome, storage shed, four office trailers, quonset hut, and an aboveground (liquid) calcium chloride storage tank as shown in Figure 3B. All these structures were located on the northern half of the property which included paved access and parking areas. The southern half of the site is gravel covered. All structures were removed from the site prior to remedial activities that commenced in 2012 and concluded in 2015. The site is currently vacant and is not being used for any purpose.

The Phase Two Property is currently bounded by commercial retail businesses to the north, a Boys and Girls Club community building followed by Heatherington Road and residential landuse to the east, followed by the Ministry of Transportation facility and residential landuse to the west and residential landuse to the south.

The approximate Universal Transverse Mercator (UTM) coordinates for the subject site centroid is NAD83, Zone 18, 449470 m E, 5024942 m N. The UTM coordinates were based on an estimate derived using Google Earth™. The accuracy of the centroid is estimated to range from 5 to 50 m.

1.2 Legal Description and Property Ownership

The legal description of the Phase Two Property is Part of Lot A, Concession 4 (Rideau Front), Geographic Township of Gloucester; Part 2 on Plan 4R-33717; Part of PIN 04741-0011 (LT) and is zoned IG1; General Industrial Zone. A survey plan for this is presented in Appendix D.

At the time of the investigation, the Phase Two Property was owned by:

Owner Contact: City of Ottawa
110 Laurier Avenue West, 5th Floor
Ottawa, Ontario K1P 1J1

1.3 Current and Proposed Future Uses

The Phase Two Property is currently designated as industrial land use, as it forms a former municipal works yard. The intention is to change to parkland and residential land use. The proposed layout is also presented in Appendix D.

1.4 Applicable Site Condition Standards

Analytical results obtained for Phase Two Property soil and groundwater samples were assessed against Site Condition Standards (SCS) as established under subsection 169.4(1) of the Environmental Protection Act, and presented in the document MOE "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*", ("SGWS" Standards), (MOE, 2011a). Tabulated background SCS (Table 1) applicable to environmentally sensitive properties and effects-based generic SCS (Tables 2 to 9) applicable to non-environmentally sensitive properties are provided in MOE (2011a). The effects-based SCS (Tables 2 to 9) are protective of human health and the environment for different groundwater conditions (potable and non-potable), land use scenarios (residential, parkland, institutional, commercial, industrial, community and agricultural/other), soil texture (coarse or medium/fine) and restoration depth (full or stratified).

Tables 1 to 9 of MOE (2011a) are summarized as follows:

- Table 1 – applicable to sites where background concentrations must be met (full depth), such as sensitive sites where site-specific criteria have not been derived;
- Table 2 – applicable to sites with potable groundwater and full depth restoration;
- Table 3 – applicable to sites with non-potable groundwater and full depth restoration;
- Table 4 – applicable to sites with potable groundwater and stratified restoration;
- Table 5 – applicable to sites with non-potable groundwater and stratified restoration;
- Table 6 – applicable to sites with potable groundwater and shallow soils;
- Table 7 – applicable to sites with non-potable groundwater and shallow soils;
- Table 8 – applicable to sites with potable groundwater and that are within 30 m of a water body; and,
- Table 9 – applicable to sites with non-potable groundwater and that are within 30 m of a water body.

Application of the generic or background SCS to a specific property is based on a consideration of conditions related to soil pH (*i.e.,* surface and subsurface soil), thickness and extent of overburden material (*i.e.,* shallow soil

conditions), and proximity to an area of environmental sensitivity or of natural significance. For some chemical constituents, consideration is also given to soil textural classification with SCS having been derived for both coarse and medium-fine textured soil conditions.

For assessment purposes, EXP selected the MOE (2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Community Property Use and medium-to-fine textured soil. The selection of this category was based on the following factors:

- The Phase Two Property had an overburden thickness greater than 2 m. The Phase Two Property is not located within 30 m of a surface water body or an area of natural significance.
- Soil samples collected at the Phase Two Property have pH values inside of the acceptable range between 5 and 9 for surficial soils and, between 5 and 11 for subsurface soils.
- The property is not within an area of natural significance; does not include, nor is it adjacent to an area of natural significance, nor is it part of such an area; and, it does not include land that is within 30 m of an area of natural significance, nor is it part of such an area.
- The Phase Two Property and surrounding properties are supplied by the City of Ottawa municipal drinking water system, and no potable water wells are located on the Phase Two Property.
- The predominant soil type on the Phase Two Property was considered to be medium-to-fine textured (refer to Borehole Logs in Appendix F and grain size analysis results in Appendix H).
- There was no intention to carry out a stratified restoration at the Phase Two Property.

Additionally, given the minimum depth to groundwater identified in the overburden groundwater unit at the Site (i.e., 1.54 m bgs) volatile groundwater impacts were also assessed against the MECP (2011a) Table 7 Full Depth Generic SCS for Shallow Soils in a Non-Potable Groundwater Condition, all types of land use and medium/fine textured soil. It is also noted that the MECP Table 7 Generic SCS for Shallow soils in Non-Potable Ground Water Condition consider a scenario where biodegradation cannot be assured and where soil may not be present to provide attenuation to volatile migration towards the surface grade.

2 Background Information

2.1 Physical Setting

The following physiographic, geological and soil maps were reviewed as part of this Phase Two ESA:

1. *Bedrock Geology of Southern Ontario* – Ontario Geological Survey. Scale 1:50,000. Electronic resource Issued 2003.
2. *Surficial Geology of Southern Ontario*– Ontario Geological Survey. Scale 1:50,000. Electronic resource Issued 2003.
3. MOE Water Well Records and Ontario Geotechnical Boreholes. Electronic Resource.

Based on the review of the above maps, the following information was obtained:

- The review of the Bedrock Geology revealed that the bedrock in the general area of the Phase Two Property is part of a group belonging to the Carlsbad Formation consisting of shale and limestone.
- A review of the Surficial Geology revealed that the Phase Two Property and surrounding area are dominated by fine textured glaciomarine deposits of silt and clay.
- The review of the Physiographic Region Map revealed that the Phase Two Property and surrounding area is in the physiographic region known as “Till Plains (Drumlinized)”.
- The closest body of water is the McEwens Creek located 1.3 km south of the Phase Two Property. Based on topography and the direction of the Creek, the inferred groundwater flow direction was expected to be to the southeast direction.

The Ministry of Natural Resources (MNR) Natural Heritage website was reviewed to assess if the Phase Two Property was considered to be an Area of Natural and Scientific Interest (ANSI). Based on the review of the MNR website, there are no ANSI within proximity to the Phase Two Property.

2.2 Previous Environmental Reports

There have been numerous reports conducted at the Phase Two Property between 2008 and 2021. A summary of the previous reports is presented in Appendix A.

2.3 Previous Remedial Activities – Former Works Yard

Several environmental Site assessments have been completed since 2008. Figures depicting the extent and sampling results of the remedial excavations are provided on Figures 26 through 32. Again, it is noted that remedial Pit No. 6 was formerly located on-site, but due to revisions to the property boundary Pit No. 6 is now located off-site.

Site remediation activities were subsequently completed in two phases in 2012 and 2015, respectively. The remediation activities included: i) the excavation and disposal of impacted soil at licensed landfill facilities; and, ii) the pumping and disposal of impacted groundwater at licensed facilities.

In 2012, six (6) excavations (Pits 1 to 6) were advanced on the site to address soil impacted by various parameters at different locations across the site (Figure 6). A total of 7,130 tonnes of impacted soil was removed from the site and disposed of at the Tomlinson waste disposal facility at Rideau Road in Ottawa. Due to site limiting features, the

main excavation (Pit 1) could not be fully completed to the north and east. A total of 126,020 litres of impacted groundwater was removed from Pit 1 during the remediation work and disposed of at the Clean Water Works disposal facility at Bantree Street in Ottawa.

Following the 2012 excavation activities, eight (8) overburden monitoring wells were constructed in the Pit 1 excavation (MW12-1 to MW12-5, MW08-8, MW08-10 and MW12-11) (Figure 16). These wells were sampled on two or three occasions including July 2012 and/or October 2012, and April 2013. Exceedances were noted in MW08-19 for cis-1,2-dichloroethylene (cis-1,2-DCE and VC in all sampling rounds).

In 2014, the main excavation (Pit 1) was further excavated to the north and east to remove the remaining impacted soil which could not be removed during the 2012 works. An additional 2,040 tonnes of impacted soil were removed from these areas and disposed of at the City of Ottawa owned and operated Trail Road waste disposal facility. Several monitoring wells were also removed during the excavation activities. An additional 16,500 L of impacted groundwater was pumped from the Pit 1 excavation and disposed of at the Clean Water Works disposal facility at Bantree Street in Ottawa.

Analytical results from the 2012 and 2014 confirmatory soil sampling met the applicable Table 3 non-potable criteria indicating vertical and horizontal delineation was achieved at all excavation areas.

Following the 2014 excavation activities, eight additional overburden monitoring wells were installed in and around Pit 1. These wells, plus several of the 2012 monitoring wells, were sampled on two occasions (July 2014 and November 2014). During these rounds of sampling and analyses, no exceedances of the applicable Table 3 non-potable criteria were detected for VOC, PHC, or PAH.

The following are the significant conclusions resulting from the specific excavations advanced on-site. It should also be noted that note that the EC/SAR impacts in soil and the Na/Cl impacts in groundwater remain on the Site and will be managed as a part of the risk assessment.

Table 2.1: Summary of Previous Remedial Efforts

Location	Contaminants of Concern in Soil	Volume (Tonnage) of Soil Removed	Confirmatory Soil Analysis	Contaminants of Concern in Groundwater	Volume of Groundwater Removed (litres)	Confirmatory Groundwater Analysis
Pit 1	PHC, VOC, PAH, boron (HWS), lead	4,025 m^3 (8,480 T)	All samples submitted for confirmatory analysis (ie; VOC [16 samples], PHC [53 samples], PAH [2 samples], boron (HWS) and lead [3 samples] met the applicable criteria.	PHC, VOC, PAH	142,520	Post remediation groundwater monitoring met the applicable criteria (2014 x2, 2015, 2019, 2022)
Pit 2	PHC, PAH	222 m^3 (380 T)	All samples submitted for confirmatory analysis (i.e.; PHC [8 samples] and PAH [8 samples] met the applicable criteria	None	None	2015 groundwater monitoring met the applicable criteria

Location	Contaminants of Concern in Soil	Volume (Tonnage) of Soil Removed	Confirmatory Soil Analysis	Contaminants of Concern in Groundwater	Volume of Groundwater Removed (litres)	Confirmatory Groundwater Analysis
Pit 3	Cobalt, vanadium	54 m^3 (90 T)	All samples submitted for confirmatory analysis (i.e.; cobalt and vanadium) met the applicable criteria	None	None	2015 groundwater monitoring met the applicable criteria
Pit 4	PAH	42 m^3 (80 T)	All samples submitted for confirmatory met the applicable criteria	None	None	2015 groundwater monitoring met the applicable criteria
Pit 5	pH	36 m^3 (80 T)	All samples submitted for pH confirmatory analysis met the applicable criteria	None	None	Not applicable
Pit 6(1)	pH	25 m^3 (60 T)	All samples submitted for pH confirmatory analysis met the applicable criteria	None	None	Not applicable

(1) Pit No. 6 is Located Off-Site (formerly located on-Site but due to property boundary revisions, Pit No. 6 is now located off-Site).

Brief summaries regarding the remedial efforts completed at the Site and on the adjacent and are summarized below under the sub-headings Pit 1 through Pit 6 Excavation details, below:

Pit 1 Excavation Details (On-Site, North-Eastern Portion of Site)

Between 2008 and 2012, exceedances of various PAHs, select metals (soil only), PHCs and VOCs (groundwater only) were identified in soil and groundwater were identified in samples collected from the vicinity of the former maintenance and storage garage located at the north portion of the Site.

Between 2012 and 2014 approximately, 8,480 tonnes of impacted soil that exceeded the MECP Table 3 SCS for Residential/Parkland/Institutional Property Use (medium - fine textured) was removed from this excavation and disposed of at a licensed landfill site. The final excavation for Pit No. 1 measured approximately 1,150 m^2 in total floor area.

Analytical results from the 2012 and 2014 confirmatory soil sampling met the applicable Table 3 SCS indicating vertical and horizontal delineation for soil impacts was achieved at all excavation areas. In brief the following confirmation samples were collected from Pit No. 1 to assess soil quality:

- North Wall – In 2012, nine (9) soil samples were collected from the north wall and analyzed for VOCs, PAHs, PHCs and/or select metals. Four (4) of the 2012 samples from the north wall failed to meet the applicable Table 3 SCS for PHCs F1-F2. No other exceedances were identified. As such, in 2014 the bounds of the north wall were extended, and an additional five (5) soil samples and one (1) duplicate were collected from the new bounds of the north wall and analyzed for PHCs. No exceedances were identified, and the north wall of the excavation had been determined to be appropriately delineated to the applicable SCS.
- South Wall – In 2012, three (3) soil samples were collected from the bounds of the south wall and were analyzed for VOCs and/or PHCs. No exceedances were identified in the soil samples collected from along the south wall. In 2014, two (2) additional soil samples were collected from the south wall and were analyzed for PHCs.
- East Wall – In 2012, five (5) soil samples and one (1) duplicate sample were collected from along the east wall and were analyzed for VOCs, PHCs and/or PAHs. Select exceedances of PHC F2 were identified in several soil samples collected from the east wall in 2012. As such, in 2014 the east wall was extended, and an additional five (5) soil samples and two (2) duplicates were collected from the new bounds of the east wall and analyzed for VOCs and/or PHCs. No exceedances of the applicable SCS were noted for the samples collected in 2014 from the east wall.
- West Wall – Between 2012 and 2014, seven (7) soil samples were collected from the west wall and were analyzed for VOCs, PHCs and/or select metals. One (1) exceedance was identified in a sample collected from the west wall in 2014 for PHC F3, the sampling location was subsequently removed, and additional confirmatory sampling indicated delineation of impacts had been archived.
- Floor – In 2012, eight (8) soil samples were collected from the floor of the remediation and were analyzed for PHCs, no exceedances of the applicable SCS were identified. In 2014 at the time of the north wall extension an additional ten (10) soil samples and three(3) duplicate samples were collected from the floor of the excavation and analyzed for VOCs and/or PHCs. No exceedances of the applicable SCS were identified for any of the 2012 or 2014 floor samples collected from Pit No. 1.

Throughout the excavating work at Pit 1, groundwater seeped into the base of the excavation and was pumped into a holding tank as needed. The holding tank was then emptied by Clean Water Works when filled. A total of 142,520 liters of groundwater from Pit No. 1 was hauled off-site by Clean Water Works. All groundwater was disposed of under provincial code description 251 L at the Clean Water Works disposal facility at Bantree Street in Ottawa.

Following the 2012 excavation activities, eight (8) overburden monitoring wells were constructed in the Pit 1 excavation (MW12-1 to MW12-5, MW08-8, MW08-10 and MW12-11). These wells were sampled on two (2) or three (3) occasions including July 2012 and/or October 2012, and April 2013.

Following the 2014 excavation and 2012-2013 groundwater sampling activities, eight (8) additional overburden monitoring wells were installed in and around Pit 1. These wells, plus several of the 2012 monitoring wells, were sampled on two occasions (July 2014 and November 2014). During these rounds of sampling and analyses, no exceedances of the applicable Table 3 non-potable criteria were detected for VOC, PHC, or PAH. As such it was deemed that the groundwater within the remedial Pit No. 1 footprint met the applicable Table 3 SCS.

Given that the final round of confirmatory sampling conducted in 2014 for Pit 1 yielded analytical results for soil and groundwater samples below the applicable Table 3 SCS, Pit No. 1 was not identified as a PCA for the Site and is considered to be remediated to the applicable Table 3 SCS as per the opinion of the QP_{ESA}.

Pit 2 Excavation Details (On-Site, Central Portion)

Between May 18 and May 22, 2012, Pit No. 2 was excavated on the central portion of the Site to address PHC (F1-F4) and PAH soil exceedances identified at test pit location, TP08-15. On the 30th of January 2008, a marginal exceedance of benzo(a)pyrene (0.36 ug/g) and an exceedance of PHC F2 (1,740 ug/g) were noted at this sampling location, TP08-15, at a sampling depth of 0.3 m bgs.

Approximately 380 tonnes of impacted soil were removed from the Pit 2 excavation. The excavation was advanced to a depth of 1.2 m below ground surface. Groundwater did not enter the excavation. The final excavation for Pit 2 measured approximately 185 m^2.

To confirm the removal off soil impacts identified at TP08-15, a total of five (5) composite wall samples (i.e., NW1-1, SW2-2, EW2-1, EW5-1 and WW3-1) were collected from the, north, south, east and west walls of the excavation. In addition, three (3) composite floor samples (i.e., F2, F7, and F12) were collected from the base of the excavation. All confirmatory samples collected from Pit 2 met the applicable Table 3 SCS for the Site, indicating impacts had been removed and delineation achieved. Furtherer more, following the completion of the Pit 2 excavation, a monitoring well was installed, denoted as MW15-4, at the approximate location of the former TP08-15. MW15-4 was screened at a depth of 3.0 – 6.0 m bgs and was subsequently sampled for PHCs and BTEX and PAH parameters on the 25th of August 2015. No exceedances of either PHCs and BTEX or PAHs were identified in the groundwater sampling conducted at MW15-4.

Given that all confirmatory sampling conducted at this location yielded analytical results for PHCs and BTEX and PAHs below the applicable Table 3 SCS, Pit No. 2 was not identified as a PCA for the Site and is considered to be remediated to the applicable Table 3 SCS as per the opinion of the QP_{ESA}.

Pit 3 Excavation Details (On-Site, Southeastern Portion)

On May 23, 2012, Pit No. 3 was excavated along the southern boundary of the Site, to address cobalt and vanadium soil exceedances identified at MW08-8 in a soil sample collected at a depth of 0.2 – 1.22 m bgs.

A total of approximately 90 tonnes of soil was excavated from the Pit 3 excavation. Initially the excavation was advanced to a depth of 1.2 m below ground surface and three (3) composite wall samples (i.e., WW1-1, EW1-1, and NW2-1) and two (2) composite floor samples (i.e., F3 and Fla) were collected for laboratory analysis of cobalt and vanadium. One (1) of the submitted floor samples exceeded the criteria for both cobalt and vanadium. As a result, on May 30, 2012, the western portion of the excavation was advanced to a depth of 1.5 m below ground surface and re-sampled, the additional confirmational soil sample was found to meet the applicable Table 3 criteria.

Groundwater did not enter the excavation. The final excavation for Pit 3 measured approximately 36 m^2 in total floor area. Following remedial activities, a monitoring well denoted as MW15-6, was advanced within the center of the former remedial pit with a screen depth of 3.0 – 6.0 m bgs. MW15-6 was sampled on August 25th, 2015, for metals and inorganics and no exceedances of the applicable Table 3 SCS were identified.

Given that the remedial Pit 3 is located at the downgradient portion of the Site, and that all confirmatory soil and groundwater sampling at this location yielded analytical results for cobalt and vanadium below the applicable Table 3 SCS, Pit No. 3 was not identified as a PCA for the Site and is considered to be remediated to the applicable Table 3 SCS as per the opinion of the QP_{ESA}.

Pit 4 Excavation Details (On-Site, South-Central Portion of Site)

On May 24, 2012, Pit No. 4 was excavated at the southern property boundary to address a PAH soil exceedance identified at TP08-1. Benzo(a)pyrene and fluoranthene were both identified as marginal exceedances of the applicable Table 3 SCS in a sample collected from a depth of 0.2 m bgs at TP08-1 in January 2008.

Approximately 80 tonnes (4 truckloads) of impacted soil were removed from the Pit 4 excavation. The excavation was advanced to a depth of 1 m below ground surface. Three (3) composite wall samples (i.e., NW2-1, EW3-1 and WW2-1) and two (2) composite floor samples (i.e., F1 and F4) were collected and submitted for laboratory analysis of PAH. All confirmatory samples collected from the remedial excavation yielded analytical results below the applicable Table 3 SCS.

Groundwater did not enter the excavation. The final excavation for Pit 4 measured approximately 42 m^2 in total floor area. Following remedial activities, a monitoring well denoted as MW15-9, was advanced within the center of the former remedial pit with a screen depth of 3.0 – 6.0 m bgs. MW15-9 was sampled on August 25, 2015, for PAHs and no exceedances of the applicable Table 3 SCS were identified.

Given that the remedial Pit No. 4 is located at downgradient boundary of the Site and that all confirmatory soil and groundwater sampling at this location yielded analytical results for PAHs below the applicable Table 3 SCS, Pit 4 was not identified as a PCA for the Site.

Pit 5 Excavation Details (On-Site, South-Central Portion of Site)

On May 31 2012, Pit 5 was excavated at the south-central portion of the Site to address pH exceedances identified in a soil sample collected from TP08-8 at a sampling depth of 0.6 m bgs on the 30th of January 2008.

Approximately 80 tonnes (4 truckloads) of impacted material were removed from the Pit 5 excavation and three (3) composite wall samples (i.e., WW1, EW1, and SW1) and two (2) composite floor samples (i.e., F1 and F2) were collected and sent for laboratory analysis of pH. All five (5) of the confirmatory pH samples were within the appliable Table 3 SCS pH range for surficial soils.

Groundwater did not enter the excavation. The final excavation for Pit 5 measured approximately 36 m^2.

Given that the remedial Pit 5 is located at the downgradient portion of the Site and that all confirmatory soil sampling at this location yielded analytical results for soil pH within the applicable Table 3 SCS, Pit 5 was not identified as a PCA for the Site and is considered to be remediated to the applicable Table 3 SCS as per the opinion of the QP_{ESA}.

Pit 6 Excavation Details (Off-Site – Located 15 m east of the Site)

On May 31, 2012, Pit 6 was excavated to the immediate east of the current Site boundaries to address a pH exceedance identified at a test pit in 2008. Based on revisions to the current Site boundary Pit No. 6 is now located off-Site, and analytical results for the remediation of Pit 6 are not presented in the current Phase two CSM or associated Figures. However, the approximate location and general details of the Pit 6 remediation are provided in the figures and below for transparency.

Approximately 60 tonnes (3 truckloads) of impacted surficial soil material was removed from the Pit 6 excavation up to a depth of 1.0 m bgs. Two (2) composite wall samples and three (3) composite floor samples including one (1) duplicate sample, for QA/QC purposes, were collected from Pit 6 and sent for the laboratory analysis of pH. On June 22, 2021, two (2) additional soil samples, S1 and S2, were collected from the bounds of the Pit 6 excavation, from the south and east walls of the former excavation, respectively. Soil samples S1 and S2 were collected at a depth of approximately 0.3 – 0.5 m bgs. All confirmational soil sampling for pH yielded results within the Table 3 SCS.

Groundwater was not encountered upon advancement of the excavation. The final excavation area for Pit 6 measured approximately 25 m^2. It is noted that no confirmatory groundwater sampling was conducted at Pit 6 given the nature of the initial soil exceedance identified (i.e., pH).

2.4 Soil Importation

In 2012, the backfill material used for re-instating all the excavations comprised of Granular B Type I and II material. The material was placed in 300 mm lifts and each lift was compacted. In-place density testing was conducted using a nuclear densometer on lifts to ensure that the specified degree of compaction has been achieved. The test results indicated that the granular fill was compacted to a minimum degree of compaction of 98 percent of the Standard Proctor Dry Density.

Backfilling activities for the excavation were carried out by Tomlinson using pit run and Granular B Type I and II material sourced from their commercial operations. A total of 4,370 m^3 of material was imported to the Site in 2012. A total of four (4) soil samples were collected from the imported backfill material and submitted for laboratory analysis of PHC (F1-F4). The analytical results indicate all the imported backfill samples met the applicable criteria for PHC (F1-F4). It is noted that Granular B Type I and II materials do not meet the definition of 'soil' as per that provided in O.Reg. 153/04, as amended, and as such backfilling materials were not required to be tested prior to importation. As a conservative measure, EXP undertook testing on the granular backfill material for PHCs, the results of which are presented in table 7B below.

Table 2.2 Result of Confirmational Sampling of Backfill Materials Used at Site

Parameter	Detection Limit (µg/g)	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Industrial/Commercial/Community Land Use (medium/fine textured soil)	Imported B. Fill 1 (CoA No. 1223122-01)	Imported B. Fill 2 (CoA No. 1223122-02)	Imported B. Fill 3 (CoA No. 1223122-03)	Imported B. Fill 4 (CoA No. 1223122-04)
Sample Date (m/d/y)			06/04/2012	06/04/2012	06/04/2012	06/04/2012
PHC F1	7	65	<7	<7	<7	<7
PHC F2	4	250	<4	<4	<4	<4
PHC F3	8	2,500	<8	12	<8	27
PHC F4	6	6,600	26	18	35	44

Please refer to Appendix G (USB) for a copy of the Laboratory Certificate of Analysis generated for the confirmational sampling of PHCs (F1-F4) in the granular backfill materials used at the Site.

In 2014, the backfill material used for re-instating the excavation comprised of Granular B Type II material sourced from Karson Aggregates. A total of 1,236 m^3 of material was imported to the Site in 2014. Based on the texture and coarseness of the aggregate, the backfill material from the commercial quarry was not considered to be soil material, and thus did not require laboratory analysis.

In addition, the segregated stockpiled material that was deemed to be acceptable based on laboratory analysis was also used in the backfilling process. The material was placed in 300 mm lifts and each lift was compacted as best as possible. However, based on the extreme cold temperatures during backfilling, compaction testing could not be completed.

2.5 Phase One Conceptual Site Model

2.5.1 Site Description

This section provides a description of the Phase One conceptual site model (CSM).

The Phase Two Property is located on the west side of Heatherington Road, at 1770 Heatherington Road, Ottawa. The legal description of the Phase Two Property is Part of Lot A, Concession 4 (Rideau Front), Geographic Township of Gloucester; Part 2 on Plan 4R-33717; Part of PIN 04741-0011 (LT). The Phase Two Property consists of a 0.47-hectare parcel which consists of the east-central portion of a former City of Ottawa works yard that is currently vacant.

The approximate Universal Transverse Mercator (UTM) coordinates for the subject site centroid is NAD83, Zone 18, 449470 m E, 5024942 m N. The UTM coordinates were based on an estimate derived using Google Earth™. The accuracy of the centroid is estimated to range from 5 to 50 m.

Topographically, the Phase Two Property is generally flat, with a slight grade from north to south. Surface water drainage flows to catch basins and storm sewers located in the paved portion north of the Phase Two Property of the site or dissipates via surface infiltration. Standing water was noted around the soil berms on the southern portion of the property. Regional groundwater flow is inferred to be toward Sawmill Creek located approximately 1.3 km south of the Phase Two Property. Previous investigations by EXP at the Phase Two Property confirm groundwater flow direction is to the south - southwest. A municipal drainage ditch is located approximately 600 m southwest of the Phase Two property.

2.5.2 Potentially Contaminating Activities

The following potentially contaminating activities (PCA) were identified on-site and within the Phase One Study Area, as per Schedule D of O. Reg 153/04, and are thought to contribute to an area of potential environmental concern (APEC) (Figure 7).

Table 2.3: Summary of Potentially Contaminating Activities

PCA Identifier	Address	Location of Activity (in Relation to Site)	Potentially Contaminating Activity (PCA)	Approximate Timeline That PCA Occurred	Contribution to APEC at the Site
PCA 1: Former On-Site Garage (Location of Remedial Pit No. 1)	1770 Heatherington Road	On-site (northeast corner)	#27: Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	The site had operated as a public works yard and garage since approximately the 1960s. A three - door garage was used for the light maintenance and storage of City of Ottawa public works vehicles and equipment. Based on a reviewed Phase I ESA (JWEL, 2008a), completed during the operation of	Yes - PCA is located on-site

PCA Identifier	Address	Location of Activity (in Relation to Site)	Potentially Contaminating Activity (PCA)	Approximate Timeline That PCA Occurred	Contribution to APEC at the Site
				the Site garage, various light chemicals (cleaners, motor oils, antifreeze, etc..) were stored in sealed containers within the garage. A catch basin was connected to a former dry-well east adjacent to the former garage. Based on reviewed City of Ottawa building plans from 1960 a fuel oil powdered heating system was present in the north portion of the garage. The heating system was powered by a 500-gallon fuel oil storage tank (identified as PCA 2 and described below). Soil and groundwater within the footprint of the former garage was remediated in 2012 - 2014. The impacts included petroleum hydrocarbons, metals and volatile organic compounds.	
PCA 2: Former On-Site UST (Location of Remedial Pit No. 1)	1770 Heatherington Road	On-site (northeast corner)	#28: Gasoline and Associated Products Storage in Fixed Tanks	At the time of the 2012 remedial investigation, the former UST had already been removed from the Site. The date of removal is unknown, however based on a review of City of Ottawa Site plans from 1960 the UST was identified to a 500-gallon buried, steel wall fuel oil tank. The tank was identified to service the heating system in the former garage structure (PCA 1, outlined above). The UST was constructed of steel and was situated on top of a subgrade concrete foundation. The UST was located north adjacent to the former garage structure.	Yes – PCA is located on-site
PCA 3: Surficial granular fill material of unknown quality	1770 Heatherington Road	On-site (across the entire Site)	#30: Importation of Fill Material of Unknown Quality	Based on review of aerial photographs and prior ESA reports, fill materials are present across the entirety of the Site. The Site has used soil from public works operations to re-grade the	Yes – PCA is located on-site

PCA Identifier	Address	Location of Activity (in Relation to Site)	Potentially Contaminating Activity (PCA)	Approximate Timeline That PCA Occurred	Contribution to APEC at the Site
present across the Site Former excavation (Pit 2) – located in central portion of the Site Former excavation (Pit 3) – located in southeast portion of the Site Former excavation (Pit 4) – located in southwest portion of the Site				property and for stockpiling at the former public works yard. Fill of unknown quality and street sweepings were stored on-Site, street sweepings were reportedly disposed of at off-Site landfill facilities each year while soil stockpiles were stored and reused for ongoing public work projects (JWEL, 2008a). Based on review of historical aerial photographs between 1958 and present day, fill piles and soil berms change locations during operation of the Site. Evidence of fill materials being re-worked and stored across the majority of the Site is evident from review of the historical aerial photographs. In addition, it is assumed that fill materials of unknown quality were also used to regrade the property to accommodate new structures built during the course of Site operations. As such, given that fill materials have been located across the majority of the Site during operations and that it is suspected that the majority of the Site has been graded with fill materials of unknown quality, PCA 3 has been identified to be associated with the entire Site. Several remedial excavations were completed to address exceedances suspected to be associated with the fill materials present at the Site: Impacts at Pit 2 included PAH and PHC. Impacts at Pit 3 included V and Co. Impacts at Pit 3 included PAH.	

PCA Identifier	Address	Location of Activity (in Relation to Site)	Potentially Contaminating Activity (PCA)	Approximate Timeline That PCA Occurred	Contribution to APEC at the Site
PCA 4: Historical salt related exceedances, Former salt dome, salt use and salt storage	1770 Heatherington Road	On-site (across the entire Site)	#48: Salt Manufacturing, Processing and Bulk Storage	The site had operated as a works yard since the 1960s, including the use and storage of de-icing salts. During the operation of the Site as a municipal public works yard for the City of Ottawa, de-icing related infrastructure was formerly present at the Site and de-icing salts were applied to the Site across paved regions during winter months. A former Quonset hut, salt storage dome and calcium chloride AST were all located within the northwestern portion of the Site. Salts were stored on-Site, within these structures, and were loaded into vehicles for application on municipal streets during winter months. In addition, based on review of historical ESA reports (JWEL, 2008b) salt-related impacts have been identified across the majority of the Site in surficial soils and overburden groundwater. As such, the entire Site was identified to be related to PCA 4.	Yes – PCA is located on-site
PCA 5: Former Dry Cleaner	1574 Walkley Road	Off-Site (north adjacent property)	#37: Operation of Dry Cleaning Equipment (where chemicals are used)	Betty's Brite Cleaners (formerly located at 1574 Walkley Road) operated between approximately 1980 and 1990 based on the reviewed City Directories and ERIS report, provided with the Phase One ESA (EXP, 2016a). Based on the proximity to the Site, duration of operations and suspected presence of halogenated solvents, the property at 1574 Walkley Road was identified as a PCA. No information on the location of former infrastructure or other operations occurring at the property were identified. The approximate location PCA is	Yes, however this APEC was previously assessed by JWEL in 2008b and EXP in 2016b. The results of the prior investigations indicated VOCs in all groundwater samples collected along the northern property line were less than the applicable SCS.

PCA Identifier	Address	Location of Activity (in Relation to Site)	Potentially Contaminating Activity (PCA)	Approximate Timeline That PCA Occurred	Contribution to APEC at the Site
				identified to be the entire building at 1574 Walkley Road.	
PCA 6: Former Retail Fuel Outlet and UST	1594 Walkley Road	Off-Site (north adjacent property)	#28: Gasoline and Associated Products Storage in Fixed Tanks	A former retail fuel outlet was present along the northern property boundary at 1594 Walkley Road as identified in the ERIS report, the City Directories and prior environmental investigations completed at the Site (JWEL, 2008a). This PCA occurred at 1594 Walkley Road between the 1960s - 1990s. Locations of storage tanks or other associated infrastructure related to the retail fuel outlet are unknown. However, the approximate location of the former retail fuel outlet is provided on Figure 4.	Yes, however previously assessed by JWEL in 2008b and EXP in 2016b. The results of the prior investigations indicated metals, PAH, PHC and VOC in groundwater samples collected along the northern property line were less than the applicable SCS.
PCA 7: Former remediation contractor	1606 Walkley Road	off-Site (north adjacent property)	#28: Gasoline and Associated Products Storage in Fixed Tanks	Triangle Pump was formerly located at 1606 Walkley Road, north adjacent to the Site. Triangle Pump is an environmental contractor with services that include solid and liquid waste removal, tank removals, and Site remediations. It is unknown if any former infrastructure or operations occurred on the property at 1606 Walkley Road. This PCA occurred between the 1960s - 1980s. Based on review of the JWEL (2008a) Phase One ESA an approximate location of the former building is shown on Figure 4.	Yes, however, previously assessed by JWEL in 2008b and EXP in 2016b. The results of the prior investigations indicated metals, PAH, PHC and VOC in groundwater samples collected along the northern property line were less than the applicable SCS.
PCA 8: Former Automotive Sales and Services	1620 Walkley Road	off-Site (north adjacent property)	#27: Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	A Nissan dealership was formerly located at the intersection of Walkley Road and Heatherington Road at 1620 Walkley Road. This PCA occurred between the 1960s - 1980s. No information on the location of historical	Yes, however, previously assessed by JWEL in 2008b and by EXP in 2016b. The results of the prior investigations indicated metals, PAH,

PCA Identifier	Address	Location of Activity (in Relation to Site)	Potentially Contaminating Activity (PCA)	Approximate Timeline That PCA Occurred	Contribution to APEC at the Site
				infrastructure, storage tanks or other operations were identified.	PHC and VOC in groundwater samples collected along the northern property line were less than the applicable SCS.
PCA 9: Reported Spill (Motor Oil)	1620 Walkley Road	off-Site (north adjacent property)	#Other: Spill	Based on the reviewed ERIS report a historical spill of 150 L of motor oil was identified at the property located at 1620 Walkley Road. This PCA occurred in 1988. Given the proximity of the PCA to the Sites northern boundary, the spill of motor oil was identified as a PCA.	Yes, however, previously assessed by JWEL in 2008b and by EXP in 2016b. The results of the prior investigations indicated metals, PAH, PHC and VOC in groundwater samples collected along the northern property line were less than the appliable SCS.

2.5.3 Areas of Potential Environmental Concern

Ontario Regulation 153/04 defines an APEC as an area on a property where one or more contaminants are potentially present. The following APEC were identified on the Phase One property.

Table 2.4: Summary of Areas of Potential Environmental Concern

Area of Potential Environmental Concern (APEC)	Location of APEC on Site	PCA Identifier & (Potentially Contaminating Activity)	Location of PCA (on-site or off-site)	Contaminants of Potential Concern (CPOC)	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC 1: Former garage in the northeast corner of the Phase One Property. All impacted soils and overburden groundwater were removed during various remediation programs (Pit 1).	Northeast Corner	PCA 1 (PCA #27: Garages and Maintenance and Repairs of railcars, Marine Vehicles, and Aviation Vehicles)	On-site	PHCs, VOCs, PAHs, metals	Soil and groundwater

Area of Potential Environmental Concern (APEC)	Location of APEC on Site	PCA Identifier & (Potentially Contaminating Activity)	Location of PCA (on-site or off-site)	Contaminants of Potential Concern (CPOC)	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC 2: Former UST. All impacted soils and overburden groundwater were removed during various remediation programs (Pit 1).	Northeast Corner	PCA 2 (PCA #28: Gasoline and Associated Products Storage in Fixed Tanks)	On-site	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 3: Placement of surficial granular fill of unknown quality across the entire Site.	Across the Site	PCA 3 (PCA #30: Importation of Fill Material of Unknown Quality)	On-site	Metals, PAH, PHC	Soil
APEC 4: Salt Dome and Use on-site. Previous Phase Two ESAs by both **EXP** and others identified salt impacts in the shallow soil across much of the site.	Across the Site	PCA 4 (PCA #48: Salt Manufacturing, Processing and Bulk Storage	On-site	Soil (SAR and Electrical Conductivity), Groundwater (Na, Cl-)	Soil and groundwater
APEC 5: Former off-site dry cleaner.	Northwest corner of site	PCA 5 (#37: Operation of Dry Cleaning Equipment where chemicals are used)	Off-Site	VOC	Groundwater
APEC 6: Former off-site retail fuel outlet and UST.	North central portion of site	PCA 6 (#28: Gasoline and Associated Products Storage in Fixed Tanks)	Off-Site	BTEX, PHC	Groundwater
APEC 7: Former fuel dispenser and remediation contractor.	North central portion of site	PCA 7 (#28: Gasoline and Associated Products Storage in Fixed Tanks)	Off-Site	BTEX, PHC	Groundwater
APEC 8: Former automotive sales and services	Northeast portion of site	PCA 8 (#27: Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles)	Off-Site	PHC, PAH, metals, VOCs	Groundwater
APEC 9: Former reported motor oil spill	Northeast portion of site	PCA 9 (#Other: Spill)	Off-site	PHC, PAH	Groundwater

3 Scope of the Phase Two ESA

3.1 Overview of the Investigation

The objective of the Phase Two ESA was to assess the APECs identified in EXP's (2024) Phase One ESA Update; and, to obtain soil and groundwater data to characterize the Phase Two Property in support of the filing of an RSC on the MECP's Environmental Brownfield Site Registry.

The need to file an RSC is in support of the planned redevelopment of the Phase Two Property to the proposed parkland and residential land use. The Site investigation activities incorporated into this Phase Two ESA, were conducted between 2008 and 2023.

3.2 Scope of Work

The scope of work for the Phase Two ESA was as follows:

- Request local utility locating companies (e.g., cable, telephone, gas, hydro, water, sewer and storm water) to mark any underground utilities present at the Phase Two Property.
- Retain a private utility locating company to mark any underground utilities present in the vicinity of the borehole locations and to clear the individual borehole locations.
- In 2008, the following was completed by JWEL and Trow:
    - Advance a total of 39 test pits, up to a maximum depth of approximately 1.0 m bgs.
    - Collect 16 surface soil samples in between the testpits.
    - Advance 19 boreholes and complete as monitoring wells to a maximum depth of 6.9 m bgs (MW08-1 to MW08-19).
- In 2012, advance 11 boreholes/monitoring wells to a maximum depth of 6.1 m bgs (MW12-1 to MW12-11) and 29 delineation testpits to 1.5 metres.
- In 2014, advance 8 boreholes/monitoring wells to a maximum depth of 5.2 m bgs (MW14-1 to MW14-8).
- In 2015, advanced 12 boreholes, complete 9 as monitoring wells to a maximum depth of 18.3 m bgs (MW15-1 to MW15-12) including four bedrock monitoring wells.
- In 2019 and 2021, advance 17 testpits (TP21-01 to TP21-17) within the north-south trending soil berm and 24 testpits (TP21-18 to TP21-42) within the east-west trending berm.
- In 2022, advance 3 boreholes (BH22-1 to BH22-3) and 2 testpits (TP-30A and TP-30 B) to fill in sample gaps.
- In 2023, advance 4 additional testpits (TP23-01 to TP-23-04) within the east-west trending berm.
- Collect representative soil samples for laboratory chemical analysis, including grain size analysis.
- Develop the newly installed and existing groundwater monitoring wells prior to sampling.
- Collect groundwater samples from the installed monitoring wells and select previously existing monitoring wells for laboratory chemical analysis.

- Complete an elevation survey of all monitoring wells to determine the groundwater flow direction in the groundwater unit(s) identified beneath the Phase Two Property.
- Conduct slug testing on overburden groundwater monitoring wells to determine the hydraulic conductivity.
- Analyze the data and prepare a report of the findings, in accordance with O.Reg.153/04.

3.3 Media Investigated

The focus of this Phase Two ESA was on the environmental conditions of the overburden material and bedrock, and the groundwater beneath the Phase Two Property. As there was no surface water body on the Phase Two Property, no sediment or surface water sampling was required.

The rationale and adequacy of the investigation is presented in Appendix C.

3.4 Deviations from Sampling and Analysis Plan

The field investigative and sampling program was carried out following the requirements of the Site Sampling and Analysis Plan (SAAP), provided in Appendix C. No significant deviations from the Sampling and Analysis Plan were reported that would have affected the sampling and data quality objectives for the Phase Two Property.

3.5 Impediments

The entire Phase Two Property was accessible at the time of the investigation, and no physical impediments were encountered during the field investigation.

4 Investigation Method

4.1 General

The Site investigative activities consisted of the following:

- Test pit and surface sample advancement to facilitate the collection of soil samples for geologic characterization and/or chemical analysis.
- Borehole drilling to facilitate the collection of soil and bedrock samples for geologic characterization and/or chemical analysis; and,
- Monitoring well installation for hydrogeologic property characterization and the collection of groundwater samples for chemical analysis.

Test pits were advanced into the fill and overburden by licensed excavators, under the full-time supervision of EXP staff, as described in further detail below. Surface soil grab samples were collected by EXP staff utilizing a hand-auger advanced into the surficial material; or, using a licensed excavator under the full-time supervision of EXP staff, as described in further detail below.

Boreholes were advanced in the surficial fill, overburden soils, the fractured bedrock, and the competent bedrock by a licensed drilling company under the full-time supervision of EXP staff. The drilling equipment used to advance the boreholes is described below. No petroleum-based greases or solvents were used during drilling activities.

Monitoring wells were installed in select boreholes by a MECP licensed well contractor in accordance with Ontario Regulation 903/90, as amended (O.Reg.903) using manufactured well components (i.e., riser pipes and screens) and materials (i.e., sand pack and grout) from documented sources.

The approximate locations of the previously installed boreholes and monitoring wells are shown on Figure 5A, 5B, 7B, 8A and 8B, 9 and 11.

4.2 Underground Utilities

When in operation, utilities for the former works yard site were located approximately 40 m north of the Phase One Property. Considering that all services were removed during the soil excavation activities, these services are no longer considered conduits for contaminant migration.

Apart from a remnant storm sewer line located north of the site, there are no utilities on the Phase Two Property. The storm sewer is not considered a conduit for contaminant migration because groundwater monitoring has shown no evidence of groundwater flow modification.

4.3 Soil: Sampling

The soil sampling conducted during the completion of this Phase Two ESA was undertaken in accordance with the SAAP presented in Appendix C, to ensure that the APECs identified in the Phase One ESA were properly characterized, in accordance with O.Reg.153/04. A summary of the sampling rationale and details form current and previous investigations is also presented in Appendix C.

Typically, soil samples for geologic characterization and chemical analysis were collected on a discrete basis in the overburden materials using 5 cm diameter, 60 cm long, spilt spoon samplers or dedicated plastic liners advanced

into the subsurface using a truck- or track-mounted drill rig. The soil cores were extruded from the samplers upon retrieval by drilling personnel. Samples collected during testpit programs were retrieved directly from the excavator bucket. Geologic details of the recovered cores were logged by EXP field staff and samples were collected from selected cores for chemical analysis. The boreholes from EXP's current and previous investigations are also included in Appendix F.

Measures were taken in the field and during transport to preserve sample integrity prior to chemical analysis. Recommended volumes of soil samples selected for chemical analysis were collected from the recovered cores into pre-cleaned, laboratory-supplied glass sample jars/vials identified for the specified analytical test group. Samples intended for VOCs or PHC fractions F1 and F2 were collected using a laboratory-supplied soil core sampler, placed into the vials containing methanol for preservation purposes and sealed using Teflon lined septa lids.

All soil samples were placed in clean coolers containing ice prior to and during transportation to the subcontract laboratory, Paracel Laboratories Limited (Paracel) of Ottawa, Ontario.

The samples were transported/submitted following appropriate holding time requirements and Chain of Custody protocols for chemical analysis.

Decontamination and other protocols were followed during sample collection and handling to minimize the potential for sample cross-contamination. New disposable nitrile gloves were used for the handling and sampling of each retrieved soil core. The split-spoon samplers were decontaminated between sampling intervals by the drilling contractor using a water/phosphate-free detergent solution followed by rinses with de-ionized water. Wash and rinse waters were collected in sealed, labeled containers. Drill cuttings were placed in labeled, sealed drums upon completion of sampling. Boreholes that were not installed with monitoring wells were sealed with bentonite.

Soil samples submitted for specific chemical analysis were selected on the basis of visual inspection of the recovered cores, field screening measurements, sample location and/or depth interval.

Geologic details of the soil cores recovered from the boreholes advanced at the Phase Two Property are provided in boreholes logs presented in Appendix F.

Soil samples were also collected and submitted for grain size analysis (Appendix H).

Appropriate quality assurance/quality control (QA/QC) samples were collected during soil sampling, including field duplicate samples (Appendix C).

4.4 Soil: Field Screening Measurements

Where required for the characterization of volatile parameters, a portion of each soil core was placed in a sealed plastic bag and allowed to reach ambient temperature prior to field screening, using a RKI Eagle Gas Monitor calibrated with hexane gas. The measurements were made by inserting the instrument's probe into the plastic bag while manipulating the sample to ensure volatilization of the soil gases. These readings provide a real-time indication of the relative concentration of combustible vapours encountered in the subsurface during drilling, and are used to aid in the assessment of the vertical and horizontal extent of volatile parameter contamination and the selection of soil samples for analysis.

The field screening measurements, in parts per million (ppm) hexane equivalents, are presented on the borehole logs in Appendix F. It should be noted that field measurements are for screening purposes only and the presence/absence of contamination is determined by laboratory analysis.

Each sample was additionally examined for visual, textural and olfactory classification at the time of sampling.

4.5 Groundwater: Monitoring Well Installation

The purpose of the monitoring well installation program was to characterize the groundwater regimes within the various APECs. A summary of the sampling rationale and details form current and previous investigations is also presented in Appendix C.

The monitoring wells were installed in general accordance with the *Ontario Water Resources Act* - R.R.O. 1990, Regulation 903, as amended (O.Reg.903), and were installed by licensed well contractors. When the monitoring wells are no longer required, they must be decommissioned in accordance with the procedure outlined in the *Ontario Water Resources Act* - R.R.O. 1990, O.Reg.903.

The monitoring wells consisted of 1.52 m, or 3.05 m long, 50 mm diameter, PVC screen, and an appropriate length of PVC riser pipe. All pipe connections were factory machined threaded flush couplings. The annular space around the wells was backfilled with sand to an average height of 0.3 m above the top of the screen. A bentonite seal was added from the top of the sand pack to approximately 0.3 m below ground surface. The monitoring wells were completed with flush mount protective well casings at ground surface, or as stick-up pipes with protective stick-up steel casings.

EXP continuously monitored the well installation activities. Well installation details on the borehole logs provided in Appendix F.

Measures taken to minimize the potential for cross contamination or the introduction of contaminants during well construction included:

- The use of well pipe components (e.g., riser pipe and well screens) with factory machined threaded flush coupling joints;
- Construction of wells without the use of glues or adhesives;
- Removing the protective plastic wraps from well components until borehole insertion (to prevent contact with the ground and other surfaces);
- Cleaning of augers between sampling locations or the use of dedicated sampling liners (GeoProbe only); and,
- The use of hollow stem augers to prevent loose and potentially contaminated material in overlying layers from sloughing into the boreholes and coming into contact with groundwater.

4.6 Groundwater: Monitoring Well Development

Upon completion of monitoring well installation, the monitoring wells were developed to remove fine sediment particles from the sand pack and enhance hydraulic communication with the surrounding formation waters. The monitoring wells were developed using a dedicated sampling tubing or peristaltic pump and dedicated tubing to disturb the water column and recover groundwater containing dislodged sediment particles.

4.7 Groundwater: Purging and Field Measurement of Water Quality Parameters

At least 24 hours following the monitoring well development activities, the depth to groundwater at each monitoring well was measured utilizing an electronic water level meter. The water level measurements were recorded on log sheets or in a bound field book. The water level meter was decontaminated between monitoring well locations.

Prior to groundwater sampling, each monitoring well underwent water purging utilizing a low flow peristaltic pump obtained from Pine Environmental, until the purged water had chemically stabilized as indicated by field parameter measurements. The water quality was measured utilizing a YSI 550, Hydrolab® Quanta, or similar, multi probe water quality meter, obtained from Pine, that was connected to the low-flow peristaltic pump with dedicated tubing. Water quality readings were collected at regular intervals based on the flow rate established. Groundwater was considered to be chemically stable when the pH measurements of three (3) successive readings agreed to within ± 1 pH units, the specific conductance within ± 10%, and the temperature within ± 10%. The multi-meter electrodes were calibrated prior to receipt of the meter by Pine personnel using in-house reference standards.

All development and purge water were collected and stored on Phase Two Property in labeled, sealed containers, until properly managed or disposed off-Site.

Equipment used during groundwater monitoring were thoroughly cleaned and decontaminated between wells. Well purging details were recorded on log sheets or in a bound field book.

4.8 Groundwater: Sampling

The groundwater sampling programs were undertaken in accordance with the SAAP presented in Appendix C, to ensure that the APECs identified on the Phase Two Property were properly characterized, in accordance with O.Reg.153/04.

Upon completion of purging activities, groundwater samples were collected from monitoring wells. Recommended groundwater sample volumes were collected into pre-cleaned laboratory-supplied vials or bottles provided with analytical test group specific preservatives, as required. The samples were placed in an insulated cooler pre-chilled with ice immediately upon collection.

All groundwater samples were placed in clean coolers containing ice prior to and during transportation to the subcontract laboratory, Paracel. The samples were transported/submitted following appropriate holding time requirements following Chain of Custody protocols for chemical analysis.

Decontamination and other protocols were followed during sample collection and handling to minimize the potential for sample cross-contamination. New disposable nitrile gloves were used at each monitoring well location.

Groundwater samples submitted for specific chemical analysis were selected on the basis of sample location and/or depth interval. Appropriate QA/QC samples were collected during groundwater sampling, including field duplicate samples and trip blanks, where required.

4.9 Sediment: Sampling

As no surface water body was present at the Phase Two Property, sediment sampling was not part of the scope of work for the Phase Two ESA.

4.10 Analytical Testing

The contractual laboratories selected to perform the chemical analyses was Paracel, in Ottawa, Ontario. Paracel is accredited laboratories under the Standards Council of Canada/Canadian Association of Environmental Analytical Laboratories (Accredited Laboratory No. 97 and No. A3200, respectively) in accordance with ISO/IEC 17025:2005 – “General Requirements for the Competence of Testing and Calibration Laboratories”.

4.11 Residue Management Procedures

The residue materials produced during the Phase Two Property Phase Two ESA investigative activities comprised soil cuttings from drilling activities; decontamination fluids from equipment cleaning; and waters from well development and purging. All soil cuttings were labeled and drummed on-site.

4.12 Elevation Surveying

Elevation surveys were conducted during the various stages of the Site Phase Two ESA investigative activities. The top of pipe and ground surface elevations of each monitoring well was surveyed relative to a geodetic benchmark. The geodetic benchmark was initially a jersey barrier along the eastern property boundary. This jersey barrier no longer exists; however subsequent wells were surveyed relative to existing wells. The elevation surveys were completed using a self-leveling laser system.

4.13 Quality Assurance and Quality Control Measures

Quality Control/Quality Assurance measures, as set out in the Sampling and Analysis Plan, were implemented during sample collection, storage and transport, to provide accurate data representative of conditions in the overburden soils, bedrock material, and the water table. The QA/QC measures included decontamination procedures to minimize the potential for sample cross contamination; the execution of standard operating procedures to collect representative and unbiased samples; the collection of quality control samples to evaluate sample precision and accuracy; and, the implementation of measures to preserve sample integrity.

Decontamination protocols were followed during sample collection and handling to minimize the potential for cross-contamination. During the collection of soil and weathered bedrock samples, split-spoon samplers were scraped and decontaminated between sampling intervals by washing with a potable water/detergent solution followed by a rinse with potable water. New disposable nitrile gloves were used for the handling and collection of samples from each soil core and for sample collection from each borehole.

Soil samples selected for chemical analyses were collected from the retrieved soil cores and placed directly into pre-cleaned, laboratory-supplied glass jars or vials. Sample volumes were consistent with analytical test group requirements as specified by the receiving laboratory.

Groundwater samples were collected into pre-clean laboratory-supplied vials or bottles provided with analytical test group specific preservatives, as required. Recommended analytical test group specific sample volumes were collected as specified by the contractual laboratory.

Measures were followed to preserve sample integrity between collection and receipt by the contractual laboratory. All soil and groundwater samples were immediately placed in insulated coolers pre-chilled with ice for storage and transport to the contractual laboratory. Samples were received by the contractual laboratory within specific analytical test group holding time requirements.

Documentation procedures were followed to confirm sample identification and tracked sample movement. Each sample was assigned a unique identification ID number, which was recorded along with the date, time of sampling and requested analyses on labels affixed to the sampling containers, and in a bound field notebook. Chain of Custody protocols were followed to track sample handling and movement until receipt by the contractual laboratory.

Field QA/QC samples were collected during the soil and groundwater sampling. Duplicate samples were collected to evaluate sampling precision; trip blanks were included to evaluate the potential for sample cross-contamination

during handling and transport; and, trip spikes were included to assess the effects of the sampling process on the analytes, including holding time and storage temperature.

5 Review and Evaluation

5.1 Geology

5.1.1 Site Stratigraphy

The site stratigraphy has been characterized by the advancement of various boreholes and test pits into the overburden material and the underlying bedrock material, up to a maximum depth of approximately 18.3 m below grade.

The general stratigraphy at the Site, as observed in the boreholes and test pits, consists of a surficial sand and gravel fill and re-worked native material which overlies the native overburden consisting of silty clay and clay, over a gravelly silty till layer. Weathered limestone bedrock can be found beneath the native soils. The interpreted Site geology is shown on Figures 15A-15D and Figures 25A and 25B and Table 5.1.

Table 5.1: Site Stratigraphy

Stratigraphy	Details	Approximate Depth (m bgs)	Approximate Elevation (m RSD)
Surface	Asphalt	0 - 0.12	98.8 – 98.7
	Topsoil	0 – 0.19	98.8 – 98.6
	Reworked native/fill (sand and gravel, granular sub-base)	0 - 0.8	98.7 – 97.9
Native Overburden	Silty clay	0.7 – 3.3	98.0 – 94.7
	Clay	1.4 – 3.1	98.0 – 94.3
	Gravelly silty till	3.0 – 5.5	95.9 – 93.4
Bedrock	Limestone	> 5.2	< 92.7

m bgs - metres below ground surface
m GEO – metres relative to geodetic

5.1.2 Soil Texture

Based on the subsurface investigations completed at the Site, the site stratigraphy is generally described as consisting of a surficial sand and gravel fill and re-worked native material which overlies the native soil overburden consisting of native silty clay and clay, becoming sandier with depth over a gravelly silty clay till layer. Weathered shale bedrock can be found beneath the native soils. It should be noted that the stratigraphy and depth to bedrock at the site was only derived based on the boreholes/monitoring wells installed by EXP.

Two (2) historical grain size samples were collected from the Site by EXP in August of 2015, in support of the Phase Two ESA investigative activities. Sample BH/MW15-9 SS1 and BH/MW15-5 SS4 were collected from the footprints of remedial excavation Pit No. 4 and Pit No. 2, respectively.

A total of six (6) soil samples analyzed for grain size were collected from the Site during the field work conducted in May 2022. Based on the 75-micron sieve of representative soil, the soil texture of the analyzed samples was determined to be predominantly medium and fine textured (refer to the 75-micron sieve analysis in the Certificates

of Analysis – Appendix G USB). More than 50% by mass of five (5) of the eight (8) total samples analyzed for soil texture, consisted of particle sizes less than 75 µm in diameter. Based on the observations recorded in the borehole logs and the cumulative grain size results for the Site, the soil texture at the Site was determined to be predominately medium and fine textured.

Based on the observations made during previous drilling investigations and the results of the grain size analysis, as per Section 42 of O. Reg. 153/04, the QP_{ESA} has determined that more than 1/3 of the soil at the property, measured by volume, consists of medium and fine textured soil and hence standards for medium and fine textured soil at the property are applicable.

As per Section 42 of O. Reg. 153/04, coarse textured soil means soil that contains more than 50 percent by mass of particles that are 75 µm or larger in mean diameter and medium and fine textured soil means soil that contains 50 percent or more by mass of particles that are smaller than 75 µm in mean diameter.

Please refer to Table Q-1, below for a summary of grain size sample location, depth and sample description. Please refer to Figure 5B of Appendix H for a graphical depiction of the borehole locations sampled for grain size analysis at the Site.

Table 5.2: Grain Size Analyses

Sample ID	Sampling Interval	Sampling Interval (m bgs)	Soil Description	Classification
BH/MW15-9	SS1	0.0 - 0.76	Silty Clay, trace sand	Fine Grained
BH/MW15-5	SS4	2.29 - 2.9	Silty Clay, trace sand	Coarse Grained
BH22-1	G2	0.9 – 1.1	Sandy Silt & Clay	Fine Grained
BH22-1	G3	1.2 – 1.4	Silt & Clay	Fine Grained
BH22-2B	G1	0.5 - 0.9	Silty Sand	Coarse Grained
BH22-3	G2	0.7 – 0.9	Silty Sand	Coarse Grained
BH22-3	G3	1.0 – 1.4	Silt & Clay	Fine Grained
BH22-3	G4	2.0 – 2.5	Silt & Clay	Fine Grained

SS – Split Spoon
G – Grab Sample

5.2 Hydrogeology

The Site hydrogeological characteristics are summarized in Table 5 and groundwater flow directions and groundwater table elevations are depicted in Figures 8A and 8B, for the overburden and bedrock groundwater units, respectively. Groundwater elevations presented in Figures 8A and 8B were collected in July 2022, at the time of the most recent comprehensive groundwater elevation assessment.

Depths to groundwater have been measured at the Site between 2008 and 2022. Groundwater measurements collected from prior to the remedial activities in 2015 have not been relied upon. As such only groundwater depth measurements collected after 2015 are considered representative of current Site conditions. Groundwater levels collected at the time of the 2022 groundwater sampling event were considered unsuitable for Site characterization due to time elapsed since well development and the time to the prior groundwater monitoring events.

Table 5.3: Site Hydrogeological Characteristics

Descriptor	Overburden Groundwater (2015 – 2022)	Bedrock Groundwater (2015 – 2022)
Depth to Groundwater	1.54 to 2.82 (m bgs)	1.59 to 11.79 (m bgs)
Groundwater Elevation	84.44 to 85.91 m RSD	75.76 to 86.05 m RSD
Direction of Groundwater Flow	southeast	south
Hydraulic Conductivity	5.8×10^{-8} – 3.1×10^{-5} m/s	Not Determined
Average Hydraulic Conductivity	1.6×10^{-5} m/s	Not Determined
Horizontal Hydraulic Gradient	0.006 – 0.012 m/m	0.003 – 0.008 m/m
Average Horizontal Hydraulic Gradient	0.009 m/m	0.005 m/m
Vertical Hydraulic Gradient	-0.003 m/m (upward) in northwest and southeast part of site, and 0.061 m/m (downward) in central part of site	

5.2.1 Elevations and Flow Direction

Groundwater levels were measured in the wells in June 2022. The groundwater levels and relative elevations are summarized in Appendix I, and presented in the borehole logs provided in Appendix F.

Groundwater flow directions was estimated to be east to southeast in the overburden and east in the bedrock (Figure 8A and 8B).

5.2.2 Hydraulic Conductivity

Estimates of the saturated hydraulic conductivity in the water table unit were obtained from the analysis of single well response tests (SWRT) conducted at select monitoring wells screened in native overburden within the Phase One ESA Study Area in 2013 and 2015. Using Hvorslev's equation, the estimated hydraulic conductivity value was calculated. The hydraulic conductivity was measured to be 5.8×10^{-5} m/s (BH15-4) and 5.8 x10-8 m/sec (MW08-19 previously located 30 m north of the Phase Two Property). An attempt was made to conduct an SWRT within a deep bedrock well, however, this well failed to recover in a reasonable time.

5.2.3 Hydraulic Gradients

Horizontal hydraulic gradients were estimated for the groundwater flow component identified in the overburden and bedrock water table regimes. The overburden hydraulic gradients were established based on the groundwater elevations obtained in 2015. The bedrock hydraulic gradients were established based on the groundwater elevations obtained in 2015.

The horizontal hydraulic gradient, between each monitoring well pair, is calculated using the following equation:

$$i_h = \Delta h/\Delta s$$

Where,

i_h = horizontal hydraulic gradient;

Δh (m) = groundwater elevation difference; and,

Δs (m) = separation distance.

The hydraulic gradients in the overburden groundwater regime ranged from approximately 0.010 m/m (between MW15-9 and MW15-11) to 0.012 m/m (between MW15-4 and MW15-6), and 0.006 m/m (between MW15-1 and MW15-6), with the geometric mean value of 0.009 m/m.

The hydraulic gradients in the bedrock groundwater regime ranged from approximately 0.008 m/m (between MW15-12 and MW15-5) to 0.003 m/m (between MW15-5 and MW15-7), with the geometric mean value of 0.005 m/m.

The vertical hydraulic gradient, between a monitoring well pair, is calculated using the following equation:

$$i_v = (h_2-h_1)/(z_2-z_1)$$

Where,

i_v = vertical hydraulic gradient;

h_p = elevation difference between groundwater and bottom of well;

z = elevation difference between bottom of well and bottom of groundwater regime; and,

h = sum of h_p and z.

The vertical gradient between the overburden and bedrock groundwater regimes was variable with 0.61 m/m (between MW15-4 and MW15-5) downwards in the centre of the Phase Two Property, but -0.003 m/m (between MW15-6 and MW15-7) and -0.002 (between MW15-11 and MW15-12) upwards in the southeast and northwest portions of the Phase Two Property respectively.

5.3 Soil Quality

In accordance with the scope of work, chemical analyses were performed on selected soil samples recovered from the boreholes. The selection of representative “worst case” soil samples was based on field screening, visual and/or olfactory evidence of impacts, and the presence of potential water bearing zones. Sampling rationale is presented in Appendix C.

A summary of the analytical results for the soil samples, including the locations and depths of each sample, a comparison of parameter concentrations against applicable SCS, and the identification of the potential contaminants of concern, are provided in Appendix E. Copies of the laboratory Certificates of Analysis for the analyzed soil samples are provided in Appendix G.

5.3.1 Soil Field Screening

Soil samples selected for VOCs and/or PHCs analysis were determined based on the vapour readings collected during subsurface drilling, using the Eagle GasTech to measure vapour concentrations, in ppm hexane equivalent. None of

the current soil samples were considered to have elevated vapour readings. The vapour readings, in ppm, are provided on the borehole logs in Appendix F.

All other soil samples were submitted for chemical analyses based on field observations, location and depth.

5.3.2 Analysis of Petroleum Hydrocarbons

Numerous soil samples have been analyzed as part of the previous and current Phase Two ESAs. A summary of the analytical results along with the Table 3 SCS are presented in Table E.1a (pre-excavation), E.1b (post-excavation) and E.1c (berm)(Appendix E). The laboratory Certificates of Analysis are presented in Appendix G.

Based on the analytical results obtained, the concentrations of petroleum hydrocarbons (PHC), benzene, toluene, ethylbenzene and xylenes (BTEX) collected from below grade and within the remedial excavation were less than the Table 3 SCS (E1.c and E.2b).

Based on the analytical results obtained, the concentrations of petroleum hydrocarbons (PHC), benzene, toluene, ethylbenzene and xylenes (BTEX) collected from the soil berm were less than the Table 3 SCS (Table EF.1c).

5.3.3 Analysis of Volatile Organic Compounds

Numerous soil samples have been analyzed as part of the previous and current Phase Two ESAs. A summary of the analytical results along with the Table 3 SCS are presented in Table E.2a (pre-excavation) and E.2b (post-excavation) (Appendix E). The laboratory Certificates of Analysis are presented in Appendix G.

Based on the analytical results obtained, the concentrations of VOC collected from below grade and within the remedial excavation were less than the Table 3 SCS (Table E1.b).

5.3.4 Analysis of Polycyclic Aromatic Hydrocarbons

Numerous soil samples have been analyzed as part of the previous and current Phase Two ESAs. A summary of the analytical results along with the Table 3 SCS are presented in Table E.3a (pre-excavation), E.3b (post-excavation) and E.3c (berm) (Appendix E). The laboratory Certificates of Analysis are presented in Appendix G.

Based on the analytical results obtained, the concentrations of PAH collected from below grade and within the remedial excavation were less than the Table 3 SCS (E3.b).

Based on the analytical results obtained, the concentrations of PAH collected from the soil berm were less than the Table 3 SCS (Table E3.c).

5.3.5 Analysis of Polychlorinated Biphenyls

Numerous soil samples have been analyzed as part of the previous Phase Two ESAs. A summary of the analytical results along with the Table 3 SCS are presented in Table E.4 (pre-excavation) (Appendix E). The laboratory Certificates of Analysis are presented in Appendix G.

Based on the analytical results obtained, the concentrations of PCBs collected from below grade were less than the Table 3 SCS (Table E.4).

5.3.6 Analysis of Metals and Inorganics

Numerous soil samples have been analyzed as part of the previous and current Phase II ESAs. A summary of the analytical results along with the Table 3 SCS are presented in Table E.5a (pre-excavation), E.5b (post-excavation) and E.5c (berm) (Appendix E). The laboratory Certificates of Analysis are presented in Appendix G.

Based on the analytical results obtained, the concentrations of metals and inorganics collected from below grade and within the remedial excavation were less than the Table 3 SCS (Table E.5b).

Based on the analytical results obtained, the concentrations of metals and inorganics collected from the soil berm were less than the Table 3 SCS (Table E.5c).

5.3.7 Analysis of Salt Related Parameters

Numerous soil samples have been analyzed as part of the previous and current Phase II ESAs. A summary of the analytical results along with the Table 3 SCS are presented in Table E.6a (pre and post excavation), E.6b (berm) (Appendix E). The laboratory Certificates of Analysis are presented in Appendix G.

Elevated SAR and EC were identified as exceeding the current MECP Table 3 SCS across the majority of the Site to the depth of bedrock. The impacts are believed to be related to the handling and storage of road salt on the Phase One Property as part of the historical Site operations while is use as a City of Ottawa Public Storage yard. EC and SAR impacts in soil at the Site extend to the Site boundaries and the horizontal delineation of salt related impacts was not feasible to achieve given that impacts were identified up to the property boundary in all directions.

In 2015, soil samples were submitted for SAR and EC analysis from boreholes MW/BH15-8, MW/BH15-10, and MW/BH15-11. Samples were collected from depths of 4.6 to 6.1 m below grade, just above the bedrock, to vertically delineate the salt impacts. EC and/or SAR exceedances of the Table 3 SCS were noted at BH15-10 and BH15-11, no exceedances were noted in the sample collected from BH15-8. The vertical delineation of EC and SAR in Site soil was not feasible or practical to achieve at the Site, as EC and SAR exceedances are assumed to extend to bedrock across the majority of the Site.

This indicates that for most of the soils at the site, the SAR and EC impact extend to the bedrock interface, except for the southern portion of the site, near MW/BH15-8. Based on these results, the SAR and EC has been vertically and laterally delineated as much as practicable at the Site. Please refer to Figure 15 for a plan view figure of the EC and SAR impacts and refer to Figures 15A through 15D for cross-sectional figures demonstrating the EC and SAR impacts identified in soil at the Site.

The intention is to address the salt related soil impacts through a Risk Assessment.

Table 5.4: Contaminants of Concern in Soil

Parameter Analyzed in Soil	Maximum Concentration	Site Condition Standard[1]	Maximum Concentration Above Applicable Standard?
Salts			
EC	12.7 mS/cm (TP08-42)	0.7 mS/cm	Yes
SAR	184 (TP1C)	5 (unitless)	Yes

[1] MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, *Table 3 - Non-Potable Groundwater (Fine Grained Soil) Community Land Use*

5.3.8 Chemical Transformation and Soil Contaminant Sources

Since the Phase Two Property is currently vacant and has been decommissioned and remediated, apart from the residual impacts from salt storage, there are no additional soil contaminant sources. Consequently, chemical transformation is not considered an issue.

5.4 Groundwater Quality

In accordance with the scope of work, chemical analyses were performed on groundwater samples recovered from select monitoring wells. A summary of the analytical results for the groundwater samples, including the locations of each sample, well screen interval depth, a comparison of parameter concentrations against applicable SCS, and the identification of the contaminants of concern are provided in Appendix E.

Certificates of Analysis for the recent analyzed groundwater samples are provided in Appendix G.

5.4.1 Analysis of Petroleum Hydrocarbons and BTEX/VOC

A summary of the PHC analytical results along with the Table 3 SCS are presented in Table E.7a (pre-excavation) and F.7b (post excavation) for PHC and Table E.8a (pre-excavation) and F.8b (post excavation) for VOC (Appendix E). The laboratory Certificates of Analysis are presented in Appendix G.

Based on the analytical results obtained, the post excavation concentrations of PHC, BTEX and VOC in groundwater were less than the Table 3 SCS (Table E.7b and Table E.8b).

One (1) volatile parameter was identified to exceed the Table 7 SCS in groundwater at the Site, cis-1,2-dichloroethylene. Cis-1,2-dichloroethylene was only identified to exceed the Table 7 SCS at one (1) monitoring well location, MW14-7, during the post-remedial sampling events. MW14-7 is screened within the native silty clay till soil at a depth of 1.3 – 4.3 m bgs and is located in the northeastern portion of the Site. It is noted that vinyl chloride was not identified at a measured concentration at this monitoring well or any others, indicating anerobic degradation is not occurring at an appreciable rate. Concentrations of cis-1,2-DCE at MW14-7 appear to be decreasing since the post-remedial Site maximum identified in 2019.

The identified Table 7 exceedance of cis-1,2-dichloroethylene is likely associated with remnant impacts from the former garage located within the northeastern corner of the Site (APEC 1). It is noted that all post remediation groundwater sampling events met the Table 3 SCS for all VOCs analyzed.

The intention is to address cis-1,2-DCE Table 7 impact through a Risk Assessment.

5.4.2 Analysis of Polycyclic Aromatic Hydrocarbons

Numerous groundwater samples have been analyzed as part of the previous and current Phase Two ESAs. A summary of the analytical results along with the Table 3 SCS are presented in Table E.9a and E.2b (Appendix E). The laboratory Certificates of Analysis are presented in Appendix G.

Based on the analytical results obtained, post-remediation groundwater sampling for PAH meets the Table 3 SCS .

5.4.3 Analysis of Polychlorinated Biphenyls

Numerous soil samples have been analyzed as part of the previous Phase Two ESAs. A summary of the PCB analytical results along with the Table 3 SCS are presented in Table E.10 (pre-excavation) (Appendix E). The laboratory Certificates of Analysis are presented in Appendix G.

Based on the analytical results obtained, the concentrations of PCBs collected from below grade were less than the Table 3 SCS (Table E.10).

5.4.4 Analysis of Select Metals

A summary of the select metals and inorganics analytical results along with the Table 3 SCS are presented in Table E.11a (pre-excavation) and E.11b (post-excavation) (Appendix E). The laboratory Certificates of Analysis are presented in Appendix G.

Based on the analytical results obtained, the concentrations of metals in groundwater were less than the Table 3 SCS (Table E.11a and E.11 b).

Nitrite was analyzed in one (1) groundwater sample collected from MW08-9 in October 2009. The concentration of Nitrite was below the laboratory RDL. It is noted that the MECP does not currently endorse a SCS for nitrite concentrations in groundwater. Given that nitrite was not detected above the laboratory RDL, and no SCS is provided by the MECP, nitrite has not been retained as a COC for further assessment.

5.4.5 Analysis of Salt Related Parameters

A summary of the salt related groundwater analytical results (i.e., sodium and chloride) along with the Table 3 SCS are presented in Table E.12a (pre-excavation) and E.12b (post-excavation) (Appendix E). The laboratory Certificates of Analysis are presented in Appendix G.

As stated above, salt impacts (i.e., EC and SAR) were identified in most the overburden soils across the site exceeding the Table 3 SCS, extending all the way to bedrock across the majority of the Site. The salt impacts in both the overburden and bedrock groundwater (i.e., sodium and/or chloride) across the site required assessment for horizontal and vertical delineation. The primary source of the salt was suspected to be in the northwest corner (i.e., location of former Quonset hut) of the Site, which is also considered to be upgradient in terms of groundwater flow.

In January and February 2021, the time of most recent groundwater sampling for salt related parameters, MW15-1 (overburden), MW15-2 (bedrock), MW15-4 (overburden), MW15-5 (bedrock), MW15-6 (overburden), MW15-7 (bedrock), MW15-11 (overburden), and MW15-12 (bedrock) were sampled for sodium and chloride. All groundwater samples collected in 2021 exceeded for sodium and/or chloride in groundwater, with the exception of samples collected at MW15-12 (bedrock) and MW15-1 (overburden) exceeded the applicable Table 3 SCS. As multiple rounds of groundwater sampling have occurred at the Site for sodium and chloride across the prior environmental investigations, the most recent rounds of sampling (i.e., 2019 and 2021) are considered most representative of the current groundwater conditions at the Site in relation to the salt impacts. Based on review of all recent groundwater analytical data analyzed for sodium and chloride collected between 2019 and 2021, the highest concentrations of sodium and chloride were identified to be within the southeast portion of the Site at MW15-6.

Concentrations of sodium and chloride appear to be decreasing as a function of time since Site decommissioning and source removal and impacts in groundwater appear to be migrating with distance from the anticipated source of salt related impacts.

Based on the above, salt impacts exist in both the overburden and bedrock horizons across the majority of the site extending from the source (northwest corner), and continuing downgradient to the southeast corner of the site. For the horizontal delineation, refer to Figure 25. For the vertical delineation, refer to Figures 25A and 25B.

Table 5.5: Contaminants of Concern in Groundwater

Parameter Analyzed in Groundwater	Maximum Concentration	Site Condition Standard1	Maximum Concentration Above Applicable Standard?
Salts[1]			
Na+	5,120 mg/L (MW15-6)	2,300 mg/L	Yes
Cl-	7,830 mg/L (MW15-6)	2,300 mg/L	Yes
VOC[2]			
Cis-1,2-DCE	6.9 (MW14-7)	1.6	Yes

[1] MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, *Table 3 - Non-Potable Groundwater (Fine Grained Soil) Community Land Use*
[2] *MECP Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 2011, Table 7 – Shallow Soil Condition and Non-Potable Groundwater (Fine Grained Soil) Residential Land Use*

It is acknowledged that the requirements of O. Reg. 153/04 stipulate that for each Contaminant of Concern, the contaminant must be "delineated laterally and vertically…in soil, ground water or sediment, on, in or under the phase two property". However, it is the QP's opinion that there is no practical reason or justification for drilling and installation of additional wells on-Site to achieve lateral and vertical delineation to the generic SCS for groundwater Na and Cl. Notwithstanding the risk associated with this additional drilling, information obtained will contribute negligibly to the RA or the development of appropriate Risk Management Measures.

It is QP's opinion that additional vertical delineation will not lead to an improved the understanding of the distribution of Na and Cl in groundwater.

5.4.6 Evidence of Non-Aqueous Phase Liquid (NAPL)

Inspection of the purged groundwater retrieved from the monitoring wells did not indicate the presence of NAPL, staining, sheen, or odour.

5.4.7 Chemical Transformation and Contaminant Sources

The salt impacts in the shallow soils continue to contribute to salt related impacts in the groundwater. Since salt use and storage no longer exists at the Phase Two Property, these impacts should decrease with time.

5.5 Parameters in Soil and Groundwater Without Site Condition Standards

Six (6) parameters, sulphate, chloroethane, chloromethane, methyl butyl chloride, 1,3,5-trimethylbenzene, and, benzo(b+k)fluoranthene, were analyzed in soil and/or groundwater samples for which there is no applicable MECP SCS available for assessment purposes. As such, due to the lack of applicable MECP SCS, each parameter is evaluated separately below for consideration as a COC in soil or groundwater to be retained for further evaluation within the RA.

Sulphate in Soil (Pre-Remediation):

As part of the of the pre-remedial sampling conducted at the Site, select soil samples were analyzed for sulphate. It is acknowledged that sulphate is not a regulated parameter under O.Reg. 153/04 and no applicable SCS is provided by the MECP for this parameter. However, sulphate has not been retained for further evaluation as the analytical results of this parameter were only collected in 2008 from pre-remedial soil samples. Further, sulphate was only analyzed in support of a prior geotechnical report and analytical results were not intended for use within the ESA or RA. In general, the inclusion of sulphate as a COC would have no material effect on the conclusions of the RA given the substances low toxicity and natural occurrence in soils at the Site. Health Canada recommends an aesthetic objective for sulphate compounds in drinking water of 500 mg/L (or 500,000 µg/L) (Health Canada, 1994). No soil quality guidelines for sulphate in Canadian soils were identified upon review of the applicable literature.

1,3,5-Trimethylbenzene:

1,3,5-Trimethylbenzene was analyzed in soil samples collected in Pit 1 (i.e., north wall, south wall, east wall, west wall and floor) as well as from MW12-5, MW12-8, MW12-10 and MW12-11 in soil samples taken post-remediation. It was not analyzed in any soil samples taken pre-remediation. However, all soil samples that were characterized for 1,3,5-trimethylbenzene were below detection limit (i.e., <0.05 µg/g) except for the sample taken from FS1 (i.e., Pit 1 floor sample) at a depth of 3.5 m bgs which was slightly above detection limit (i.e., 0.12 µg/g). Additionally, groundwater samples taken both pre- and post-remediation showed 1,3,5-trimethylbenzene to be below the detection limit. Therefore, for the current assessment, 1,3,5-Trimethylbenzene is not considered to be a COC. Although a concentration above detection limit was noted, samples taken in the vicinity of FS1 were below detection indicating that 1,3,5-trimethylbenzene has been sufficiently characterized at the Site. Additionally, as previously noted, no MECP SCS is provided for 1,3,5-trimethylbenzene for comparison purposes, however given the similarities in physiochemical properties to benzene, concentrations of 1,3,5-trimethylbenzene were also compared to the Table 3 SCS for benzene of 0.17 µg/g. Given that 1,3,5-trimethylbenzene was below the Table 3 SCS for benzene and was not detected at any other sampling locations in soil or groundwater, this parameter is not retained as a COC for further investigation in the RA.

Chloroethane:

Chloroethane was analyzed in soil and/or groundwater samples collected from both pre- and post remedial activities. Chloroethane has not been detected above the laboratory RDL in any soil or groundwater samples collected from the Site. Although the MECP does not provide soil or groundwater SCS for this parameter, upon review of the British Columbia Contaminated Sites Regulation (B.C. Reg. 375/96) a soil quality and drinking water quality standard for this parameter were identified of 30 µg/g and 46 µg/L, respectively. Given that chloroethane was not detected at a measured concentration in any soil or groundwater samples collected from the Site and that the RDL of this parameter is well below the identified soil and groundwater quality standards from other jurisdictions, chloroethane is not retained as a COC for further investigation in the RA.

Chloromethane:

Chloromethane was analyzed in soil and/or groundwater samples collected from both pre- and post remedial activities. Chloromethane has not been detected above the laboratory RDL in any soil or groundwater sample collected from the Site. Although the MECP does not provide soil or groundwater SCS for this parameter, upon review of the British Columbia Contaminated Sites Regulation (B.C. Reg. 375/96) a soil quality and drinking water quality standard for this parameter were identified of 26 µg/g and 52 µg/L, respectively. Given that chloromethane was not detected at a measured concentration in any soil or groundwater samples collected from the Site and that

the RDL of this parameter is well below the identified soil and groundwater quality standards from other jurisdictions, chloromethane is not retained as a COC for further investigation in the RA.

Methyl Butyl Ketone (2-Hexanone):

Methyl butyl ketone was analyzed in post remediation soil samples and groundwater samples collected from both pre- and post remedial activities. Methyl butyl ketone has not been detected above the laboratory RDL in any soil or groundwater sample collected from the Site. No applicable soil or groundwater quality standards from other jurisdictions were identified upon review. However, given that methyl butyl ketone has similarities in physiochemical properties to methyl ethyl ketone, concentrations of methyl butyl ketone were also compared to the Table 3 soil and Table 7 groundwater SCS for methyl ethyl ketone of 44 µg/g and 26 µg/L, respectively. Given that methyl butyl ketone was below the Table 3 soil and Table 7 groundwater SCS for methyl ethyl ketone and was not detected at any sampling locations in soil or groundwater, this parameter is not retained as a COC for further investigation in the RA.

Benzo(b+k)fluoranthene:

Benzo(b+k)fluoranthene was provided as an analyzed parameter for both soil and groundwater samples collected from the Site upon receipt of the certificates of analysis from the contractual laboratory. However, benzo(b+K)fluoranthene is not a regulated parameter under O.Reg. 153/04, and is assessed through the individual standards provided for benzo(b)fluoranthene and benzo(k)fluoranthene. As such, benzo (b+k) fluoranthene is not identified as a COC as both benzo(k)fluoranthene and benzo(b)fluoranthene were below the applicable SCS.

5.6 Sediment Quality

As no surface water body was present at the Phase Two Property, sediment sampling was not part of the scope of work for the Phase Two ESA.

5.7 Quality Assurance and Quality Control Results

Quality assurance and quality control measures were taken during the field activities to meet the objectives of the sampling and quality assurance plan to collect unbiased and representative samples to characterize existing conditions in the overburden and bedrock materials, and water table units at the Phase Two Property.

Review of field activity documentation indicated that recommended sample volumes were collected from soil and groundwater for each analytical test group into appropriate containers and preserved with proper chemical reagents in accordance with the protocols set out in the "Protocol for Analytical Methods used in the Assessment of Properties under Part XV.1 of the *Environmental Protection Act*" (MOE, 2004). Samples were preserved at the required temperatures in pre-chilled insulated coolers and met applicable holding time requirements, when relinquished to the receiving laboratory.

Field QA/QC samples were collected during soil and groundwater sampling. Duplicate samples were collected to evaluate sampling precision; and, trip blanks were included to evaluate the potential for sample cross-contamination during handling and transport. Refer to Tables 3 and 5 for a summary of the QA/QC samples collected and submitted for chemical analysis.

The field duplicate sample results were quantitatively evaluated by calculating the relative percent difference (RPD). The RPD for soil (inorganics) was an average of 4%. The RPD for sodium chloride in groundwater was 2.5%. The remaining parameters in groundwater (i.e., VOC, PHC, and PAH) were all less than laboratory detection limits and it was not possible to calculate an RPD. The overall assessment indicates that the soil and groundwater samples were

collected with an acceptable level of precision, and the data is acceptable quality for meeting the objectives of the Phase Two ESA.

The results of the trip blanks indicated that the chemical parameters were all non-detect, which shows that the groundwater samples were not cross contaminated during handling and transport.

The contractual laboratories selected to perform the chemical analyses was Paracel Laboratories (Paracel), of Ottawa, Ontario. Paracel is accredited laboratories under the Standards Council of Canada/Canadian Association of Environmental Analytical Laboratories (Accredited Laboratory No. 97 and No. A3200, respectively) in accordance with ISO/IEC 17025:2005 – "General Requirements for the Competence of Testing and Calibration Laboratories".

Certificates of Analysis were received Paracel reporting the results of all the chemical analyses performed on the submitted soil, and groundwater samples. Copies of the Certificates of Analysis are provided in Appendix G. Review of the Certificates of Analysis, prepared by Paracel, indicates that they were in compliance with the requirements set out under subsection 47(3) of O.Reg.153/04.

The analytical program conducted by Paracel included analytical test group specific QA/QC measures to evaluate the accuracy and precision of the analytical results and the efficiency of analyte recovery during solute extraction procedures. The laboratory QA/QC program consisted of the preparation and analysis of laboratory duplicate samples to assess precision and sample homogeneity, method blanks to assess analytical bias, spiked blanks and QC standards to evaluate analyte recovery, matrix spikes to evaluate matrix interferences and surrogate compound recoveries (VOCs only) to evaluate extraction efficiency. The laboratory QA/QC results are presented in the Quality Assurance Report provided in the Certificate of Analysis prepared by Paracel. The QA/QC results are reported as percent recoveries for matrix spikes, spike blanks and QC standards, relative percent difference for laboratory duplicates and analyte concentrations for method blanks.

The QA/QC results were assessed against test group control limits in the case of spiked blanks, matrix spikes and surrogate recoveries and alert criteria in the case of method blanks and laboratory duplicates. Review of the laboratory QA/QC results reported by Paracel indicated that they were within acceptable control limits or below applicable alert criteria for the sampled media and analytical test groups.

Based on the assessment of the QA/QC, the analytical results reported are of acceptable quality and data qualifications are not required.

6 Phase Two Conceptual Model

6.1 Introduction

This section presents the Phase Two Conceptual Site Model (P2CSM) providing a narrative, graphical and tabulated description integrating information related to the Site geologic and hydrogeological conditions, areas of potential environmental concern/potential contaminating activities, the presence and distribution of potential contaminants of concern, contaminant fate and transport, and potential exposure pathways. The P2CSM was completed in accordance with Ontario Regulation 153/04, as amended (O.Reg.153/04), as defined by the Ontario Ministry of the Environment, Conservation and Parks (MECP).

The Site is currently designated as industrial land use, and the intention is to change to a residential land use. Therefore, a Record of Site Condition (RSC) is required.

This P2CSM is based on the results of sample analyses and stratigraphy from the following reports:

- Phase I and II ESA by Jacques Whitford (February and March, 2008)
- Supplemental Phase II ESA by Trow (September and December, 2008)
- Pre-remediation Soil Sampling by Trow (April, 2012)
- Soil Remediation by Trow (July, 2012)
- Phase One and Two ESAs and Updates by EXP (2016)
- Phase One ESA by EXP (2024)

All results were compared to the MECP (2011) Table 3: Full depth Generic Site condition Standards (SCS) in a Non-Potable Ground Water Condition for Industrial/Commercial/Community Property Use and medium/fine textured soil.

It is additionally noted that since completion of the relied upon reports noted above, revisions to the property boundary constituting the Risk Assessment (RA) lands have occurred. The relied upon reports were completed for the historical site boundaries, including a portion of land located in the eastern central portion of the property. As of 2021 a separate Risk assessment process was undertaken for the central eastern portion of the Site. All soil and groundwater analytical data collected from the eastern-central portion of the former RA property boundary has been omitted from the Phase Two and figure set

6.2 Physical Site Description

The site is located on the west side of Heatherington Road, at 1770 Heatherington Road, Ottawa in an area of mixed residential and commercial land use (Figure 1 and 2). Refer to Table 1 for the Site identification information.

The site consists of a 2.7-hectare - former City of Ottawa Works Yard that is currently vacant as shown in Figure 3A. The site was reportedly in operation between the mid-1960s and 2012. Former structures that previously existed on the site included a 3-bay maintenance garage, salt storage dome, storage shed, four office trailers, quonset hut, and an aboveground (liquid) calcium chloride storage tank as shown in Figure 3B. All these structures were located on the northern half of the property which includes paved access and parking areas. The southern half of the site is gravel covered. All structures were removed from the site prior to remedial activities that commenced in 2012 and concluded in 2015. The site is currently vacant and is not being used for any purpose.

The site is generally flat, with a slight grade from north to south. Surface water drainage flows to catch basins and storm sewers located in the paved portion of the site or dissipates via surface infiltration. Regional groundwater flow is inferred to be toward Sawmill Creek located approximately 600 m south or McEwen Creek located approximately 1.1 km south of the of the subject property. Although there are surface drainage ditches south, southeast and southwest of the site that drain into Sawmill and/or McEwen Creek, it is unlikely that groundwater is discharging to the drainage ditches since the depth to groundwater ranges between 1.5 and 2.82 m below grade surface (m bgs), in overburden monitoring wells at the Site. Bedrock groundwater levels were measured between 1.59 and 11.79 m bgs in bedrock monitoring wells at the Site.

A visual inspection of the adjacent properties and properties within 250 m of the Site was conducted from publicly accessible areas to identify the occupants and document the uses and sources of potential environmental concerns that may impact the site. Refer to Figure 2 for the adjacent land uses and previous surrounding land use (Figure 4).

- North: Various light commercial
- South: Residential
- East: Residential and Boys and Girls Club of Ottawa (i.e., community)
- West: Service Ontario (i.e., institutional), Residential

Based on the current visual inspection, no present-day sources of potential environmental concern that could impact the subject site were identified on the adjacent and surrounding properties (Figure 2). It is additionally noted that the off-Site operations noted to constitute Potentially Contaminating Activity (PCA) IDs 5 through 9, are based on historical activities that occurred between the 1960s and the 1990s along the north adjacent property boundary. Several prior environmental investigations have been conducted at the Site to address the off-Site PCAs and no soil or groundwater impacts have been identified in relation to the off-Site PCAs constituting on-Site Areas of Potential Environmental Concern (APECs). A figure depicting the location of test pits, monitoring wells and borehole locations utilized as part of the prior environmental investigations is provided as Figure 5A.

Table 6.1: Site Identification Information

Civic Address	1770 Heatherington Road, Ottawa, Ontario
Current Land Use	Industrial
Proposed Land Use	Residential and Parkland
Legal Description	Part of Lot A, Concession 4 (Rideau Front), Geographic Township of Gloucester; Part 2 on Plan 4R-33717; Part of PIN 04741-0011 (LT).
Property Identification Number (PIN)	Part of 04741-0011 (LT)
Universal Transverse Mercator (UTM) coordinates	NAD83, Zone 18, 449470 m E, 5024942 m N
Site Area	2.7 hectare
Property Owner	City of Ottawa
Owner Contact	Mr. Vahid Arasteh
Owner Address	10 Laurier Avenue West, Ottawa, Ontario
Assessment Roll Number (ARN)	061411650502200

6.3 Geological and Hydrogeological Setting

6.3.1 Geology

The site stratigraphy has been characterized by the advancement of various boreholes and test pits into the overburden material and the underlying bedrock material, up to a maximum depth of approximately 18.3 m below grade.

The general stratigraphy at the Site, as observed in the boreholes and test pits, consists of a surficial sand and gravel fill and re-worked native material which overlies the native overburden consisting of silty clay and clay, over a gravelly silty till layer. Weathered limestone bedrock can be found beneath the native soils. The interpreted Site geology is shown on Figures 15A-15D and Figures 25A and 25B and Table 5.1.

Table 6.2: Site Stratigraphy

Stratigraphy	Details	Approximate Depth (m bgs)	Approximate Elevation (m RSD)
Surface	Asphalt	0 - 0.12	98.8 – 98.7
	Topsoil	0 – 0.19	98.8 – 98.6
	Reworked native/fill (sand and gravel, granular sub-base)	0 - 0.8	98.7 – 97.9
Native Overburden	Silty clay	0.7 – 3.3	98.0 – 94.7
	Clay	1.4 – 3.1	98.0 – 94.3
	Gravelly silty till	3.0 – 5.5	95.9 – 93.4
Bedrock	Limestone	> 5.2	< 92.7

6.3.2 Hydrogeology

The Site hydrogeological characteristics are summarized in Table 5 and groundwater flow directions and groundwater table elevations are depicted in Figures 8A and 8B, for the overburden and bedrock groundwater units, respectively. Groundwater elevations presented in Figures 8A and 8B were collected in July 2020, at the time of the most recent comprehensive groundwater elevation assessment.

Depths to groundwater have been measured at the Site between 2008 and 2021. Groundwater measurements collected from prior to the remedial activities in 2015 have not been relied upon. As such only groundwater depth measurements collected after 2015 are considered representative of current Site conditions. Groundwater levels collected at the time of the 2022 groundwater sampling event were considered unsuitable for Site characterization due to time elapsed since well development and the time to the prior groundwater monitoring events.

Table 6.3: Site Hydrogeological Characteristics

Descriptor	Overburden Groundwater (2015 – 2022)	Bedrock Groundwater (2015 – 2022)
Depth to Groundwater	1.54 to 2.82 (m bgs)	1.59 to 11.79 (m bgs)
Groundwater Elevation	84.44 to 85.91 m RSD	75.76 to 86.05 m RSD
Direction of Groundwater Flow	southeast	south
Hydraulic Conductivity	5.8×10^{-8} – 3.1×10^{-5} m/s	Not Determined
Average Hydraulic Conductivity	1.6×10^{-5} m/s	Not Determined
Horizontal Hydraulic Gradient	0.006 – 0.012 m/m	0.003 – 0.008 m/m
Average Horizontal Hydraulic Gradient	0.009 m/m	0.005 m/m
Vertical Hydraulic Gradient	-0.003 m/m (upward) in northwest and southeast part of site, and 0.061 m/m (downward) in central part of site	

6.4 Site Sensitivity

The Site Sensitivity classification with respect to the conditions set out under Section 41 and 43.1 of O.Reg.153/04 were evaluated to determine if the Site is sensitive, as presented in Table 6.2.

Table 6.4: Site Sensitivity

Sensitivity	Classification	Does Sensitivity Apply to Site?
Section 41 Applies If	(i) property is within an area of natural significance	No
	(ii) property includes or is adjacent to an area of natural significance or part of such an area	No
	(iii) property includes land that is within 30 m of an area of natural significance or part of such an area	No
	(iv) soil at property has a pH value for surface soil less than 5 or greater than 9	No[1]
	(v) soil at property has a pH value for sub-surface soil less than 5 or greater than 11	No
	(vi) a qualified person is of the opinion that, given the characteristics of the property and the certifications the qualified person would be required to make in a record of site condition in relation to the property as specified in Schedule A, it is appropriate to apply this section to the property	No
Section 43.1 Applies If	(i) property is a shallow soil property	No
	(ii) property includes all or part of a water body or is adjacent to a water body or includes land that is within 30 m of a water body	No

[1] Soil pH had been locally measured outside of the acceptable range at one (1) location on-Site, identified as TP08-8. Remedial excavation Pit No. 5 was completed at the location of the pH exceedance in surficial soil in order to remove the impacted soil. It is noted that Pit No. 6 was also completed to remediated soil pH due to a measured exceedance of the surficial pH range; however due to revisions to the Site boundary this location is now located off-Site

6.5 Potentially Contaminating Activities

The following potentially contaminating activities (PCA) were identified on-site and within the Phase One Study Area, as per Schedule D of O. Reg 153/04, and are thought to contribute to an APEC:

Table 6.5: Summary of Potentially Contaminating Activities

PCA Identifier	Address	Location of Activity (in Relation to Site)	Potentially Contaminating Activity (PCA)	Approximate Timeline That PCA Occurred	Contribution to APEC at the Site
PCA 1: Former On-Site Garage (Location of Remedial Pit No. 1)	1770 Heatherington Road	On-site (northeast corner)	#27: Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	The site had operated as a public works yard and garage since approximately the 1960s. A three - door garage was used for the light maintenance and storage of City of Ottawa public works vehicles and equipment. Based on a reviewed Phase I ESA (JWEL, 2008a), completed during the operation of the Site garage, various light	Yes - PCA is located on-site

PCA Identifier	Address	Location of Activity (in Relation to Site)	Potentially Contaminating Activity (PCA)	Approximate Timeline That PCA Occurred	Contribution to APEC at the Site
				chemicals (cleaners, motor oils, antifreeze, etc..) were stored in sealed containers within the garage. A catch basin was connected to a former dry-well east adjacent to the former garage. Based on reviewed City of Ottawa building plans from 1960 a fuel oil powdered heating system was present in the north portion of the garage. The heating system was powered by a 500-gallon fuel oil storage tank (identified as PCA 2 and described below). Soil and groundwater within the footprint of the former garage was remediated in 2012 - 2014. The impacts included petroleum hydrocarbons, metals and volatile organic compounds.	
PCA 2: Former On-Site UST (Location of Remedial Pit No. 1)	1770 Heatherington Road	On-site (northeast corner)	#28: Gasoline and Associated Products Storage in Fixed Tanks	At the time of the 2012 remedial investigation, the former UST had already been removed from the Site. The date of removal is unknown, however based on a review of City of Ottawa Site plans from 1960 the UST was identified to a 500-gallon buried, steel wall fuel oil tank. The tank was identified to service the heating system in the former garage structure (PCA 1, outlined above). The UST was constructed of steel and was situated on top of a subgrade concrete foundation. The UST was located north adjacent to the former garage structure.	Yes – PCA is located on-site
PCA 3: Surficial granular fill material of unknown quality present across the Site	1770 Heatherington Road	On-site (across the entire Site)	#30: Importation of Fill Material of Unknown Quality	Based on review of aerial photographs and prior ESA reports, fill materials are present across the entirety of the Site. The Site has used soil from public works operations to re-grade the property and for stockpiling at the	Yes – PCA is located on-site

PCA Identifier	Address	Location of Activity (in Relation to Site)	Potentially Contaminating Activity (PCA)	Approximate Timeline That PCA Occurred	Contribution to APEC at the Site
Former excavation (Pit 2) – located in central portion of the Site Former excavation (Pit 3) – located in southeast portion of the Site Former excavation (Pit 4) – located in southwest portion of the Site				former public works yard. Fill of unknown quality and street sweepings were stored on-Site, street sweepings were reportedly disposed of at off-Site landfill facilities each year while soil stockpiles were stored and reused for ongoing public work projects (JWEL, 2008a). Based on review of historical aerial photographs between 1958 and present day, fill piles and soil berms change locations during operation of the Site. Evidence of fill materials being re-worked and stored across the majority of the Site is evident from review of the historical aerial photographs. In addition, it is assumed that fill materials of unknown quality were also used to regrade the property to accommodate new structures built during the course of Site operations. As such, given that fill materials have been located across the majority of the Site during operations and that it is suspected that the majority of the Site has been graded with fill materials of unknown quality, PCA 3 has been identified to be associated with the entire Site. Several remedial excavations were completed to address exceedances suspected to be associated with the fill materials present at the Site: Impacts at Pit 2 included PAH and PHC. Impacts at Pit 3 included V and Co. Impacts at Pit 3 included PAH.	

PCA Identifier	Address	Location of Activity (in Relation to Site)	Potentially Contaminating Activity (PCA)	Approximate Timeline That PCA Occurred	Contribution to APEC at the Site
PCA 4: Historical salt related exceedances, Former salt dome, salt use and salt storage	1770 Heatherington Road	On-site (across the entire Site)	#48: Salt Manufacturing, Processing and Bulk Storage	The site had operated as a works yard since the 1960s, including the use and storage of de-icing salts. During the operation of the Site as a municipal public works yard for the City of Ottawa, de-icing related infrastructure was formerly present at the Site and de-icing salts were applied to the Site across paved regions during winter months. A former Quonset hut, salt storage dome and calcium chloride AST were all located within the northwestern portion of the Site. Salts were stored on-Site, within these structures, and were loaded into vehicles for application on municipal streets during winter months. In addition, based on review of historical ESA reports (JWEL, 2008b) salt-related impacts have been identified across the majority of the Site in surficial soils and overburden groundwater. As such, the entire Site was identified to be related to PCA 4.	Yes – PCA is located on-site
PCA 5: Former Dry Cleaner	1574 Walkley Road	Off-Site (north adjacent property)	#37: Operation of Dry Cleaning Equipment (where chemicals are used)	Betty's Brite Cleaners (formerly located at 1574 Walkley Road) operated between approximately 1980 and 1990 based on the reviewed City Directories and ERIS report, provided with the Phase One ESA (EXP, 2016a). Based on the proximity to the Site, duration of operations and suspected presence of halogenated solvents, the property at 1574 Walkley Road was identified as a PCA. No information on the location of former infrastructure or other operations occurring at the property were identified. The approximate location PCA is	Yes, however this APEC was previously assessed by JWEL in 2008b and EXP in 2016b. The results of the prior investigations indicated VOCs in all groundwater samples collected along the northern property line were less than the applicable SCS.

PCA Identifier	Address	Location of Activity (in Relation to Site)	Potentially Contaminating Activity (PCA)	Approximate Timeline That PCA Occurred	Contribution to APEC at the Site
				identified to be the entire building at 1574 Walkley Road.	
PCA 6: Former Retail Fuel Outlet and UST	1594 Walkley Road	Off-Site (north adjacent property)	#28: Gasoline and Associated Products Storage in Fixed Tanks	A former retail fuel outlet was present along the northern property boundary at 1594 Walkley Road as identified in the ERIS report, the City Directories and prior environmental investigations completed at the Site (JWEL, 2008a). This PCA occurred at 1594 Walkley Road between the 1960s - 1990s. Locations of storage tanks or other associated infrastructure related to the retail fuel outlet are unknown. However, the approximate location of the former retail fuel outlet is provided on Figure 4.	Yes, however previously assessed by JWEL in 2008b and EXP in 2016b. The results of the prior investigations indicated metals, PAH, PHC and VOC in groundwater samples collected along the northern property line were less than the applicable SCS.
PCA 7: Former remediation contractor	1606 Walkley Road	off-Site (north adjacent property)	#28: Gasoline and Associated Products Storage in Fixed Tanks	Triangle Pump was formerly located at 1606 Walkley Road, north adjacent to the Site. Triangle Pump is an environmental contractor with services that include solid and liquid waste removal, tank removals, and Site remediations. It is unknown if any former infrastructure or operations occurred on the property at 1606 Walkley Road. This PCA occurred between the 1960s - 1980s. Based on review of the JWEL (2008a) Phase One ESA an approximate location of the former building is shown on Figure 4.	Yes, however, previously assessed by JWEL in 2008b and EXP in 2016b. The results of the prior investigations indicated metals, PAH, PHC and VOC in groundwater samples collected along the northern property line were less than the applicable SCS.
PCA 8: Former Automotive Sales and Services	1620 Walkley Road	off-Site (north adjacent property)	#27: Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	A Nissan dealership was formerly located at the intersection of Walkley Road and Heatherington Road at 1620 Walkley Road. This PCA occurred between the 1960s - 1980s. No information on the location of historical	Yes, however, previously assessed by JWEL in 2008b and by EXP in 2016b. The results of the prior investigations indicated metals, PAH,

PCA Identifier	Address	Location of Activity (in Relation to Site)	Potentially Contaminating Activity (PCA)	Approximate Timeline That PCA Occurred	Contribution to APEC at the Site
				infrastructure, storage tanks or other operations were identified.	PHC and VOC in groundwater samples collected along the northern property line were less than the applicable SCS.
PCA 9: Reported Spill (Motor Oil)	1620 Walkley Road	off-Site (north adjacent property)	#Other: Spill	Based on the reviewed ERIS report a historical spill of 150 L of motor oil was identified at the property located at 1620 Walkley Road. This PCA occurred in 1988. Given the proximity of the PCA to the Sites northern boundary, the spill of motor oil was identified as a PCA.	Yes, however, previously assessed by JWEL in 2008b and by EXP in 2016b. The results of the prior investigations indicated metals, PAH, PHC and VOC in groundwater samples collected along the northern property line were less than the appliable SCS.

6.6 Areas of Potential Environmental Concern

Based on the evaluation of the PCAs located within the Phase One Study Area, two areas of potential environmental concern (APECs) were identified, as presented below.

Table 6.6: Summary of Areas of Potential Environmental Concern

Area of Potential Environmental Concern (APEC)	Location of APEC on Site	PCA Identifier & (Potentially Contaminating Activity)	Location of PCA (on-site or off-site)	Contaminants of Potential Concern (CPOC)	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC 1: Former garage in the northeast corner of the Phase One Property. All impacted soils and overburden groundwater were removed during various remediation programs (Pit 1).	Northeast Corner	PCA 1 (PCA #27: Garages and Maintenance and Repairs of railcars, Marine Vehicles, and Aviation Vehicles)	On-site	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 2: Former UST. All impacted soils and overburden groundwater were removed during various remediation programs (Pit 1).	Northeast Corner	PCA 2 (PCA #28: Gasoline and Associated Products Storage in Fixed Tanks)	On-site	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 3: Placement of surficial granular fill of unknown quality across the entire Site.	Across the Site	PCA 3 (PCA #30: Importation of Fill Material of Unknown Quality)	On-site	Metals, PAH, PHC	Soil
APEC 4: Salt Dome and Use on-site. Previous Phase Two ESAs by both **EXP** and others identified salt impacts in the shallow soil across much of the site.	Across the Site	PCA 4 (PCA #48: Salt Manufacturing, Processing and Bulk Storage	On-site	Soil (SAR and Electrical Conductivity), Groundwater (Na, Cl-)	Soil and groundwater
APEC 5: Former off-site dry cleaner.	Northwest corner of site	PCA 5 (#37: Operation of Dry Cleaning Equipment where chemicals are used)	Off-Site	VOC	Groundwater
APEC 6: Former off-site retail fuel outlet and UST.	North central portion of site	PCA 6 (#28: Gasoline and Associated Products Storage in Fixed Tanks)	Off-Site	BTEX, PHC	Groundwater
APEC 7: Former fuel dispenser and remediation contractor.	North central portion of site	PCA 7 (#28: Gasoline and Associated Products Storage in Fixed Tanks)	Off-Site	BTEX, PHC	Groundwater

Area of Potential Environmental Concern (APEC)	Location of APEC on Site	PCA Identifier & (Potentially Contaminating Activity)	Location of PCA (on-site or off-site)	Contaminants of Potential Concern (CPOC)	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC 8: Former automotive sales and services	Northeast portion of site	PCA 8 (#27: Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles)	Off-Site	PHC, PAH, metals, VOCs	Groundwater
APEC 9: Former reported motor oil spill	Northeast portion of site	PCA 9 (#Other: Spill)	Off-site	PHC, PAH	Groundwater

Notes:

1) SAR - sodium adsorption ratio, EC – electrical conductivity, PAH – polycyclic aromatic hydrocarbons, PHC – petroleum hydrocarbons
2) Area of Potential Environmental Concern means the area on, in or under a phase one study area where one or more contaminants are potentially present, as determined through the P One ESA, including through (a) identification of post or present uses on, in or under the phase one property, and (b) identification of potentially contaminating activities.
3) Potentially contaminating activity means a use or activity set out in Column A of Table 2 of Schedule D (O.Reg.153/04, as amended) that is occurring or has occurred in a phase one Study area.

6.7 Selection of Site Condition Standards and Contaminants of Concern

The MECP (2011a) Table 3: Full Depth Generic Site Condition Standards (SCS) in a Non-Potable Ground Water Condition for Community Property Use and medium/fine textured soils were considered applicable for determining contaminants of concern (COCs), based on the reasons presented in Table 6.7.

Table 6.7: Site Condition Standards

Descriptor	Site-Specific Condition
Section 41 Site Sensitivity	Not applicable The soil at the Site has pH values between 5 and 9 for surficial soil; and, between 5 and 11 for subsurface soil. Soil pH had been locally measured outside of the acceptable range at one location (TP-22); however, this area was remediated. The Site is not located near an area of natural significance or an environmentally sensitive area.
Section 43.1 Site Sensitivity	Not applicable The Site is not considered a shallow soil property, based on the recovered soil cores, which indicated that more than two-thirds of the Site has an overburden thickness more than 2 m; and, The Site is not located within 30 m of a surface water body; the nearest surface water body, Sawmill Creek is located approximately 600 m south of the Site and McEwen Creek is located approximately 1.1 km south.
Ground Water	Non-Potable • The Site and surrounding properties within 250 m of the Site are supplied by the City of Ottawa municipal drinking water system. No potable water wells are located on the Site or within 250 m of the Site. An initial Notification Letter to apply non-potable standards was sent by exp on behalf of the Owner to the City of Ottawa on September 6, 2016. A subsequent non-potable notification was issued to the City of Ottawa on November 2, 2020.
Land Use	Residential/Parkland/Institutional • The proposed future use of the Site is to change to residential / parkland.
Soil Texture	Fine-textured • The predominant texture of soils at the Site is fine-textured, based on soil characteristics identified in the borehole logs and grain size analysis. Please refer to Section 5.1.2 for a full rationale of grain size selection.

Additionally, given the minimum depth to groundwater identified in the overburden groundwater unit at the Site (i.e., 1.54 m bgs) volatile groundwater impacts were also assessed against the MECP (2011a) Table 7 Full Depth Generic SCS for Shallow Soils in a Non-Potable Groundwater Condition, all types of land use and medium/fine textured soil. It is also noted that the MECP Table 7 Generic SCS for Shallow soils in Non-Potable Ground Water Condition consider a scenario where biodegradation cannot be assured and where soil may not be present to provide attenuation to volatile migration towards the surface grade.

Based on the results of the prior Phase Two ESA reports, remediation programs and confirmatory sampling programs all historical soil and groundwater exceedances have been addressed at the Site, with the exception of the following parameters:

- Soil:
  - Electrical Conductivity (EC) (associated with APEC 4); and,

- Sodium Adsorption Ratio (SAR) (associated with APEC 4).

- Groundwater (Table 3 SCS):
  - Sodium (Na+) (associated with APEC 4); and,
  - Chloride (Cl-) (associated with APEC 4).
- Groundwater (Table 7 SCS):
  - Cis-1,2-dichloroethylene (associated with APEC 1).

6.8 Soil Exceedances

Elevated SAR and EC were identified as exceeding the current MECP Table 3 SCS across the majority of the Site to the depth of bedrock. The impacts are believed to be related to the handling and storage of road salt on the Phase One Property as part of the historical Site operations while is use as a City of Ottawa Public Storage yard (i.e., APEC 4). EC and SAR impacts in soil at the Site extend to the Site boundaries and the horizontal delineation of salt related impacts was not feasible to achieve given that impacts were identified up to the property boundary in all directions.

In 2015, soil samples were submitted for SAR and EC analysis from boreholes MW/BH15-8, MW/BH15-10, and MW/BH15-11. Samples were collected from depths of 4.6 to 6.1 m below grade, just above the bedrock, to vertically delineate the salt impacts. EC and/or SAR exceedances of the Table 3 SCS were noted at BH15-10 and BH15-11, no exceedances were noted in the sample collected from BH15-8. The vertical delineation of EC and SAR in Site soil was not feasible or practical to achieve at the Site, as EC and SAR exceedances are assumed to extend to bedrock across the majority of the Site.

The soils samples from MW/BH15-10 and MW/BH15-11 exceeded MECP Table 3 SCS for SAR and/or EC. The soil sample from MW/BH15-8 was less than the MECP criteria for SAR and EC, whereas, the soil sample from MW/BH15-10 was less than MECP criteria for SAR.

This indicates that for most of the soils at the site, the SAR and EC impact extend to the bedrock interface, except for the southern portion of the site, near MW/BH15-8. Based on these results, the SAR and EC has been vertically and laterally delineated as much as practicable at the Site. Please refer to Figure 15 for a plan view figure of the EC and SAR impacts and refer to Figures 15A through 15D for cross-sectional figures demonstrating the EC and SAR impacts identified in soil at the Site.

The intention is to address the salt related soil impacts through a Risk Assessment.

6.9 Groundwater Exceedances

As stated above, salt impacts (i.e., EC and SAR) were identified in most the overburden soils across the site exceeding the Table 3 SCS, extending all the way to bedrock across the majority of the Site. The salt impacts in both the overburden and bedrock groundwater (i.e., sodium and/or chloride) across the site required assessment for horizontal and vertical delineation. The primary source of the salt was suspected to be in the northwest corner (i.e., location of former Quonset hut) of the Site, which is also considered to be upgradient in terms of groundwater flow.

In January and February 2021, the time of most recent groundwater sampling for salt related parameters, MW15-1 (overburden), MW15-2 (bedrock), MW15-4 (overburden), MW15-5 (bedrock), MW15-6 (overburden), MW15-7 (bedrock), MW15-11 (overburden), and MW15-12 (bedrock) were sampled for sodium and chloride. All groundwater samples collected in 2021 exceeded for sodium and/or chloride in groundwater, with the exception of samples collected at MW15-12 (bedrock) and MW15-1 (overburden) exceeded the applicable Table 3 SCS. As

multiple rounds of groundwater sampling have occurred at the Site for sodium and chloride across the prior environmental investigations, the most recent rounds of sampling (i.e., 2019 and 2021) are considered most representative of the current groundwater conditions at the Site in relation to the salt impacts. Based on review of all recent groundwater analytical data analyzed for sodium and chloride collected between 2019 and 2021, the highest concentrations of sodium and chloride were identified to be within the southeast portion of the Site at MW15-6.

Concentrations of sodium and chloride appear to be decreasing as a function of time since Site decommissioning and source removal and impacts in groundwater appear to be migrating with distance from the anticipated source of salt related impacts.

Based on the above, salt impacts exist in both the overburden and bedrock horizons across the majority of the site extending from the source (northwest corner), and continuing downgradient to the southeast corner of the site. For the horizontal delineation, refer to Figure 25. For the vertical delineation, refer to Figures 25A and 25B.

One (1) volatile parameter was identified to exceed the Table 7 SCS in groundwater at the Site, cis-1,2-dichloroethylene. Cis-1,2-dichloroethylene was only identified to exceed the Table 7 SCS at one (1) monitoring well location, MW14-7, during the post-remedial sampling events. MW14-7 is screened within the native silty clay till soil at a depth of 1.3 – 4.3 m bgs and is located in the northeastern portion of the Site. It is noted that vinyl chloride was not identified at a measured concentration at this monitoring well or any others, indicating anerobic degradation is not occurring at an appreciable rate. Concentrations of cis-1,2-DCE at MW14-7 appear to be decreasing since the post-remedial Site maximum identified in 2019.

The identified Table 7 exceedance of cis-1,2-dichloroethylene is likely associated with remnant impacts from the former garage located within the northeastern corner of the Site (APEC 1); It is noted that all post remediation groundwater sampling events met the Table 3 SCS for all VOCs analyzed.

The intention is to address the groundwater impacts through a Risk Assessment.

6.10 Lateral and Vertical Delineation of Groundwater – Salt Impacts

EXP has recommended the application of non-standard delineation at the Site as it related to vertical delineation in groundwater. A rationale for vertical delineation relief for sodium and chloride in groundwater is provided below.

Sodium (Na+) and Chloride (Cl-)

The distribution of salt related parameters in groundwater is shown on plan view in Figure 25 and on cross section Figures 25A and 25B.

Vertical delineation relief is requested by the MECP for sodium and chloride given the following rationale:

- All contaminants of concern are identified: Based on the historical activities conducted at the Site, the salt-related impacts in groundwater are likely attributed to the use of de-icing salts as a as part of the public work operations that have occurred at the RA Property during operation as a public works yard, including bulk salt storage, use and transport at the Site. The historical use, storage and identified exceedances of salt related parameters were identified as PCA 4 resulting in APEC 4, as presented in Section 2.1 and 2.2. It is noted that the public works yard has not been in operation since the early 2000s and salt storage or use no longer occurs at the RA property, however upgradient and adjacent properties (i.e., municipal roadways and parking lots on Walkley Road) are still subject to salt application during winter months, which may contribute to groundwater concentrations through groundwater migration.

- Maximum concentrations are identified for all contaminants of concern: The area of highest sodium and chloride concentrations in groundwater for recent analytical data (i.e., 2019 – 2021) is identified to be at MW15-6 (screened at 3.0 – 6.0 in overbruden soils) at the southeastern portion of the RA proeprty. Given that significant depths have already been achieved at the Site as demonstarted with the instllation and sampling of MW15-5, it is the QP's opinion that the maximum concentrations of sodium and chrloide in groundwater have been identified.
- All reasonable efforts to delineate to the applicable Site Condition Standards were undertaken: Several attempts have been made to collect clean groundwater from deep monitoring wells for vertical delineation purposes, including the installation of multiple bedrock monitoring wells, use of low-flow sampling techniques, multiple sampling events, and duplicate sampling. MW15-5 is installed within the bedrock groundwater unit screened at a depth of 16.6 – 18.1 m bgs and represents the deepest monitoring well at the RA property sampled for sodium or chloride. MW15-5 has been sampled four (4) times since installation in 2015. As such, EXP is of the opinion that adequate attempts have been made in order to vertically delineate salt related impacts in groundwater at the Site.
- The property is appropriately characterized: It is the QP's opinion that PCA 4 associated with APEC 4 is adequately characterized, with sufficient distribution of monitoring wells across the property, and adequate groundwater sampling frequency. Groundwater monitoring for sodium and chloride has occurred at the RA property between 2008 and 2021, providing EXP with a robust understanding of the temporal trends of salt-related parameters in groundwater.
- Additional vertical delineation will not lead to an improved understanding of the distribution of contaminants: No risks were identified for either human or ecological receptors via the exceedances of sodium and chloride in groundwater at the Site. Further to this, sodium and chloride would not be expected to result in risk for human receptors, and any risk to ecological receptors would be primarily driven by shallow groundwater concentrations. As such, there is no material benefit in vertically delineating sodium and chloride in groundwater at the RA property.
- There are practical or negative environmental reasons that are impediments to further delineation to the applicable Site Condition Standards: Deep drilling in this area has the potential to promote fracturing of the bedrock, thereby creating preferential pathways, and increasing the likelihood of downward contaminant movement, which would unduly impact the deeper bedrock aquifer.

As indicated above, based on the rationale provided, EXP is of the opinion that any further vertical delineation is not warranted, and non-standard delineation has been applied for sodium and chloride in groundwater.

Table 6.8: Delineation of Soil and Groundwater Impacts

Parameter Group and Media	Horizontal Delineation	Associated Figures	Vertical Delineation	Associated Figures
Salt impacts in soil	Majority of Site	Figure 15	Up to limestone bedrock	Figure 15A, 15B, 15C, and 15D
Salt impacts in groundwater	Majority of Site	Figure 25	12 m (MW15-12) to > 18 m (MW15-5) below grade	Figure 25A and 25B

Parameter Group and Media	Horizontal Delineation	Associated Figures	Vertical Delineation	Associated Figures
VOC impact in groundwater	Northeastern portion of Site	Figure 19 (Pre-Remediation) and Figure 20 (post-Remediation)	Up to 4.3 m bgs at MW14-7	NA

6.11 Distribution and Source of Impacts

Based on the field and analytical testing, soil and groundwater impacts related to salt storage and handling were identified on the Phase Two Property. Details of the delineation, source and distribution of all impacts are summarized in Tables 12 and 13.

Table 6.9: Source and Distribution of Soil and Groundwater Impacts

Parameter Group and Media	Contaminants Associated with Each Group	What is Known About the Area	Distribution
Salt impacts in soil	SAR, EC	Likely associated salt storage and snow piles at the northwest portion of the Site (APEC 4)	Majority of the Site – from the surficial soil into native material, extending to bedrock
Salt impacts in groundwater	Sodium, Chloride	Likely associated salt storage and snow piles at the northwest portion of the Site (APEC 4)	Salt impacts in groundwater
VOC impacts in groundwater	Cis-1,2-DCE	Likely associated with the former garage operations (APEC 1)	Localized to MW14-7 (cis-1,2-DCE)

6.12 Contaminant Fate and Transport

The source of the SAR and EC impacts across the site was the former salt dome in the northwest corner of the site and snow piles/fill across the site. The salt impacts are also present in the groundwater. Relevant fate and transport mechanisms include advection, dispersion and molecular diffusion. The source of the salt has been removed and the concentrations will decrease with time because of dilution, dispersion and groundwater flow. The Phase Two Property and surrounding neighbourhoods are serviced with municipal water and therefore impacts to drinking water wells are not anticipated.

Contaminants of concern that remain on-site include those related to previous salt storage and handling on the Phase Two Property. For soil, specific contaminants of concern include SAR and EC, whereas in groundwater the contaminants of concern include cis-1,2-dichloroethylene, Na+ and Cl-. For both soil and groundwater, horizontal delineation been achieved, as much as practicable at the Site.

Details on the reason for discharge of the impacts are summarized in Table 6.10.

Table 6.10: Reason for Discharge Soil and Groundwater Impacts

Parameter Group and Media	Reason for discharge
Salt impacts in soil	Likely associated with road salt storage within the Quonset dome formerly located at the northwest portion of the Site and snow piles containing road salts throughout the entire Site. The road salts would have leached into the overlying ground surface and progressively leached deeper into the soil over time (APEC 4).
Salt impacts in groundwater	Salt impacts in soil would have leached into the vadose zone and shallow groundwater over time, and eventually dissolved in groundwater, dispersing throughout the Site (APEC 4).
VOC impacts in groundwater	The minor exceedance of the Table 7 SCS at MW14-7 are likely residual impacts associated with the remediation of soil and groundwater completed to address APEC 1 (former on-Site garage). VOC impacts are expected to naturally attenuate and breakdown overtime and are localized to one (1) monitoring well location.

6.12.1 Preferential Pathways

The preferential pathways for contaminants present in soil and groundwater media include underground utilities and surface features.

Considering that all underground services were removed during the soil excavation activities, these services are no longer considered conduits for contaminant migration. A storm sewer remains in the northeast portion of the site, however based on groundwater monitoring, it does not appear to be affecting groundwater flow. Refer to Figure 3B for the former Site Layout and Utilities Plan. Apart from the storm sewer, there are no surface water features that actively direct surface water flow.

Details on the preferential pathways for the impacts are summarized in Table 6.11.

Table 6.11 Preferential Pathways

Item	Detail
G. anything known about migration of the contaminants present on, in or under the phase two property at a concentration greater than the applicable site condition standard away from any area of potential environmental concern, including the identification of any preferential pathways,	Subsurface utilities in the northeast portion of the site (i.e. water and septic) were removed during the remediation activities. There is a storm sewer in the northeast portion of the site that exists beyond the extent of the remediation. There are no other subsurface utilities on the property that could act a preferred pathway.

6.12.2 Climatic Conditions

It is noted that climatic or meteorological conditions may influence the distribution and migration of COCs at the Site. Seasonal fluctuations in groundwater due to cyclical increases and decreases in precipitation can affect groundwater recharge. Groundwater levels may be elevated in the spring and fall due to snow melt and/or increases in precipitation; and, groundwater levels may be lowered in the winter and summer due to snow storage and/or increased evaporation. Such fluctuations can increase the vertical distribution of COCs in the capillary zone, as well as alter the direction of groundwater flow paths based on changes in infiltration rates. However, based on the conditions observed at the Site, it is not anticipated that the climatic or meteorological changes will result in significant alterations in the distribution of contaminants.

Details on the climatic or meteorological conditions are summarized in Table 6.12.

Table 6.12: Climatic and Meteorological Conditions

Item	Detail
H. climatic or meteorological conditions that may have influenced distribution and migration of the contaminants, such as temporal fluctuations in ground water levels, and	Some groundwater fluctuations are expected at the Site, but not significant variation.

6.12.3 Soil Vapour Migration

One (1) volatile COC was identified to exceed the Table 7 SCS, cis-1,2-dichloroethylene. All other COCS are not considered volatile. Given the low concentration of VOC impacts and localized distribution at the Site (i.e., impacts only identified at MW14-7) the potential for soil vapour migration from these groundwater impacts is considered to be low. Concentrations of cis-1,2-dichloroethylene in groundwater is anticipated to decrease over time through natural attenuation and degradation.

6.12.4 Areas Where Contaminants Are Present

A summary of each area of contamination (AOC) prior to and post remediation is presented in Appendix J.

6.12.5 Exposure Pathways

Human Health Receptors and Exposure Pathways

The Site is currently a vacant commercial/industrial property, with the intention for it to be re-developed as residential. Therefore, the potential on-Site human receptors that may be present include: property residents (all age groups), property visitors (all age groups), long-term indoor and outdoor workers (adults) and sub-surface/construction workers (adults).

The on-Site human health conceptual exposure model is attached as Figure 33A. As Risk Management Measures (RMM) have been identified as being required for the Site, the human health conceptual exposure model in the presence of RMM is provided as Figure 33B. The Off-Site human health conceptual exposure model is provided as Figure 33C and as Figure 33D for off-Site human receptors in the presence of on-Site RMM. Given the nature of the adjacent land uses, off-Site receptors are identified to be the same as those present on-Site

Ecological Receptors and Exposure Pathways

The Site was previously used for industrial purposes, with the intention for it to be re-developed as residential. Therefore, the potential on-site ecological receptors that may be present on-site comprise terrestrial vegetation, such as trees, grasses and shrubs; soil invertebrates, such as earthworms, millipedes and beetles; terrestrial birds, such as pigeons, sparrows and robins; and, terrestrial mammals, such as moles, voles and mice.

The COCs present at the Site were observed in soil and groundwater media. There is a potential for select on-site receptors to come into direct contact with impacted soil.

Given that the shallowest depth to groundwater at the RA Property is approximately 1.54 m bgs and ecological receptors are not anticipated to be present at depths greater than 1.5 m bgs, the exposure pathways relevant to groundwater COCs are incomplete.

Furthermore, the MECP evaluates exposure to aquatic receptors at properties within 5 km of a surface water body. Given that Sawmill Creek is located approximately 600 m south of the Site and McEwen Creek is located approximately 1.1 km to the south of the Site, aquatic receptors, such as aquatic vegetation, benthic and pelagic invertebrates, birds, mammals and fish are also considered.

The COCs present at the Site were observed in soil (EC and SAR) and groundwater media (cis-1,2-dichloroethylene, Na+ and Cl-). There is a potential for select off-site aquatic receptors to come into indirect contact with contaminated soil and groundwater media, through the leaching of contaminants into groundwater media, and eventually discharging to the downgradient water body.

The potential ecological receptors and exposure pathways will include the following:

- Terrestrial Vegetation
  - Root uptake of soil and groundwater; and,
  - Stem and foliar uptake of ambient vapour.
- Soil Organisms
  - Dermal contact with soil and groundwater;
  - Ingestion of soil and groundwater;
  - Soil particulate inhalation;
  - Inhalation of vapour; and,
  - Ingestion of tissue residue from plants and other soil invertebrates.
- Terrestrial Mammals and Birds
  - Dermal contact of soil;
  - Ingestion of soil;
  - Soil particulate inhalation;
  - Inhalation of vapour; and,
  - Ingestion of tissue residue from plants and soil invertebrates.
- Aquatic Receptors in nearest surface water body
  - Root stem and foliar uptake of surface water (aquatic plants only), surface water dermal contact (aquatic invertebrates, birds and mammals, and fish), surface water ingestion (aquatic invertebrates, birds and mammals, and fish), ingestion of plant and animal tissue (aquatic birds and mammals, and fish) and, gill uptake (fish only).

The on-Site ecological conceptual exposure model is attached as Figure 33A. As Risk Management Measures (RMM) have been identified as being required for the Site, the ecological conceptual exposure model in the presence of RMM is provided as Figure 33B. The Off-Site ecological conceptual exposure model is provided as Figure 33C and as 33D for off-Site ecological receptors in the presence of on-Site RMM..

7 Conclusions

The Site investigative activities consisted of numerous investigations over several year and included the following:

- Test pit and surface sample advancement to facilitate the collection of soil samples for geologic characterization and/or chemical analysis.
- Borehole drilling to facilitate the collection of soil and bedrock samples for geologic characterization and/or chemical analysis; and,
- Monitoring well installation for hydrogeologic property characterization and the collection of groundwater samples for chemical analysis

The results and findings of the Phase Two ESA conducted at the Phase Two Property are summarized as follows:

9. The investigations included the advancement of 74 test pits into the sub-grade; 41 test pits into the soil berm, 53 boreholes (up to a maximum depth of approximately 18.6 m below grade) of which 47 were completed as monitoring wells and 16 surface soil samples.
10. Below the asphalt, topsoil layer, or sand and gravel granular sub-based, a layer of native silty clay was encountered across the Phase Two Property. The silty clay was approximately 1 m to 4 m thick. Below the silty clay layer was the silty clay till layer, which became progressively coarser with sand and gravel at depth. The final stratigraphic layer encountered on the Phase Two Property was the Carlsbad Formation, which is composed of shale bedrock. The bedrock was encountered at approximately 6.2 metres below grade.
11. Based on the field and analytical testing, much of the soil across the Phase Two Property was found to be impacted with SAR and EC. The source of this impact is attributed to the former storage and handling of road salt within the former works yard.
12. The intention is to address the soil impacts through a Risk Assessment
13. Overburden groundwater was detected between 1.54 m and 2.82 m bgs. Static elevations for bedrock groundwater ranged between 1.59 m bgs and 11.79 m bgs Direction of groundwater flow was measured as southeast in the overburden and south in the bedrock.
14. Based on the field and analytical testing, salt impacts exist in both the overburden and bedrock horizons across the majority of the site extending from the source (northwest corner), and continuing downgradient to the southeast corner of the site.
15. Based on analytical testing one (1) volatile parameter was identified to exceed the Table 7 SCS in groundwater at the Site, cis-1,2-dichloroethylene. Cis-1,2-dichloroethylene was only identified to exceed the Table 7 SCS at one (1) monitoring well location, MW14-7, during the post-remedial sampling events. MW14-7 is screened within the native silty clay till soil at a depth of 1.3 – 4.3 m bgs and is located in the northeastern portion of the Site.
16. The intention is to address the groundwater impacts through a Risk Assessment

7.1 Current Site Conditions

Contaminants of concern that exist on-site include those related to salt storage and handling on the Phase Two Property and the former maintenance garage. For soil, specific contaminants of concern include SAR and EC whereas in groundwater, the contaminants of concern include Na and Cl^- and cis-1,2-DCE for Table 7 SCS.

With respect to receptor exposure to salt impacted soil, Table 3 generic standards are driven by ecotoxicity models as opposed to human health models. There are no human health standards for SAR and EC and consequently, there are no human health concerns associated with these parameters.

With respect to the receptor exposure salt impacted groundwater, Table 3 generic standards are driven by drinking water standards. The Phase Two Property and surrounding properties, however, rely on the municipal water supply for drinking water as opposed to local groundwater. Consequently, the exposure pathway for those parameters are incomplete.

With respect to the cis-1,2-DCE impacted groundwater, it is noted that vinyl chloride was not identified at a measured concentration at this monitoring well or any others. This indicates that anerobic degradation is not occurring at an appreciable rate. Furthermore, the concentrations of cis-1,2-DCE at MW14-7 appear to be decreasing since the post-remedial Site maximum identified in 2019 and all post remediation groundwater sampling events met the Table 3 SCS for all VOCs analyzed.

As previously indicated, it proposed that the Phase Two Property may be redeveloped, for parkland/residential land use, which will include some landscaping areas. The potential on-Site ecological receptors that may be present on-Site comprise terrestrial vegetation, soil invertebrates, birds and mammals.

The potential on-Site exposure pathways for terrestrial vegetation are via root uptake of soil or groundwater, and stem and foliar uptake of vapour. The potential on-Site exposure pathways for soil invertebrates are via soil dermal contact, soil ingestion, groundwater dermal contact, groundwater ingestion and inhalation of vapour. The potential on-Site exposure pathways for birds and mammals are via soil dermal contact, soil ingestion.

It is noted that the EC/SAR impacts in soil and the Na/Cl and cis-1,2-DCE impacts in groundwater remain on the Phase Two Property and will be managed as a part of the Tier III risk assessment.

7.2 Soil Management

The aforementioned RA provides risk management measures, including capping specifications, associated with managing soil in place.

It is noted that the linear soil berms previously located on the east side of the Phase Two Property has been relocated to the west portion of the 1770 Heatherington Road property and are suitable for use as fill, provided it meets geotechnical requirements.

It is recommended that any excess soil that is generated during the redevelopment of the site be managed in accordance with the MECP document entitled *Rules for Soil Management and Excess Soil Quality Standards* with particular reference to the conditions related to salt-impacted excess soil (Section D 1, (3)).

The Qualified Person can confirm that the Phase Two Environmental Site Assessment was conducted per the requirements of Ontario Regulation 153/04, as amended, and in accordance with generally accepted professional practices.

8 General Limitations

The information presented in this report is based on a limited investigation designed to provide information to support an assessment of the current environmental conditions within the subject property. The conclusions and recommendations presented in this report reflect Site conditions existing at the time of the investigation.

More specific information with respect to the conditions between samples, or the lateral and vertical extent of materials may become apparent during excavation operations. The interpretation of the borehole information must, therefore, be validated during any such excavation operations. Consequently, during the future development of the property, conditions not observed during this investigation may become apparent. Should this occur, EXP Services Inc. should be contacted to assess the situation, and the need for additional testing and reporting. EXP has qualified personnel to provide assistance in regard to any future geotechnical and environmental issues related to this property.

The environmental investigation was carried out to address the intent of applicable provincial Regulations, Guidelines, Policies, Standards, Protocols and Objectives administered by the Ministry of the Environment. It should also be noted that current environmental Regulations, Guidelines, Policies, Standards, Protocols and Objectives are subject to change, and such changes, when put into effect, could alter the conclusions and recommendations noted throughout this report. Achieving the study objectives stated in this report has required us to arrive at conclusions based upon the best information presently known to us. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information; it can only reduce the possibility to an acceptable level. Professional judgment was exercised in gathering and analyzing information obtained and in the formulation of the conclusions. Like all professional persons rendering advice, we do not act as absolute insurers of the conclusions we reach, but we commit ourselves to care and competence in reaching those conclusions.

Our undertaking at EXP, therefore, is to perform our work within limits prescribed by our clients, with the usual thoroughness and competence of the engineering profession. It is intended that the outcome of this investigation assist in reducing the client's risk associated with environmental impairment. Our work should not be considered 'risk mitigation'. No other warranty or representation, either expressed or implied, is included or intended in this report.

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9 References

This study was conducted in general accordance with the applicable Regulations, Guidelines, Policies, Standards, Protocols and Objectives administered by the Ministry of the Environment. Specific reference is made to the following:

1. *Environmental Protection Act*, R.S.O. 1990, Chapter E.19, as amended, September 2004.
2. Ministry of the Environment [MOE] (1996) Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario. Ontario Ministry of the Environment, December 1996.
3. MOE (2011a) Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the *Environmental Protection Act*. Ontario Ministry of the Environment, March 2004, amended as of July 1, 2011.
4. MOE (2011) Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*. Ontario Ministry of the Environment, April 15, 2011.
5. Occupational Health and Safety Act - Ministry of Labour (MOL).
6. Ontario Regulation 153/04, made under the *Environmental Protection Act*, May 2004, amended.
7. *Ontario Water Resources Act* – R.R.O. 1990, Regulation 903, amended.

Previous Environmental Investigation Reports include:

1. Final Report, Phase I Environmental Site Assessment, 1770 Heatherington Road (Jacques Whitford, February 29, 2008);
2. Final Report, Phase II Environmental Site Assessment Report, City of Ottawa Works Yard, 1770 Heatherington Road (Jacques Whitford, March 24, 2008).
3. Supplemental Phase II ESA – 1770 Heatherington Road, Ottawa (Trow Associates, currently known as EXP, September 2008),
4. Test Pit Assessment and Groundwater Sampling, Ottawa Works Yard, 1770 Heatherington road, Ottawa ON (Trow Associates, currently known as EXP, December 2008)
5. Replacement Monitoring Well Installation and Groundwater Monitoring Program 1770 Heatherington Road, Ottawa, Ontario (Trow Associates, currently known as EXP, December 2008)
6. Groundwater Sampling – Ottawa Works Yard 1770 Heatherington Road, Ottawa ON (EXP, March 2012)
7. Soil Remediation, 1770 Heatherington Road, Ottawa, Ontario (EXP, July 31, 2012)
8. Site Remediation, 1770 Heatherington Road, Ottawa, Ontario (EXP, July 2, 2014)

Appendix A:
Previous Report Summary

For the purpose of this Phase Two, potential contaminants of concern (COCs) were determined from a comparison of the analytical results from the soil and groundwater samples obtained against Table 3: Full Depth Generic Site Condition Standards [Ontario Ministry of the Environment document titled Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*, March 9, 2004] for all Residential/Parkland/Institutional property use and fine textured soil. A parameter was selected as a potential COC if its maximum sample concentration exceeded its Table 3 SCS, or if a detected parameter has no Table 3 SCS.

Historically, the property was used for agricultural/vacant purposes until the current on-Site operations began sometime in the mid to late 1960s. Since then, the RA property has been used by the City of Ottawa as a Works Yard. The Works Yard included the use, storage and handling of road de-icing salts.

The following reports were reviewed for the preparation of the risk assessment, and the compilation of the analytical data sets. Complete, electronic copies of the reports are included in full on the USB in Appendix O.

1. *Phase I Environmental Site Assessment – 1770 Heatherington Road, Ottawa, Ontario*. Prepared by Jacques Whitford Limited. February 29, 2008. (JWL, 2008a).
2. *Phase II Environmental Site Assessment – 1770 Heatherington Road, Ottawa, Ontario*. Prepared by Jacques Whitford Limited. March 24, 2008. (JWL, 2008b).
3. *Supplemental Phase II Environmental Site Assessment and Remedial Options Review – 1770 Heatherington Road, Ottawa, Ontario*. Prepared by Trow Associates Inc. September, 2008. (Trow, 2008a).
4. *Monitoring Well Installation and Groundwater Sampling, Ottawa Works Yard, 1770 Heatherington Road, Ottawa, Ontario*. Prepared by Trow Associates Inc. December 16, 2008. (Trow, 2008b).
5. *Test Pit Assessment and Groundwater Sampling, Ottawa Works Yard, 1770 Heatherington Road, Ottawa, Ontario*. Prepared by Trow Associates Inc. December 23, 2008. (Trow, 2008c).
6. *Replacement Monitoring Well Installation and Groundwater Monitoring Program – 1770 Heatherington Road, Ottawa, Ontario*. Prepared by Trow Associates Inc. December, 2009. (Trow, 2009).
7. *Groundwater Monitoring Program Field Notes, 1770 Heatherington Road, Ottawa, Ontario. Completed by Trow Associates Inc. August 2010. (Trow, 2010).*
8. *Site Remediation 1770 Heatherington Road, Ottawa, Ontario. Prepared by EXP Services Inc. October 2015. (EXP, 2015).*
9. *Phase One Environmental Site Assessment, 1770 Heatherington Road, Ottawa, Ontario. Prepared by EXP Services Inc., June 2016. (EXP, 2016a).*
10. *Phase Two Environmental Site Assessment, 1770 Heatherington Road, Ottawa, Ontario. Prepared by EXP Services Inc. June 2016. (EXP 2016b).*
11. *Phase One Environmental Site Assessment Update, 1770 Heatherington Road, Ottawa, Ontario. Prepared by EXP Services Inc., In-Progress. (EXP, 2024a).*
12. *Phase Two Environmental Site Assessment Update, 1770 Heatherington Road, Ottawa, Ontario. Prepared by EXP Services Inc. In-Progress (EXP 2024b).*

The analytical data obtained from the previous site investigations was prepared by Trow (Trow, 2008a; b; c; 2009 and 2010) and Jacques Whitford Ltd. (JWL, 2008b). Laboratory analysis of soil and groundwater was performed by Caduceon Environmental Laboratories (Caduceon) and Paracel Laboratories Ltd. (Paracel). Caduceon and Paracel are accredited by the Standards Council of Canada/Canadian Association of Environmental Analytical Laboratories (Accredited Laboratory No. 2644 and A1262, respectively) in accordance with ISO/IEC 17025:1999 – "General Requirements for the Competence of Testing and Calibration Laboratories" for the analysis of all parameters for all samples in the scope of work for which SCS have been established under Ontario Regulation 153/04. The QP considers the analytical results to be suitable to support the conclusions made within the RA.

As revisions have occurred for the boundary of the RA property since the time of last submission, select reference within the previous reports may no longer apply to features or data collected from the current Site boundaries.

The analytical data sets obtained from the soil and groundwater samples that were compared with the Table 3 generic SCSs are discussed in the individual report summaries presented in this appendix. These data sets included analytical results for petroleum hydrocarbons (PHC including BTEX), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and metals, hydride forming metals and select other regulated parameters in both soil and groundwater. Analytical results for groundwater and soil pH are also included.

A summary of the analytical results obtained from the RA Property are included in Appendix E.

Sampling Program

Based on the historical operations that took place at the RA Property, and the review of the previous environmental investigations, the previous sampling programs were designed to include the collection of soil and groundwater samples for analysis of BTEX, PHC F1-F4, VOCs, PAHs, PCBs and inorganic parameters. Soil and groundwater samples were also collected and submitted for analysis of pH. In addition, summary tables are also provided with the rationale for the submission of soil samples for chemical analysis.

The sampling programs conducted by Trow and EXP (formerly Trow), which were relied on for this risk assessment, were conducted by EXP personnel using generally accepted scientific and engineering principles, and with the appropriate sampling equipment. Standard sampling procedures for soil and groundwater were used to ensure consistency in sample collection and the preparation of samples for laboratory submission. The Ontario Ministry of the Environment document titled *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario* (MOE, 1996a) was used as a reference.

Based on the statement provided in the Phase II ESA (JWL, 2008b), the JWL sampling programs were conducted in a similar manner.

The soil and groundwater sampling plans were prepared and executed based on the historical property use of the Site and on professional judgment at the time of sample collection. Field observations were made and documented in a field book in accordance with generally accepted practices.

The complete summaries of historic soil and groundwater monitoring programs, are provided for each investigation presented in this appendix. Refer to Appendix E for complete analytical summary tables. Refer to Appendix O (USB) for copies of the associated borehole logs, certificates of analysis, and PDF copies of the previous reports referenced herein.

The following samples were collected for the RA Property, which are deemed representative of existing site conditions.

Table D-1: Sample Collection Summary Prior to Remedial Activities

Parameter Test Group	Number of Analyses [a]	
	Soil	Groundwater
PHC	26	21
BTEX	26	37
VOCs	27	35
PAHs	25	6
PCBs	15	6
Metals	16	15
Sulphate	6	0
pH	33	6
Electrical Conductivity (EC)	103	NA
Sodium Adsorption Ratio (SAR)	103	NA
Sodium(Na^+)	NA	10
Chloride (Cl^-)	NA	16
Nitrite (NO^{-2})	NA	16

[a] Duplicates or blanks are not included in the number of analyses
NA = not applicable

Table D-2: Sample Collection Summary During and Following Remedial Activities

Parameter Test Group	Number of Analyses(1)	
	Soil	Groundwater
Electrical conductivity	18	NA
Sodium adsorption ratio	18	NA
Chloride	NA	20
Sodium	NA	23
PHCs	75	37
BTEX only	17	48

Parameter Test Group	Number of Analyses(1)	
	Soil	Groundwater
VOCs	23	52
PAHs	39	4
PCBs	0	0
Boron only	3	0
Cobalt only	5	0
Lead only	3	0
Vanadium only	5	0
Metals	19	4
pH	10	0

(1) Duplicates or blanks are not included in the number of analyses

NA = not applicable

An estimation of natural local background concentrations was not conducted as part of this risk assessment.

The QP considers this sampling program to be sufficient to support the conclusions made within the RA.

Quality Assurance/Quality Control

As shown in the individual report summaries, field duplicate samples were obtained for both soil and groundwater. The results of the field duplicates and the original samples show good correlation. The following table provides further information regarding the field duplicate samples submitted for the RA Property.

Table D-3: Field Duplicate Sample Summary

Matrix	Original Sample Identification	Duplicate Sample Identification	Sample Depth (m bgs)	Parameter	ESA (Appendix D)
Soil	TP08-51	TP08-15	0.91-1.37	BTEX, PHCs, Styrene, PCBs	JWL, 2008b
	TP08-132	TP08-231	0.78-0.91	PAHs, Metals, SAR, EC, pH	JWL, 2008b
	TP5B	TP50B	0.3	SAR, EC	Trow, 2008a
	TP11C	TP110C	1.0	SAR, EC	Trow, 2008a

Matrix	Original Sample Identification	Duplicate Sample Identification	Sample Depth (m bgs)	Parameter	ESA (Appendix D)
	TP19C	TP190C	1.0	SAR, EC	Trow, 2008a
	TP20B	TP200B	1.0 – 1.1	pH	Trow, 2008c
	TP23C	TP230C	1.0	SAR, EC	Trow, 2008a
	TP27B	TP270B	0.3	SAR, EC, pH	Trow, 2008a
	SS13	SS130	0.0-0.1	SAR, EC	Trow, 2008a
	SS14	SS140	0.0-0.1	SAR, EC	Trow, 2008a
	SS15	SS150	0.0-0.1	SAR, EC	Trow, 2008a
	MW08-12 SS3	MW08-12 SS33	1.52-2.13	Sulphate	Trow, 2008a
	MW08-16 SS5	MW08-16 SS15	3.0-3.7	BTEX, PHCs, VOCs	Trow, 2008a
	MW08-17 SS6	MW08-17 SS16	3.7-4.8	Boron	Trow, 2008a
	TP08-1-D2	TP08-1-D20	0.7	PAHs	**EXP**, 2016
	N9-3	N9-30	3.0	PHCs, pH	**EXP**, 2016
	S21-3	S21-30	3.0	PHCs, VOCs	**EXP**, 2016
	NEW 1-3	NEW 1-30	3.0	PHCs	**EXP**, 2016
	F5-4	F5-40	3.5	PHCs, VOCs	**EXP**, 2016
	FN-5	FN-50	3.2	PHCs	**EXP**, 2016
	FN9-6	FN9-60	3.2	PHCs	**EXP**, 2016
	F2	F20	1.0	pH	**EXP**, 2016

Matrix	Original Sample Identification	Duplicate Sample Identification	Sample Depth (m bgs)	Parameter	ESA (Appendix D)
	TP23 S3	TP51 S2	2.0 – 3.0	PHCs, BTEX, PAHs, Metals	**EXP,** 2019
	TP40 S1	TP54 S1	0.0 – 1.0	PHCs, BTEX, PAHs, Metals	**EXP,** 2019
	TP-21-14 SS1	TP-21-28 SS1	1.0	EC & SAR	**EXP,** 2019
	TP-21-19 SS1	TP-21-29 SS1	1.0	EC & SAR	**EXP,** 2019
	BH22-3-G2	BH22-4-G1	0.7 – 0.9	PAHs	**EXP,** 2022
Groundwater	MW08-1	MW08-100	2.56	VOCs, Copper, Lead, SAR, EC	Trow, 2008a
	MW08-1	MW08-9	2.56	BTEX, PHCs, VOCs, PAHs, PCBs, Metals, Chloride, Nitrite, EC, pH	JWL, 2008b
	MW08-15	MW08-150	1.69	Sodium, Chloride, Nitrite	Trow, 2009
	MW08-17	MW08-170	1.59	BTEX & VOCs	Trow, 2010
	MW19	MW190	2.20	VOCs	Trow, 2008b
	MW12-3	MW12-30	3.1 – 6.1	BTEX, PHCs, VOCs	**EXP**, 2016
	MW12-3	MW12-3 DUP	3.1 – 6.1	PAHs	**EXP**, 2016
	MW14-5	MW14-50	1.3 – 4.3	BTEX, PHCs, VOCs	**EXP**, 2016
	MW15-2	MW05-10	10.6 – 12.1	BTEX, VOCs	**EXP**, 2016
	MW15-4	MW15-14	3.0 – 6.0	BTEX, PHCs, PAHs	**EXP**, 2016

Matrix	Original Sample Identification	Duplicate Sample Identification	Sample Depth (m bgs)	Parameter	ESA (Appendix D)
	MW15-11	MW15-13	3.0 – 6.0	Sodium, Chloride	**EXP**, 2016
	MW14-6	MW16-2	1.5 – 4.5	VOCs	**EXP**, 2019
	MW15-7	MW16-4	10.6 – 12.1	Sodium & Chloride	**EXP**, 2019
	MW14-7	MW2	1.3 – 4.3	VOCs	**EXP, 2022**
	MW15-2	MW20-2	10.6 – 12.1	VOCs	**EXP, 2022**
	MW15-1 (OB)	MW1	2.9 - 5.9	PAHs	**EXP, 2022**

A field blank sample was collected during the February 2008 groundwater sampling round by JWL and submitted for analysis of BTEX, PHCs and VOCs. A trip blank sample was collected during the August 11, 2008 groundwater sampling round by Trow and submitted for analysis of BTEX, PHCs and VOCs. A trip blank sample was also collected during the August 30, 2010 groundwater sampling round by Trow and submitted for analysis of VOCs (including BTEX). Additionally, four (4) trip blanks were collected by **EXP** from April 2013 to August 2015 during groundwater sampling events and were submitted for analysis of VOCs (including BTEX). A trip blank sample was also submitted alongside groundwater samples collected in 2019 and 2022 for the analysis of VOCs or PHCs and BTEX. Most analyses were returned non-detect, indicating insignificant cross contamination in the field or during transport. One field blank sample during the February 2008 groundwater sampling conducted by JWL indicated a detected chloroform concentration of 1.8 µg/L; however, this detected concentration is within a factor of five (5) from the laboratory reported detection limit (0.3 µg/L), and this concentration is not considered a significant indication of contamination.

The laboratories used during this investigation, Caduceon Environmental Laboratories and Paracel Laboratories Ltd., are accredited by the Standards Council of Canada/Canadian Association of Environmental Analytical Laboratories (Accredited Laboratory No. 2644 and A1262, respectively) in accordance with ISO/IEC 17025:1999 – "General Requirements for the Competence of Testing and Calibration Laboratories" for the analysis of all parameters for all samples in the scope of work for which SCS have been established under Ontario Regulation 153/04.

Analytical test group specific field quality assurance and quality control procedures were incorporated into the sampling programs. These procedures included the use of the appropriate number and size of laboratory-prepared sample containers, the use of appropriate preservatives when required, the collection of field duplicate samples when required, and ensuring sample hold times and temperatures were not exceeded. The Ontario government document titled *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act* (MOE, 2004a) was used as a reference.

The laboratory quality assurance program included the analysis of laboratory duplicate (replicate) samples, method blanks, spiked blanks, spiked samples and samples of reference materials in accordance with the Analytical Protocol. Caduceon's and Paracel's overall quality control for the analysis meets their acceptability criteria.

The QP considers the analytical results to be suitable to support the conclusions made within the RA.

Phase I Environmental Site Assessment – 1770 Heatherington Road, Ottawa, Ontario. Prepared by Jacques Whitford Limited. February 29, 2008.

A Phase I ESA was conducted by Jacques Whitford Limited (JWL) to evaluate the potential for environmental impacts at the Site related to historic activities and operations conducted on and off-Site. The findings of the Phase I ESA identified a number of issues of potential environmental concern related to past activities on and off-Site including:

- Storage and handling of hazardous waste materials at the Site, which included waste oils and lubricants, inorganic laboratory chemicals, landfill leachate, light fuels and oils, skimmings and sludges;
- The historic storage and handling of road salts at the Site;
- The presence of several fill/debris piles at the Site reportedly consisting of street sweepings;
- The storage and handling of halogenated solvents at a dry cleaning operation located adjacent to the northwest boundary of the Site;
- The age and conditions of the on-Site catch basins, the presence of oil in the eastern basin and observed staining on the floor of the on-Site garage;
- A former gasoline retail outlet located adjacent to the north boundary of the Site;
- The reported spill of 150 litres of motor oil off Site from an AST located at a former automobile dealership at the intersection of Walkley and Heatherington Roads; and,
- Historic operations associated with a former environmental contractor located north of the Site at Walkley Road.

Phase II Environmental Site Assessment, 1770 Heatherington Road, Ottawa Ontario. Prepared by Jacques Whitford Limited. March 24, 2008.

To address the potential environmental concerns indentified in the JWL Phase I ESA, a Phase II ESA was conducted by JWL in February 2008 to evaluate soil and groundwater quality at the Site. The investigation consisted of the following:

- Advancement of eight (8) boreholes, all of which were instrumented as groundwater monitoring wells and the excavation of 16 shallow test pits.
- The monitoring wells were screened within the native silty clay/silty sand at depths from approximately 1.5 m to 6 m below grade.
- Soil and groundwater samples were collected for the laboratory chemical analysis of PHCs, volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), metals and general chemistry/inorganic parameters.
- The analytical results indicated elevated levels of EC and SAR in the majority of the surface soil samples (depths less than 1.5 m below grade) collected across the Site and in some subsurface soil samples (depths greater than 1.5 m below grade) above their respective MECP Table 3 SCS.
- Boron was detected in one (1) surface soil sample (MW08-2) at a concentration above the MECP Table 3 SCS (2.0 µg/g).
- One (1) surface soil pH measurement was above the applicable range of 5 to 9 for the MECP generic SCS.
- The results for the remaining parameters in both soil and groundwater met the MECP Table 3 SCS, where applicable.
- A hydrocarbon sheen was reportedly observed at two (2) monitoring well (MW08-1 and MW08-2) located in the vicinity of the on-Site maintenance garage.

- Groundwater samples collected from these monitoring well locations indicated concentrations of PHC Fractions F2 and F3 were in excess of the MECP Table 2 SCS protective of potable groundwater quality. It should be noted that there are no MECP Table 3 SCS for groundwater.

Supplemental Phase II Environmental Site Assessment and Remedial Options Review, 1770 Heatherington Road, Ottawa, Ontario. Prepared by Trow Associates Inc. September, 2008.

A supplemental Phase II ESA of the Site was conducted by Trow to further delineate the extent and magnitude of the soil and groundwater impacts previously identified at the Site, and to evaluate potential remedial options to clean up the Site. The investigation consisted of the following:

- Advancement of nine (9) boreholes at the Site, which included six (6) boreholes instrumented as monitoring wells and three (3) boreholes instrumented as piezometers.
- Soil samples were collected from the boreholes for laboratory chemical analysis of PHC Fractions, VOCs, and boron.
- Groundwater samples were collected for analysis of PHC Fractions and VOCs.
- The investigation also included the excavation of 26 shallow test pits for the collection of soil samples for the analysis of EC and SAR.
- Sixteen (16) surface soil samples were collected from various locations for the analysis of EC and SAR.
- The analytical results indicated levels of EC and SAR in surface soil above the MECP Table 3 SCS extending across the majority of the Site.
- The findings of the Trow investigation also indicated that the boron and pH soil impacts identified by JWL were isolated occurrences at single locations.
- The groundwater analytical results indicated that vinyl chloride was detected at one (1) monitoring well location (MW08-15) at a concentration (1.5 µg/L) above its MECP Table 3 SCS (1.3 µg/L).
- The analytical results also indicated the presence of PHC Fractions F2, F3 and F4 in groundwater at two (2) monitoring well locations (MW08-1 and MW08-2) at concentrations above the MECP Table 2 potable groundwater SCS.

Monitoring Well Installation and Groundwater Sampling, Ottawa Works Yard, 1770 Heatherington Road, Ottawa, Ontario. Prepared by Trow Associates Inc. December 16, 2008.

A monitoring well installation and groundwater sampling program of the Site was conducted by Trow to delineate the vertical and lateral extents of vinyl chloride-impacted soil and/or groundwater at the Site. The investigation consisted of the following:

- Advancement of two (2) boreholes (BH18 and BH19), both of which were instrumented with groundwater monitoring wells (MW18 and MW19).
- Two (2) soil samples were collected from the boreholes for laboratory chemical analysis of VOCs.
- Groundwater samples were collected from the newly installed monitoring wells, as well as six (6) previously installed monitoring wells (MW08-1 to MW08-3, MW08-14, MW08-16 and MW08-17) for laboratory chemical analysis VOCs.

- The soil analytical results did not indicate any VOC parameters in excess of MECP Table 3 SCS.
- The groundwater analytical results indicated that vinyl chloride was detected at two (2) monitoring well location (MW08-14 and MW19) at concentrations (6.1 and 1.5 µg/L, respectively) above its MECP Table 3 SCS (1.3 µg/L).

Test Pit Assessment and Groundwater Monitoring, Ottawa Works Yard, 1770 Heatherington Road, Ottawa, Ontario. Prepared by Trow Associates Inc. December 23, 2008.

A test pit assessment and groundwater sampling program of the Site was conducted by Trow to refine the volume of soil with pH levels outside of the acceptable range that will require removal from the property; and, to confirm the presence or absence of vinyl chloride impacted groundwater at the Site. The investigation consisted of the following:

- Excavation of twelve (12) test pits at the Site, to a depth of 1 m bgs, for the analysis of pH.
- Advancement of one (1) groundwater monitoring well (MW08-14) at the Site, for the analysis of VOCs.
- Sixteen (16) surface soil samples were collected from various locations for the analysis of pH.
- The analytical results indicated that none of the submitted soil samples had a pH value in excess of 9 pH units, and therefore satisfied MECP Table 3 SCS.
- The groundwater analytical results indicated that vinyl chloride was detected at MW08-14 at a concentration (16.7 µg/L) above its MECP Table 3 SCS (1.3 µg/L).

Replacement Monitoring Well Installation and Groundwater Monitoring Program, 1770 Heatherington Road, Ottawa, Ontario. Prepared by Trow Associates Inc. December, 2009.

A supplemental groundwater sampling of the Site was conducted by Trow to further delineate the extent and magnitude of the groundwater impacts previously identified at the Site, and to address the MECP comments on the PSF which expressed the need for more extensive groundwater sampling. The investigation consisted of the following:

- Replacement of two (2) monitoring wells at the Site, specifically MW08-10 and MW08-11.
- Groundwater samples were collected for analysis of sodium, chloride and nitrite.
- Although not detected in excess of the laboratory RDLs, the RDLs for ten (10) of the eleven (11) groundwater samples analyzed for nitrite were in excess of the MECP Table 3 SCS
- Although no Table 3 SCS exist, the analytical results indicated levels of sodium and chloride in groundwater above the MECP Table 2 potable groundwater SCS extending across the majority of the Site.

Groundwater Monitoring Program Field Notes, 1770 Heatherington Road, Ottawa, Ontario. Completed by Trow Associates Inc. August 2010.

A groundwater sampling program of the Site was conducted by Trow to further delineate the extent and magnitude of the groundwater impacts previously identified at the Site, and to address the MECP comments on the PSF which expressed the need for more extensive groundwater sampling. The investigation consisted of the following:

- Advancement of seven (7) monitoring wells (MW08-2, MW08-3, MW08-14, MW08-15, MW08-17, MW18 and MW19) for the laboratory analysis of VOCs. Groundwater samples collected from MW08-2 were also submitted for the analysis of PHCs.
- The groundwater analytical results indicated that vinyl chloride was detected at MW08-14 at a concentration (3.8 µg/L) above its MECP Table 3 SCS (1.3 µg/L).

Site Remediation, 1770 Heatherington Road, Ottawa, Ontario (EXP, October 2015)

This report was prepared to summarize all remedial activites completed on the site. Based on the soil and groundwater remediation activities completed at the Site and the analytical test results, the following summary and conclusions are provided:

- The Site underwent soil and groundwater remediation activities during the spring of 2012 and the winter of 2014;
- A total of approximately 9,190 metric tonnes of impacted soil that exceeded the MECP Table 3 SCS for Residential/Parkland/Institutional Property Use was excavated and transported off-Site licensed landfill sites in Ottawa;
- The excavation areas were backfilled and compacted with Granular B Type II material sourced from commercial quarries operated by Tomlinson and Karson aggregates.
- During the 2014 remedial efforts, approximately 620 m^3 of backfill material consisted of segregated on-site soils that were determined to be acceptable based on laboratory analysis. Compaction testing efforts during the 2014 work was hindered by extreme cold temperatures;
- All confirmatory soil samples collected from the floor and walls of the excavations met the MECP Table 3 SCS; and,
- Post remediation groundwater monitoring analytical results met the MECP Table 3 SCS.

Based on the analytical results obtained following the excavation activities, the impacted soil and groundwater identified in Phase Two has been removed from the Site and the remaining soil and groundwater in the area of the excavation complies with the applicable MECP Table 3 SCS for Residential/Parkland/Institutional Property Use for fine textured soil.

Table D-4: Summary of Remedial Activities (2012-2014)

Location	Contaminants of Concern in Soil	Volume (Tonnage) of Soil Removed	Confirmatory Soil Analysis	Contaminants of Concern in Groundwater	Volume of Groundwater Removed (litres)	Confirmatory Groundwater Analysis
Pit 1	PHC, VOC, PAH, boron	4,025 m^3 (8,480 T)	All samples submitted for confirmatory analysis (ie; VOC [31 samples], PHC [29 samples], PAH [4 samples], boron and lead [3 samples] met the applicable criteria.	PHC, VOC, PAH	142,520	Eight (8) rounds of post remediation groundwater monitoring met the applicable criteria (2012 x2, 2013, 2014 x2,

Location	Contaminants of Concern in Soil	Volume (Tonnage) of Soil Removed	Confirmatory Soil Analysis	Contaminants of Concern in Groundwater	Volume of Groundwater Removed (litres)	Confirmatory Groundwater Analysis
						2015, 2019, 2022)
Pit 2	PHC, PAH	222 m^3 (380 T)	All samples submitted for confirmatory analysis (i.e.; PHC [29 samples] and PAH [4 samples] met the applicable criteria	None	None	2015 groundwater monitoring met the applicable criteria
Pit 3	Cobalt, vanadium	54 m^3 (90 T)	All samples submitted for confirmatory analysis (i.e. cobalt and vanadium) met the applicable criteria	None	None	2015 groundwater monitoring met the applicable criteria
Pit 4	PAH	42 m^3 (80 T)	All samples submitted for confirmatory met the applicable criteria	None	None	2015 groundwater monitoring met the applicable criteria
Pit 5	pH	36 m^3 (80 T)	All samples submitted for pH confirmatory analysis met the applicable criteria	None	None	Not applicable
Pit 6(1)	pH	25 m^3 (60 T)	All samples submitted for pH confirmatory analysis met the applicable criteria	None	None	Not applicable

(1) – Pit No. 6 is Located Off-Site

Brief summaries regarding the remedial efforts completed at the Site and on the adjacent property (i.e., Pit No. 6) are summarized below under the sub-headings Pit 1 through Pit 6 Excavation details, below:

Pit 1 Excavation Details (*On-Site, North-Eastern Portion of Site)*

Between 2008 and 2012, exceedances of various PAHs, select metals (soil only), PHCs and VOCs (groundwater only) were identified in soil and groundwater were identified in samples collected from the vicinity of the former maintenance and storage garage located at the north portion of the Site.

Between 2012 and 2014 approximately, 8,480 tonnes of impacted soil that exceeded the MECP Table 3 SCS for Residential/Parkland/Institutional Property Use (medium - fine textured) was removed from this excavation and disposed of at a licensed landfill site. The final excavation for Pit No. 1 measured approximately 1,150 m^2 in total floor area.

Analytical results from the 2012 and 2014 confirmatory soil sampling met the applicable Table 3 SCS indicating vertical and horizontal delineation for soil impacts was achieved at all excavation areas. In brief the following confirmation samples were collected from Pit No. 1 to assess soil quality:

- **North Wall –** In 2012, nine (9) soil samples were collected from the north wall and analyzed for VOCs, PAHs, PHCs and/or select metals. Fur (4) of the 2012 samples from the north wall failed to meet the applicable Table 3 SCS for PHCs F1-F2. No other exceedances were identified. As such, in 2014 the bounds of the north wall were extended and an additional five (5) soil samples and one (1) duplicate were collected from the new bounds of the north wall and analyzed for VOCs and/or PHCs no exceedances were identified and the north wall of the excavation had been determined to be appropriately delineated to the applicable SCS.
- **South Wall –** In 2012, three (3) soil samples were collected from the bounds of the south wall and were analyzed for VOCs and/or PHCs. No exceedances were identified in the soil samples collected from along the south wall. In 2014, two (2) additional soil samples were collected from the south wall and were analyzed for PHCs and VOCs. No exceedances of the applicable SCS were noted for the samples collected in 2014 from the south wall.
- **East Wall –** In 2012, five (5) soil samples and one (1) duplicate sample were collected from along the east wall and were analyzed for VOCs, PHCs and/or PAHs. Select exceedances of PHC F2 were identified in several soil samples collected from the east wall in 2012. As such, in 2014 the east wall was extended, and an additional five (5) soil samples and two (2) duplicates were collected from the new bounds of the east wall and analyzed for VOCs and/or PHCs. No exceedances of the applicable SCS were noted for the samples collected in 2014 from the east wall.
- **West Wall –** Between 2012 and 2014, seven (7) soil samples were collected from the west wall and were analyzed for VOCs, PHCs and/or select metals. One (1) exceedance was identified in a sample collected from the west wall in 2014 for PHC F3, the sampling location was subsequently removed, and additional confirmatory sampling indicated delineation of impacts had been archived.
- **Floor –** In 2012, eight (8) soil samples were collected from the floor of the remediation and were analyzed for PHCs, no exceedances of the applicable SCS were identified. In 2014 at the time of the north wall extension an additional ten (10) soil samples and two (2) duplicate samples were collected from the floor of the excavation and analyzed for VOCs and/or PHCs. No exceedances of the applicable SCS were identified for any of the 2012 or 2014 floor samples collected from Pit No. 1.

Throughout the excavating work at Pit 1, groundwater seeped into the base of the excavation and was pumped into a holding tank as needed. The holding tank was then emptied by Clean Water Works when filled. A total of 142,520 liters of groundwater from Pit No. 1 was hauled off-site by Clean Water Works. All groundwater was disposed of under provincial code description 251 L at the Clean Water Works disposal facility at Bantree Street in Ottawa.

Following the 2012 excavation activities, eight (8) overburden monitoring wells were constructed in the Pit 1 excavation (MW12-1 to MW12-5, MW08-8, MW08-10 and MW12-11). These wells were sampled on two (2) or three (3) occasions including July 2012 and/or October 2012, and April 2013.

Following the 2014 excavation and 2012-2013 groundwater sampling activities, eight (8) additional overburden monitoring wells were installed in and around Pit 1. These wells, plus several of the 2012 monitoring wells, were sampled on two occasions (July 2014 and November 2014). During these rounds of sampling and analyses, no exceedances of the applicable Table 3 non-potable criteria were detected for VOC, PHC, or PAH. As such it was deemed that the groundwater within the remedial Pit No. 1 footprint met the applicable Table 3 SCS.

Given that the final round of confirmatory sampling conducted in 2014 for Pit 1 yielded analytical results for soil and groundwater samples below the applicable Table 3 SCS, Pit No. 1 was not identified as a PCA for the Site and is considered to be remediated to the applicable Table 3 SCS as per the opinion of the QP_{ESA}.

Pit 2 Excavation Details (*On-Site, Central-West Portion*)

Between May 18 and May 22, 2012, Pit No. 2 was excavated on the western-central portion of the site to address PHC (F1-F4) and PAH soil exceedances identified at test pit location, TP08-15. On the 30th of January 2008, a marginal exceedance of benzo(a)pyrene (0.36 ug/g) and an exceedance of PHC F2 (1,740 ug/g) were noted at this sampling location, TP08-15, at a sampling depth of 0.3 m bgs.

Approximately 380 tonnes of impacted soil were removed from the Pit 2 excavation. The excavation was advanced to a depth of 1.2 m below ground surface. Groundwater did not enter the excavation. The final excavation for Pit 2 measured approximately 185 m^2.

To confirm the removal off soil impacts identified at TP08-15, a total of five (5) composite wall samples (i.e., NW1-1, SW2-2, EW2-1, EW5-1 and WW3-1) were collected from the, north, south, east and west walls of the excavation. In addition, three (3) composite floor samples (i.e., F2, F7, and F12) were collected from the base of the excavation. All confirmatory samples collected from Pit 2 met the applicable Table 3 SCS for the Site, indicating impacts had been removed and delineation achieved. Furtherer more, following the completion of the Pit 2 excavation, a monitoring well was installed, denoted as MW15-4, at the approximate location of the former TP08-15. MW15-4 was screened at a depth of 3.0 – 6.0 m bgs and was subsequently sampled for PHCs and BTEX and PAH parameters on the 25 of August 2015. No exceedances of either PHCs and BTEX or PAHs were identified in the groundwater sampling conducted at MW15-4.

Given that all confirmatory sampling conducted at this location yielded analytical results for PHCs and BTEX and PAHs below the applicable Table 3 SCS, Pit No. 2 was not identified as a PCA for the Site, and is considered to be remediated to the applicable Table 3 SCS as per the opinion of the QP_{ESA}.

Pit 3 Excavation Details (*On-Site*, *Southeastern Portion*)

On May 23, 2012, Pit No. 3 was excavated along the southern boundary of the Site, to address cobalt and vanadium soil exceedances identified at MW08-8 in a soil sample collected at a depth of 0.2 – 1.22 m bgs.

A total of approximately 90 tonnes of soil was excavated from the Pit 3 excavation. Initially the excavation was advanced to a depth of 1.2 m below ground surface and three (3) composite wall samples (i.e., WW1-1, EW1-1, and

NW2-1) and two (2) composite floor samples (i.e., F3 and Fla) were collected for laboratory analysis of cobalt and vanadium. One (1) of the submitted floor samples exceeded the criteria for both cobalt and vanadium. As a result, on May 30, 2012 the western portion of the excavation was advanced to a depth of 1.5 m below ground surface and re-sampled, the additional confirmational soil sample was found to meet the applicable Table 3 criteria.

Groundwater did not enter the excavation. The final excavation for Pit 3 measured approximately 36 m^2 in total floor area. Following remedial activities, a monitoring well denoted as MW15-6, was advanced within the center of the former remedial pit with a screen depth of 3.0 – 6.0 m bgs. MW15-6 was sampled on August 25, 2015 for metals and inorganics and no exceedances of the applicable Table 3 SCS were identified.

Given that the remedial Pit 3 is located at the downgradient portion of the Site, and that all confirmatory soil and groundwater sampling at this location yielded analytical results for cobalt and vanadium below the applicable Table 3 SCS, Pit No. 3 was not identified as a PCA for the Site and is considered to be remediated to the applicable Table 3 SCS as per the opinion of the QPESA.

Pit 4 Excavation Details (*On-Site, South-Central Portion of Site*)

On May 24, 2012, Pit No. 4 was excavated at the southern property boundary to address a PAH soil exceedance identified at TP08-1. Benzo(a)pyrene and fluoranthene were both identified as marginal exceedances of the applicable Table 3 SCS in a sample collected from a depth of 0.2 m bgs at TP08-1 in January 2008.

Approximately 80 tonnes (4 truckloads) of impacted soil were removed from the Pit 4 excavation. The excavation was advanced to a depth of 1 m below ground surface. Three (3) composite wall samples (i.e., NW2-1, EW3-1 and WW2-1) and two (2) composite floor samples (i.e., F1 and F4) were collected and submitted for laboratory analysis of PAH. All confirmatory samples collected from the remedial excavation yielded analytical results below the applicable Table 3 SCS.

Groundwater did not enter the excavation. The final excavation for Pit 4 measured approximately 42 m^2 in total floor area. Following remedial activities, a monitoring well denoted as MW15-9, was advanced within the center of the former remedial pit with a screen depth of 3.0 – 6.0 m bgs. MW15-9 was sampled on August 25, 2015 for PAHs and no exceedances of the applicable Table 3 SCS were identified.

Given that the remedial Pit No. 4 is located at downgradient boundary of the Site and that all confirmatory soil and groundwater sampling at this location yielded analytical results for PAHs below the applicable Table 3 SCS, Pit 4 was not identified as a PCA for the Site.

Pit 5 Excavation Details (*30 m southeast of Site*)

On May 31 2012, Pit 5 was excavated at the south-central portion of the Site to address pH exceedances identified in a soil sample collected from TP08-8 at a sampling depth of 0.6 m bgs on the 30th of January 2008.

Approximately 80 tonnes (4 truckloads) of impacted material was removed from the Pit 5 excavation and three (3) composite wall samples (i.e., WW1, EW1, and SW1) and two (2) composite floor samples (i.e., F1 and F2) were collected and sent for laboratory analysis of pH. All five (5) of the confirmatory pH samples were within the appliable Table 3 SCS pH range for surficial soils.

Groundwater did not enter the excavation. The final excavation for Pit 5 measured approximately 36 m^2.

Given that the remedial Pit 5 is located at the downgradient portion of the Site and that all confirmatory soil sampling at this location yielded analytical results for soil pH within the applicable Table 3 SCS, Pit 5 was not identified as a PCA for the Site and is considered to be remediated to the applicable Table 3 SCS as per the opinion of the QP_{ESA}.

Pit 6 Excavation Details (Off-Site – Located 15 m east of the Site)

On May 31, 2012, Pit 6 was excavated to the immediate east of the current Site boundaries to address a pH exceedance identified at a test pit in 2008. Based on revisions to the current Site boundary Pit No. 6 is now located off-Site, and analytical results for the remediation of Pit 6 are not presented in the current Phase two CSM or associated Figures. However, the approximate location and general details of the Pit 6 remediation are provided in the figures and below for transparency.

Approximately 60 tonnes (3 truckloads) of impacted surficial soil material was removed from the Pit 6 excavation up to a depth of 1.0 m bgs. Two (2) composite wall samples and three (3) composite floor samples including one (1) duplicate sample, for QA/QC purposes, were collected from Pit 6 and sent for the laboratory analysis of pH. On June 22, 2021, two (2) additional soil samples, S1 and S2, were collected from the bounds of the Pit 6 excavation, from the south and east walls of the former excavation, respectively. Soil samples S1 and S2 were collected at a depth of approximately 0.3 – 0.5 m bgs. All confirmational soil sampling for pH yielded results within the Table 3 SCS.

Groundwater was not encountered upon advancement of the excavation. The final excavation area for Pit 6 measured approximately 25 m^2. It is noted that no confirmatory groundwater sampling was conducted at Pit 6 given the nature of the initial soil exceedance identified (i.e., pH).

Phase One Environmental Site Assessment, 1770 Heatherington Road, Ottawa, Ontario (EXP, June 2016)

EXP was retained by the City of Ottawa to complete a Phase One ESA to update the environmental conditions of the site in support of filing a Record of Site Condition (RSC) on the Ontario Ministry of the Environment and Climate Change (MECP) Brownfields Environmental Site Registry. The need to file a RSC is to support a change in land use from industrial to residential.

The Phase One ESA identified the following areas of potential environmental concern.

Area of Potential Environmental Concern (APEC)	Location of APEC on Site	PCA Identifier & (Potentially Contaminating Activity)	Location of PCA (on-site or off-site)	Contaminants of Potential Concern (CPOC)	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC 1: Former garage in the northeast corner of the Phase One Property. All impacted soils and overburden groundwater were removed during various remediation programs (Pit 1). Further groundwater delineation is required.	Northeast Corner	PCA 1 (PCA #27: Garages and Maintenance and Repairs of railcars, Marine Vehicles, and Aviation Vehicles)	On-site	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 2: Former UST. All impacted soils and overburden groundwater were removed during various remediation programs (Pit 1). Further groundwater delineation is required.	Northeast Corner	PCA 2 (PCA #28: Gasoline and Associated Products Storage in Fixed Tanks)	On-site	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 3: Placement of surficial granular fill of unknown quality across the entire Site.	Across the Site	PCA 3 (PCA #30: Importation of Fill Material of Unknown Quality)	On-site	Metals, PAH, PHC	Soil and groundwater
APEC 4: Salt Dome and Use on-site. Previous Phase Two ESAs by both **exp** and others identified salt impacts in the shallow soil across much of the	Across the Site	PCA 4 (PCA #Other: Salt Use and Storage)	On-site	Soil (SAR and Electrical Conductivity), Groundwater (Na, Cl-)	Soil and groundwater

Area of Potential Environmental Concern (APEC)	Location of APEC on Site	PCA Identifier & (Potentially Contaminating Activity)	Location of PCA (on-site or off-site)	Contaminants of Potential Concern (CPOC)	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
site. Vertical delineation in soil and groundwater is required.					
APEC 5: Former off-site dry cleaner	Northwest corner of site	PCA 5 (#37: Operation of Dry Cleaning Equipment where chemicals are used)	Off-Site	VOC	Groundwater
APEC 6: Former off-site retail fuel outlet and UST.	North central portion of site	PCA 6 (#28: Gasoline and Associated Products Storage in Fixed Tanks)	Off-Site	BTEX, PHC	Groundwater
APEC 7: Former fuel dispenser and remediation contractor	North central portion of site	PCA 7 (#28: Gasoline and Associated Products Storage in Fixed Tanks)	Off-Site	BTEX, PHC	Groundwater
APEC 8: Former automotive sales and services	Northeast portion of site	PCA 8 (#27: Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles)	Off-Site	PHC, PAH, metals, VOCs	Groundwater
APEC 9: Former reported motor oil spill	Northeast portion of site	PCA 9 (#Other: Spill)	Off-site	PHC, PAH	Groundwater

Phase Two Environmental Site Assessment, 1770 Heatherington Road, Ottawa, Ontario (EXP, June 2016)

The objective of the Phase Two ESA was to re-evaluate the areas of potential environmental concern (APECs) identified in EXP's (2016) Phase One ESA; and, to obtain soil and groundwater data to further characterize the Site to support the filing of a RSC on the MECP Brownfields Environmental Site Registry.

The need to file a RSC is in support of the planned redevelopment of the Site to proposed residential use. The Site investigative activities, as incorporated into this Phase Two ESA, were conducted between 2008 and 2015. Various remedial efforts were also completed at the site in 2012 and 2014.

The results and findings of the Phase Two ESA conducted at the Site are summarized as follows:

1. Advancement of 43 test pits (up to a maximum depth of approximately 1.5 m bgs); 49 boreholes, (up to a maximum depth of approximately 18.3 m below grade) of which 46 were completed as monitoring wells.
2. Below the asphalt or topsoil layer, fill material consisting of silt and sand with trace gravel was encountered between approximately 0.8 and 2.5 m bgs. A layer of native silty clay was encountered across the Site beneath the fill material during borehole drilling and soil excavation activities. The silty clay was approximately 1 m to 4 m thick. Below the silty clay layer was the silty clay till layer, which became progressively coarser with sand and gravel at depth. The final stratigraphic layer encountered on the site was the Carlsbad Formation, which is composed of limestone bedrock. The bedrock was encountered at approximately 5.5 to 7.0 metres below grade. The bedrock consists of grey fractured and moderately weathered limestone.
3. Direction of groundwater flow was measured as south/south east in both the bedrock and overburden.
4. Initial contaminants of concern (COCs) in the soil were petroleum hydrocarbons (PHC), volatile organic compounds (VOC), polycyclic aromatic hydrocarbons (PAH) and metals near the former garage area. Inorganics (pH), metals and PAH were also identified in the fill across the site.
5. In addition, much of the soil across the site was found to be impacted with sodium adsorption ratio (SAR) and electrical conductivity (EC). The source of this impact is attributed to the former on-site storage and handling of road salt.
6. Initial COCs in the groundwater were PHC and VOC in former garage area.
7. Salt impacted groundwater (i.e. sodium chloride) was identified in both the overburden and bedrock groundwater across the site.
8. The non-salt related COC in the soil have been removed through remedial excavations in 2012 and 2014. All of the VOC and PHC impacted groundwater was removed through remediation efforts in 2012 to 2014. Confirmatory groundwater samples from the overburden in former excavations showed that PHC, VOC, metals and PAH are less than the provincial standards.

<u>Remediation Activities</u>

The site remediation activities were completed in two phases in 2012 and 2014 to address APEC 1 to APEC 5, respectively. The remediation activities included: i) the excavation and disposal of impacted soil at licensed landfill facilities; and, ii) the pumping and disposal of impacted groundwater at licensed facilities.

Several environmental site assessments that were previously conducted on-site identified the following areas of environmental concern (AEC):

- Petroleum hydrocarbon (PHC) and volatile organic compound impacted (VOC) impacted soil and groundwater in the vicinity of the former maintenance garage building;

- Minor amounts of boron and lead impacted surficial soil beneath the former maintenance garage building footprint; and,
- Low levels of PHC, polycyclic aromatic hydrocarbon (PAH), metal and/or pH impacted shallow soils at various locations throughout the yard.

Based on the soil and groundwater remediation activities completed at the Site and the analytical test results, the following summary and conclusions are provided:

- The Site underwent soil and groundwater remediation activities during the spring of 2012 and the winter of 2014
- Six separate excavation zones or pits were completed to remediate the various contaminants of concerns;
- A total of approximately 9,190 metric tonnes of impacted soil that exceeded the MECP Table 3 standards for Residential/Parkland/Institutional Property Use was excavated and transported off-Site licensed landfill sites in Ottawa;
- The excavation areas were backfilled and compacted with Granular B Type II material sourced from commercial quarries operated by Tomlinson and Karson aggregates.
- During the 2014 remedial efforts, approximately 620 m3 of backfill material consisted of segregated on-site soils that were determined to be acceptable based on laboratory analysis. Compaction efforts during the 2014 work was hindered by extreme cold temperatures;
- All confirmatory soil samples collected from the floor and walls of the excavations met the MECP Table 3 standards; and,
- Post remediation groundwater monitoring analytical results met the MECP Table 3 standards.

Current Site Conditions

Contaminants of concern that remain on-site include those related to salt storage and handling on the Phase Two Property. For soil, specific contaminants of concern include SAR and EC whereas in groundwater the contaminants of concern include Na and Cl-. In both circumstances, vertical and horizontal delineation has occurred.

With respect to receptor exposure, soil exceedances of the MECP Table 3 generic standards are driven by ecotoxicity models as opposed to human health models. There are no human health standards for SAR and EC and consequently, there are no human health concerns associated with these parameters.

With respect to the groundwater, the exceedances are driven by drinking water standards. The Phase Two Property and surrounding properties, however rely on the municipal water supply for drinking water as opposed to local groundwater. Consequently, the exposure pathway for those parameters are incomplete.

Phase One Environmental Site Assessment Update, 1770 Heatherington Road, Ottawa, Ontario (EXP, *In-Progress*)

EXP completed a Phase One ESA Update for the Site in 2024 (*In-Progress*). EXP built on the findings of the 2016 investigation by conducting a follow-up Site visit and by reviewing additional municipal and regulatory records and any subsurface investigations carried out on the Site since 2016. The goal of the Phase One ESA update was to identify any new PCAs and APECS that have been introduced to the Site and the Phase One Study Area since the completion of the original Phase One ESA. It is noted that the boundaries of the Site have changed since the completion of the 2016 Phase One ESA.

At the time of the Site visit, the Site was vacant, and no structures were present. No significant changes in regard to on-Site structures or land use were noted at this time. A portion of the 1770 Heatherington Road property (no longer located on-Site) was under construction at the time of the Site visit.

Based on the visual observations made at the time of the Site visit and the information collected during the records review, no additional PCAs or APECs were identified for the Site, or the Phase One Study Area.

A summary of the revised APECs is provided below:

Area of Potential Environmental Concern (APEC)	Location of APEC on Site	PCA Identifier & (Potentially Contaminating Activity)	Location of PCA (on-site or off-site)	Contaminants of Potential Concern (CPOC)	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC 1: Former garage in the northeast corner of the Phase One Property. All impacted soils and overburden groundwater were removed during various remediation programs (Pit 1)..	Northeast Corner	PCA 1 (PCA #27: Garages and Maintenance and Repairs of railcars, Marine Vehicles, and Aviation Vehicles)	On-site	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 2: Former UST. All impacted soils and overburden groundwater were removed during various remediation programs (Pit 1).	Northeast Corner	PCA 2 (PCA #28: Gasoline and Associated Products Storage in Fixed Tanks)	On-site	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 3: Placement of surficial granular fill of unknown quality across the entire Site.	Across the Site	PCA 3 (PCA #30: Importation of Fill Material of Unknown Quality)	On-site	Metals, PAH, PHC	Soil
APEC 4: Salt Dome and Use on-site. Previous Phase Two ESAs by both **exp** and others identified salt impacts in the shallow soil across much of the site.	Across the Site	PCA 4 (PCA #48: Salt Manufacturing, Processing and Bulk Storage	On-site	Soil (SAR and Electrical Conductivity), Groundwater (Na, Cl-)	Soil and groundwater

Area of Potential Environmental Concern (APEC)	Location of APEC on Site	PCA Identifier & (Potentially Contaminating Activity)	Location of PCA (on-site or off-site)	Contaminants of Potential Concern (CPOC)	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC 5: Former off-site dry cleaner.	Northwest corner of site	PCA 5 (#37: Operation of Dry Cleaning Equipment where chemicals are used)	Off-Site	VOC	Groundwater
APEC 6: Former off-site retail fuel outlet and UST.	North central portion of site	PCA 6 (#28: Gasoline and Associated Products Storage in Fixed Tanks)	Off-Site	BTEX, PHC	Groundwater
APEC 7: Former fuel dispenser and remediation contractor.	North central portion of site	PCA 7 (#28: Gasoline and Associated Products Storage in Fixed Tanks)	Off-Site	BTEX, PHC	Groundwater
APEC 8: Former automotive sales and services	Northeast portion of site	PCA 8 (#27: Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles)	Off-Site	PHC, PAH, metals, VOCs	Groundwater
APEC 9: Former reported motor oil spill	Northeast portion of site	PCA 9 (#Other: Spill)	Off-site	PHC, PAH	Groundwater

Phase Two Environmental Site Assessment Update, 1770 Heatherington Road, Ottawa, Ontario (EXP, *In-Progress*)

EXP completed a Phase Two ESA update for the Site in 2024 (*In-Progress*). EXP built on the findings of the 2016 investigation by conducting a follow-up Site visit to collect soil and groundwater samples from the Site.

The goal of the Phase Two ESA update was to identify any new COCs at the Site since the completion of the original Phase Two ESA in 2016 and to confirm the validity of the established Site conditions. As part of the activities

completed during the Phase Two ESA Update multiple surface soil samples were collected from on-Site soil berms composed of street sweepings and re-worked native soils from the Site. Soil samples were collected for the analysis of PHCs and BTEX, PAHs, metals, hydride forming metals and select ORPs. One (1) exceedance of select PAHs were identified in a sample collected at TP35, however a confirmatory soil sample was collected at the same location, and the averaged results were below the applicable SCS. Additionally, an exceedance of select metals was identified at TP30, and multiple confirmatory samples were collected from the same location, with the average of the original samples and the confirmatory samples below the applicable SCS. It is noted that vanadium exceeded the applicable SCS even upon averaging with confirmatory soil samples; however, this exceedance was attributed to naturally occurring concentrations of this parameter in the silty clay soils. Please refer to Appendix L for additional rationale. Finally, several test pit locations along the soil berms exceeded the applicable SCS for EC.

A total of six (6) grain size samples were collected by hand from across the Site in the surficial soils in 2022. The results of the grain size analysis confirmed that the predominant soil type at the Site was medium-fine textured. Several hand samples from the locations of grain size analysis were also submitted for the analysis of PAHs and metals. No exceedances of the applicable SCS were noted in any of the samples collected from BH22-1, BH22-2 and BH22-3.

Multiple rounds of groundwater sampling were conducted across the existing monitoring wells at the Site between 2019 and 2022. Groundwater samples were collected from pre-existing monitoring wells using low-flow sampling methodologies. Groundwater samples were submitted for the analysis of PHC and BTEX, PAHs, VOCs and/or sodium and chloride. No exceedances of the applicable Table 3 SCS were identified for PHCs, BTEX, VOCs or PAHs; however, select monitoring wells were identified to exceed the applicable Table 3 SCS for sodium and chloride. It is also noted that sodium and chloride concentrations appear to be decreasing in groundwater since the completion of the remedial efforts in 2015 and the decommissioning of the Site facilities.

Phase Two Conceptual Site Model

Refer to Appendix L for the Phase Two Conceptual Site Model.

Hydrogeological and Geological Interpretations

For the purpose of this risk assessment, certain geological and hydrogeological interpretations and assumptions were applied in the development of the Property Specific Standards (PSS). Some of these interpretations and assumptions differed from those applied by the MECP in the derivation of the current MECP (2011) generic Site Condition Standards (SCS). In accordance with Schedule C s.4(6) 4.iv, a summary of the geological and hydrogeological assumptions that differed from those applied by the MECP is provided in Table D-5, below.

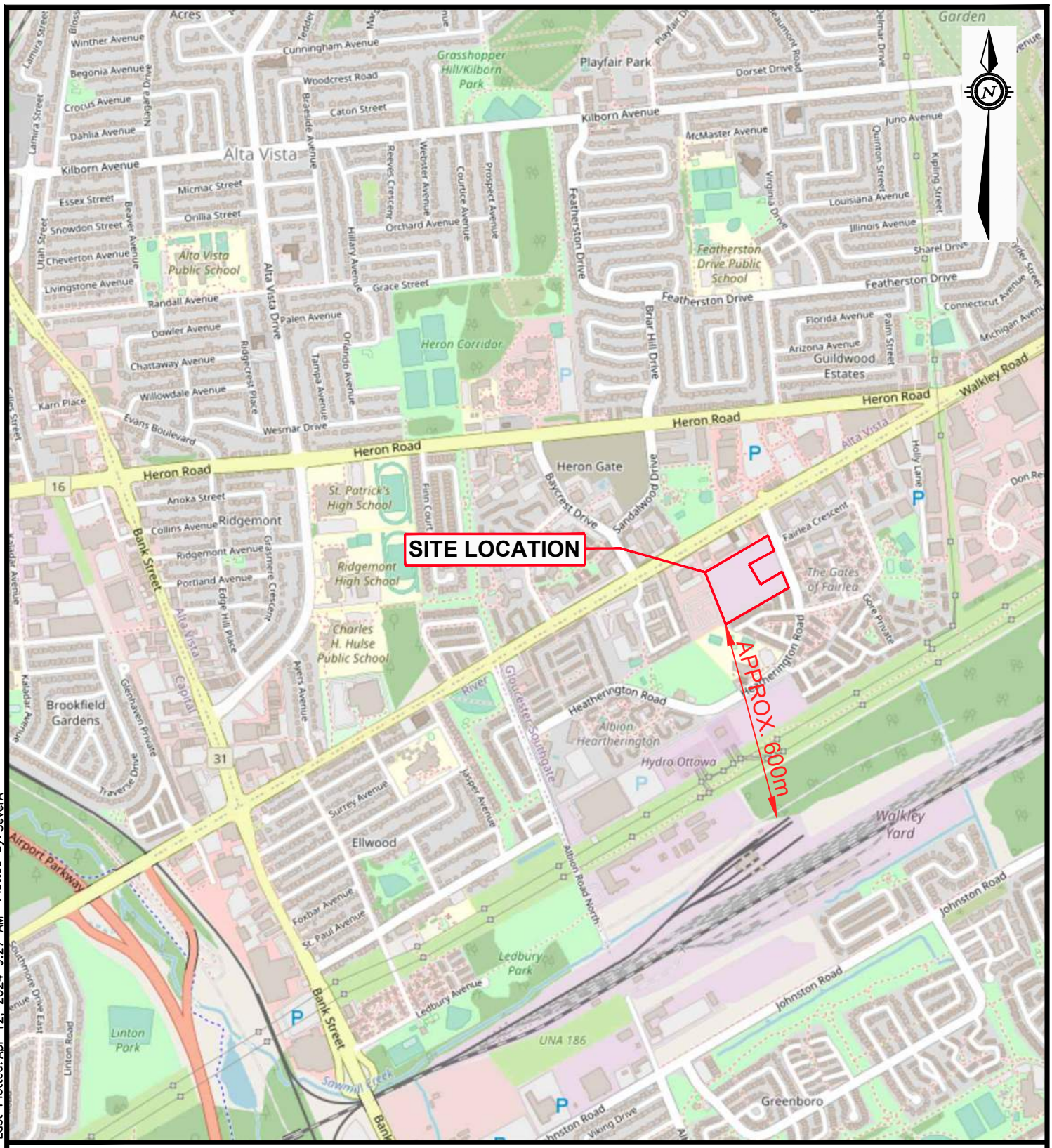
Table D-5: Risk Assessment Assumptions

Geological/Hydrogeological Parameter	MECP (2011) Parameter Value	Parameter Value Used in Risk Assessment	Rationale for Use
Predominant Soil Texture & Type	Generic – Medium Fine	Medium-Fine – Sandy Clay (surficial soils) Silty Clay (subsurface soils)	Based on the laboratory grain size analysis and drilling observation presented in the borehole logs for the Site.
Distance to Surface Water Body	36.5 m	600 m	The Site is not located within 30 m of a surface water body; the nearest surface water body, Sawmill Creek is located approximately 600 m south of the Site.
Average hydraulic conductivity	3.0×10^{-5} m/s	1.6×10^{-5} m/s	Site-specific value estimated from slug tests used to assess contaminant transport in upper aquifer (overburden).
Average Horizontal Hydraulic gradient	0.003 m/m	0.009 m/m	Based on Site-specific groundwater elevation measurements and used to assess contaminant transport in the upper aquifer (overburden) at the Site.
Minimum depth to groundwater	3.0 m	1.54 m bgs	Minimum measured depth to groundwater table at Site used to evaluate the groundwater to indoor air pathway,

Geological/Hydrogeological Parameter	MECP (2011) Parameter Value	Parameter Value Used in Risk Assessment	Rationale for Use
Depth of groundwater below concrete slab	Minimum of 1 m	1.54 m	The minimum depth to groundwater measured at the Site between 2016 and 2021 is 1.54 m bgs. As such, a Site-specific attenuation factor was calculated using the J & E model for the GW-IA exposure scenario.

The QP_{RA} considers the assumptions used as part of the risk assessment to be suitable to support the conclusions made within the RA.

Appendix B: Figures



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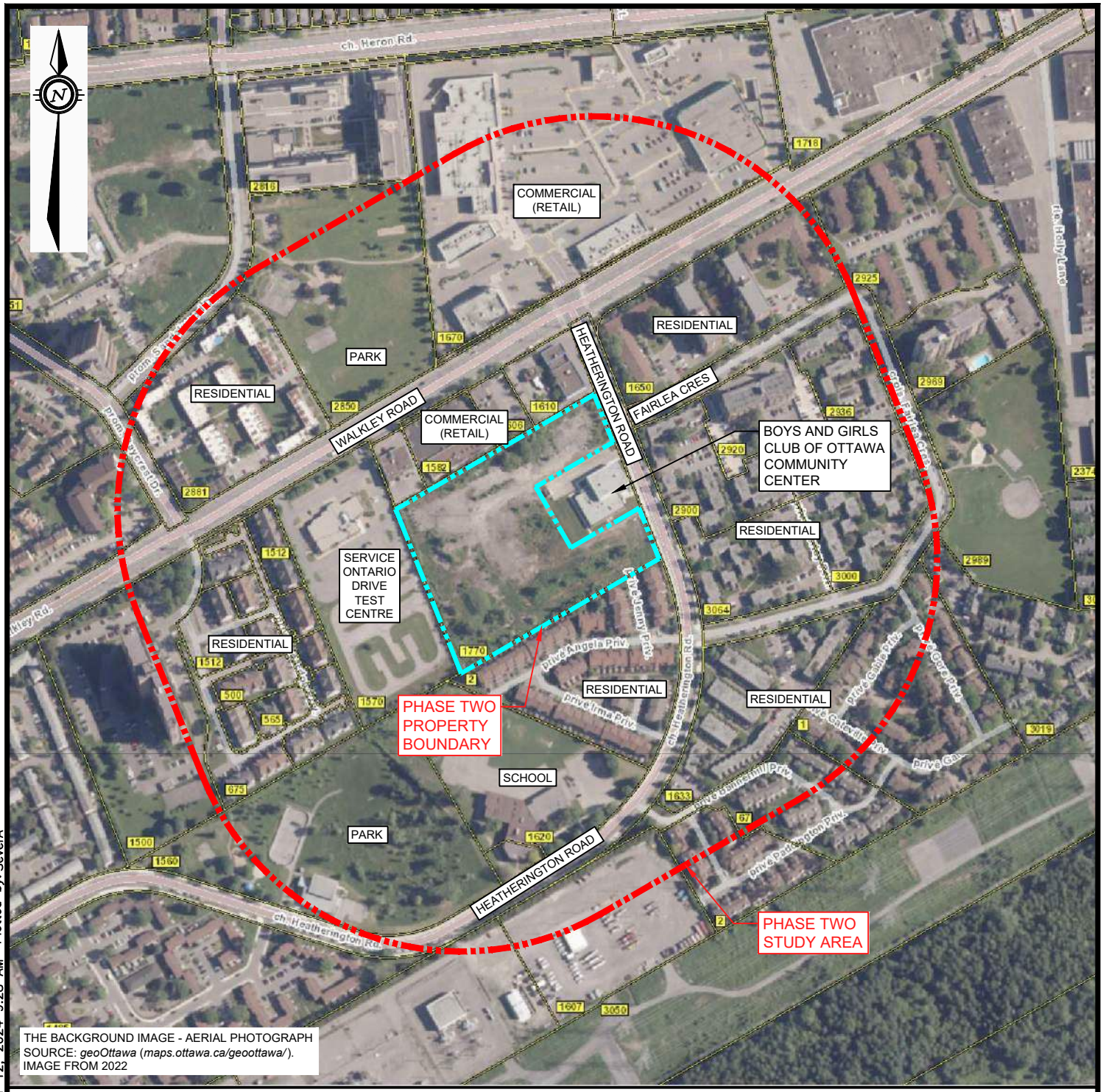
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
1770 Heatherington Road, Ottawa, Ontario

SITE LOCATION PLAN

SCALE 1:15,000

SKETCH NO FIG 1

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LEGEND

PROPERTY BOUNDARY

STUDY AREA (250m)

0 50m 100m 200m

HORIZONTAL 1:5,000

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PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
1770 Heatherington Road, Ottawa, Ontario

250m PHASE TWO ESA
STUDY AREA

SCALE 1:5,000

SKETCH NO FIG 2

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LEGEND

PROPERTY BOUNDARY

0 15m 30m 60m

HORIZONTAL 1:1500

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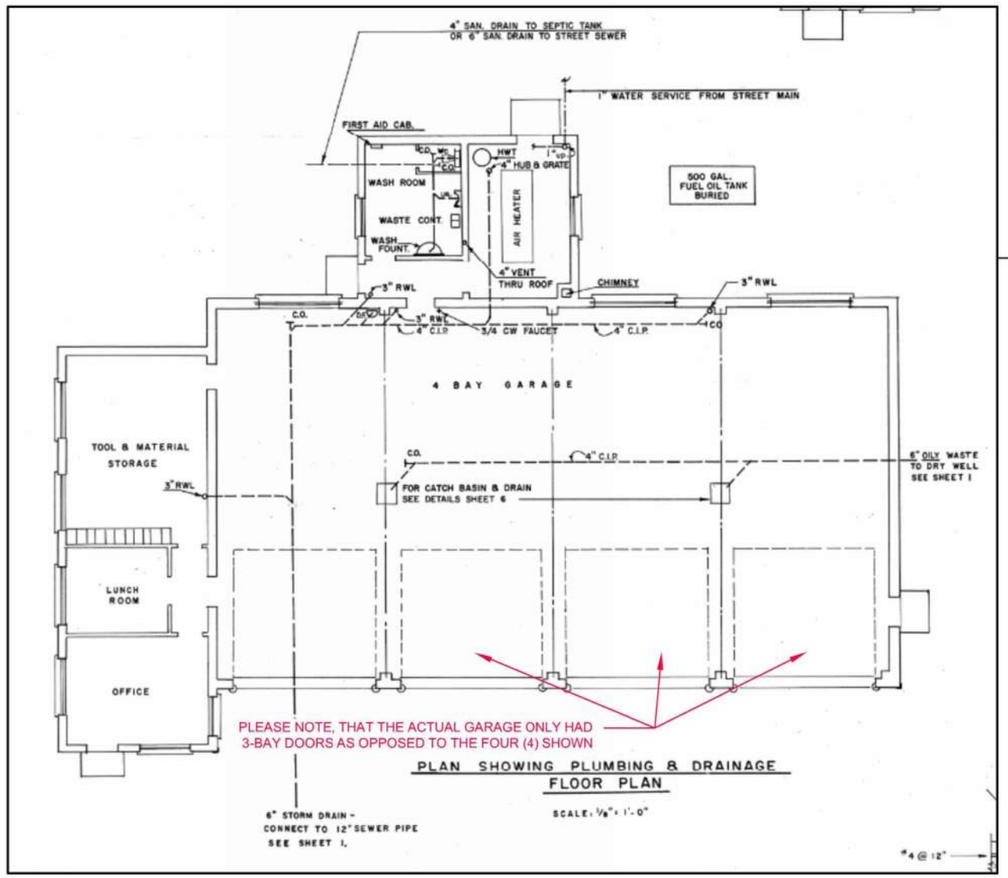
SITE PLAN
(CURRENT CONDITIONS)

SCALE 1:1,500

SKETCH NO

FIG 3A

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FORMER GARAGE LAYOUT
(APPROXIMATE SCALE: ~1:200)



LEGEND

- PROPERTY BOUNDARY
- WATER LINE
- STORM SEWER LINE
- DW — DRY WELL
- FORMER FURNACE OIL TANK
- FORMER SEPTIC TANK

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HORIZONTAL 1:1500

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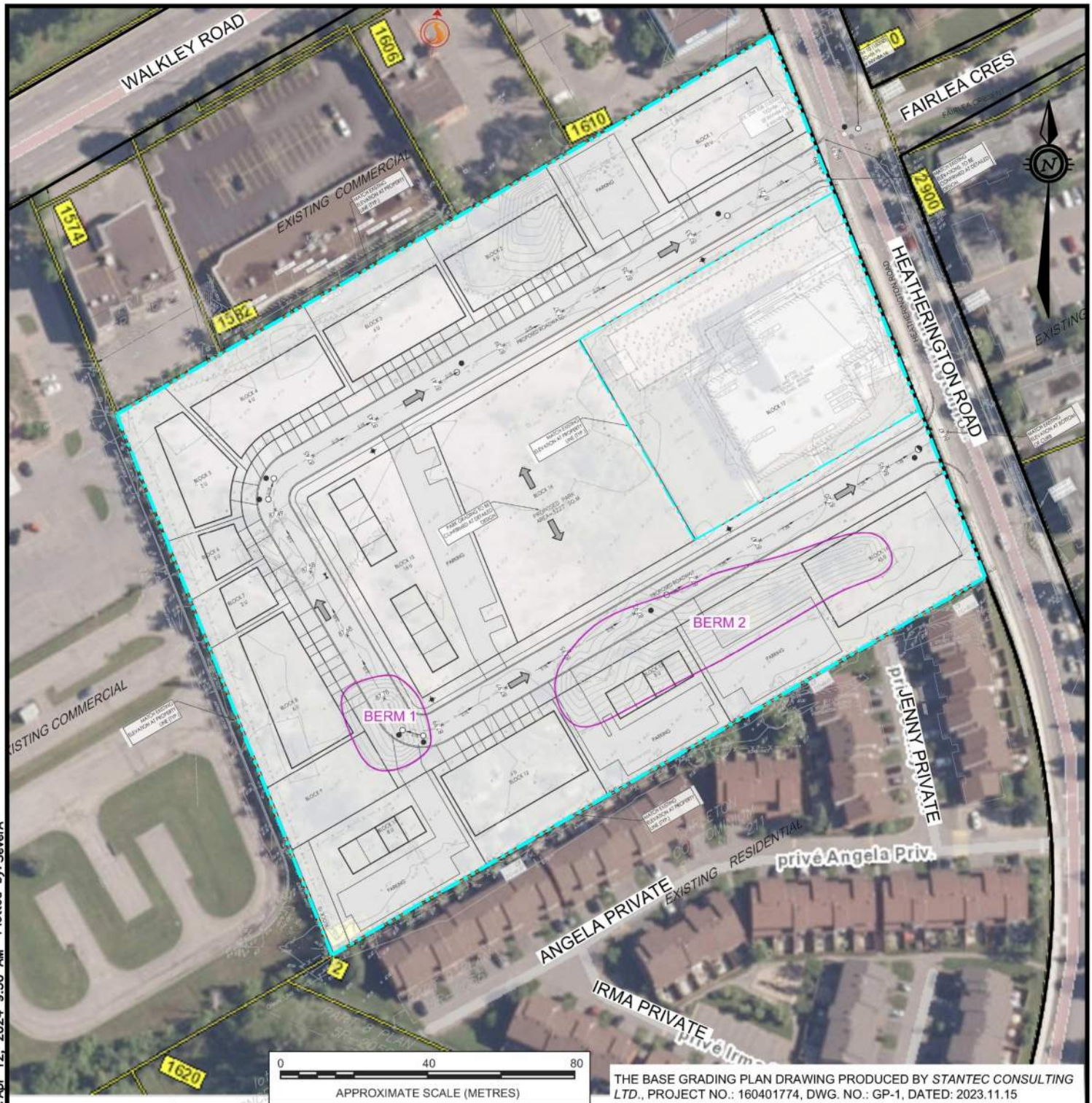
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PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
1770 Heatherington Road, Ottawa, Ontario

SITE PLAN
(FORMER CONDITIONS)

SCALE 1:1,500
SKETCH NO FIG 3B

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LEGEND

PROPERTY BOUNDARY

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PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

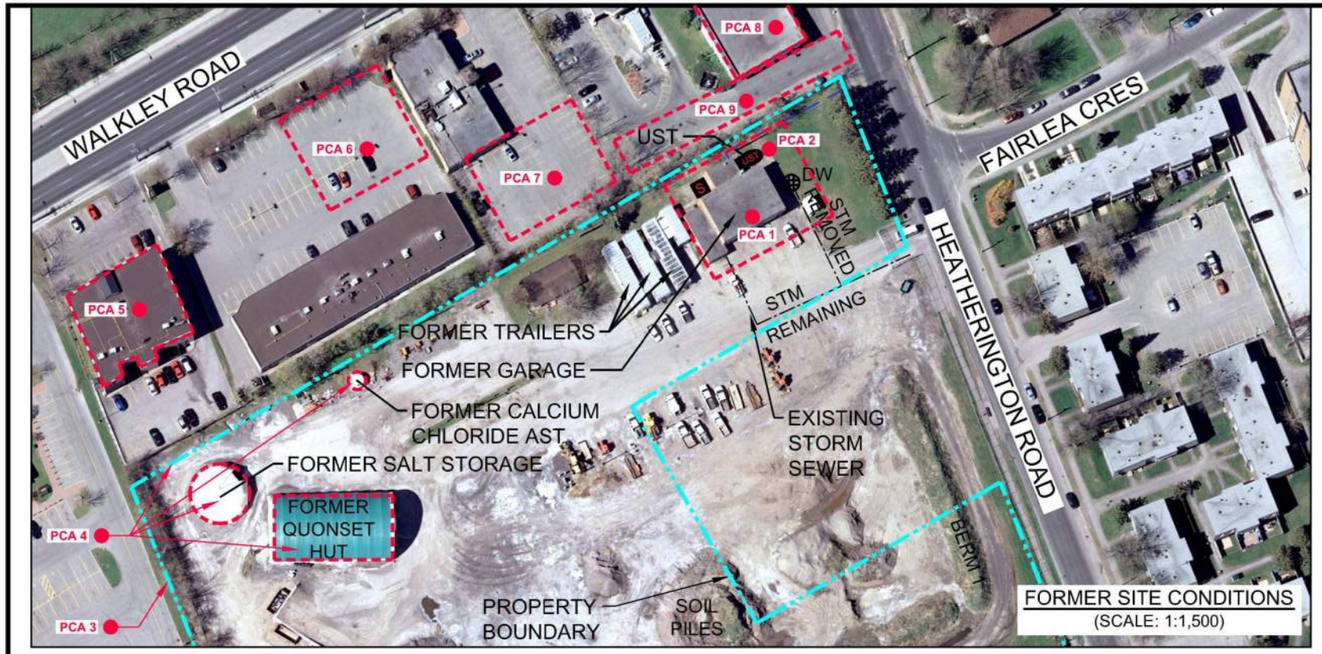
1770 Heatherington Road, Ottawa, Ontario

SITE PLAN (FUTURE CONDITIONS)

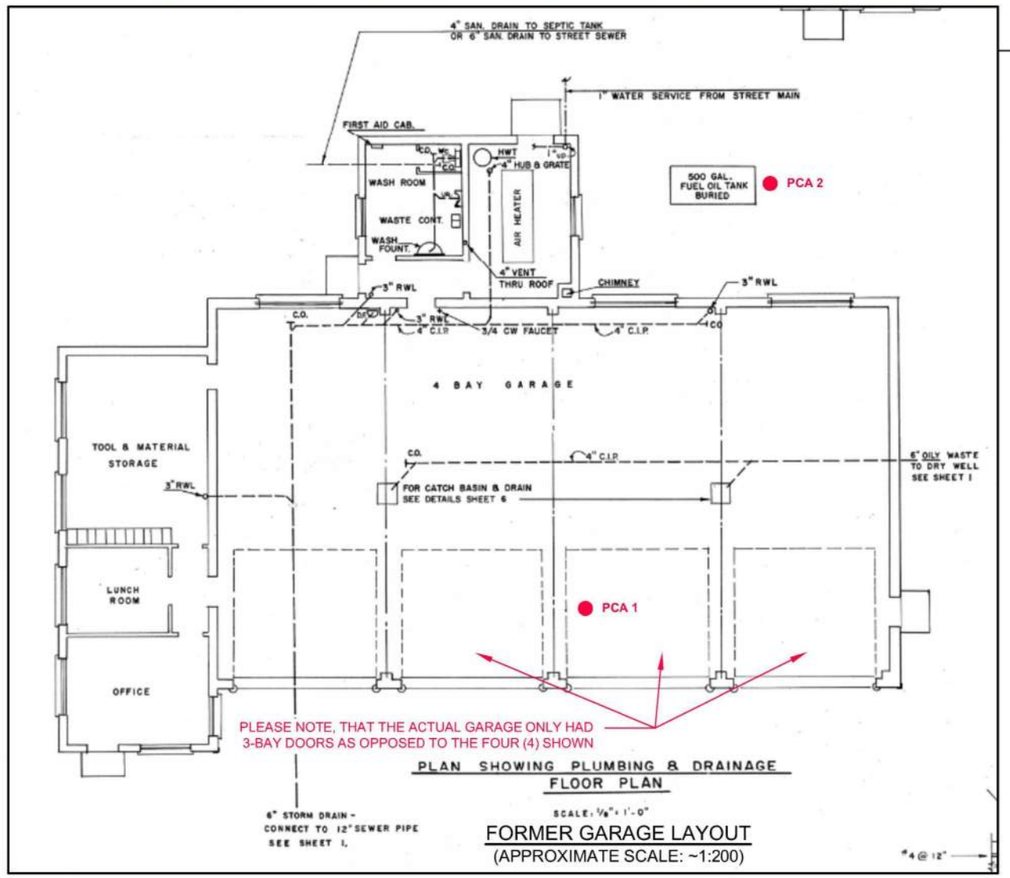
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SKETCH NO FIG 3C

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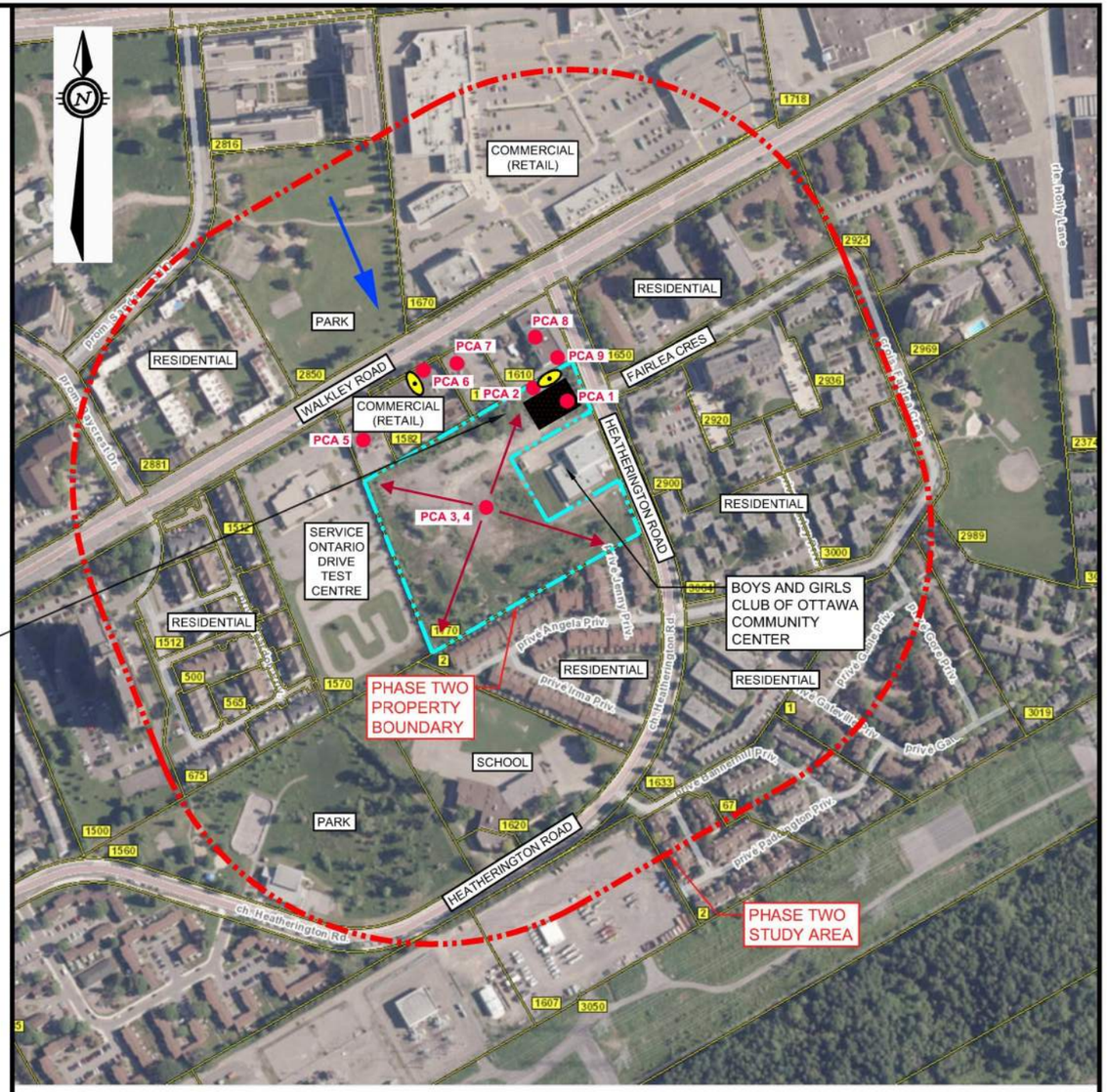
FORMER SITE CONDITIONS
(SCALE: 1:1,500)



FORMER GARAGE LAYOUT
(APPROXIMATE SCALE: ~1:200)

PCA LIST DESCRIPTION:

- **PCA #1** – FORMER AUTO-MOTIVE GARAGE
- **PCA #2** – FORMER UST LOCATION
- **PCA #3** – STORAGE, PLACEMENT AND USE OF FILL MATERIALS OF UNKNOWN QUALITY (ENTIRE SITE)
- **PCA #4** – SALT STORAGE, APPROXIMATE AND IDENTIFIED SALT IMPACTS (ENTIRE SITE)
- **PCA #5** – FORMER BETTY BRITE DRY-CLEANERS (OFF-SITE)
- **PCA #6** – APPROXIMATE LOCATION OF FORMER UST (OFF-SITE)
- **PCA #7** – APPROXIMATE LOCATION OF FORMER TRIANGLE PUMP (OFF-SITE)
- **PCA #8** – LOCATION OF FORMER AUTO-MOTIVE DEALERSHIP (OFF-SITE)
- **PCA #9** – ASSUMED LOCATION OF FORMER MOTOR OIL SPILL (OFF-SITE)



LEGEND

- PROPERTY BOUNDARY
- STUDY AREA (250m)
- INFERRED GROUNDWATER FLOW DIRECTION
- PCA (CONTRIBUTES TO APEC)
- PCA DEMINIMIS (i.e., NOT CONTRIBUTING TO AN APEC)
- APPROXIMATE LOCATION OF FORMER ON-SITE GARAGE STRUCTURE
- APPROXIMATE LOCATION OF FORMER UST (1960 - 2012)

0 50m 100m 200m
HORIZONTAL 1:5,000

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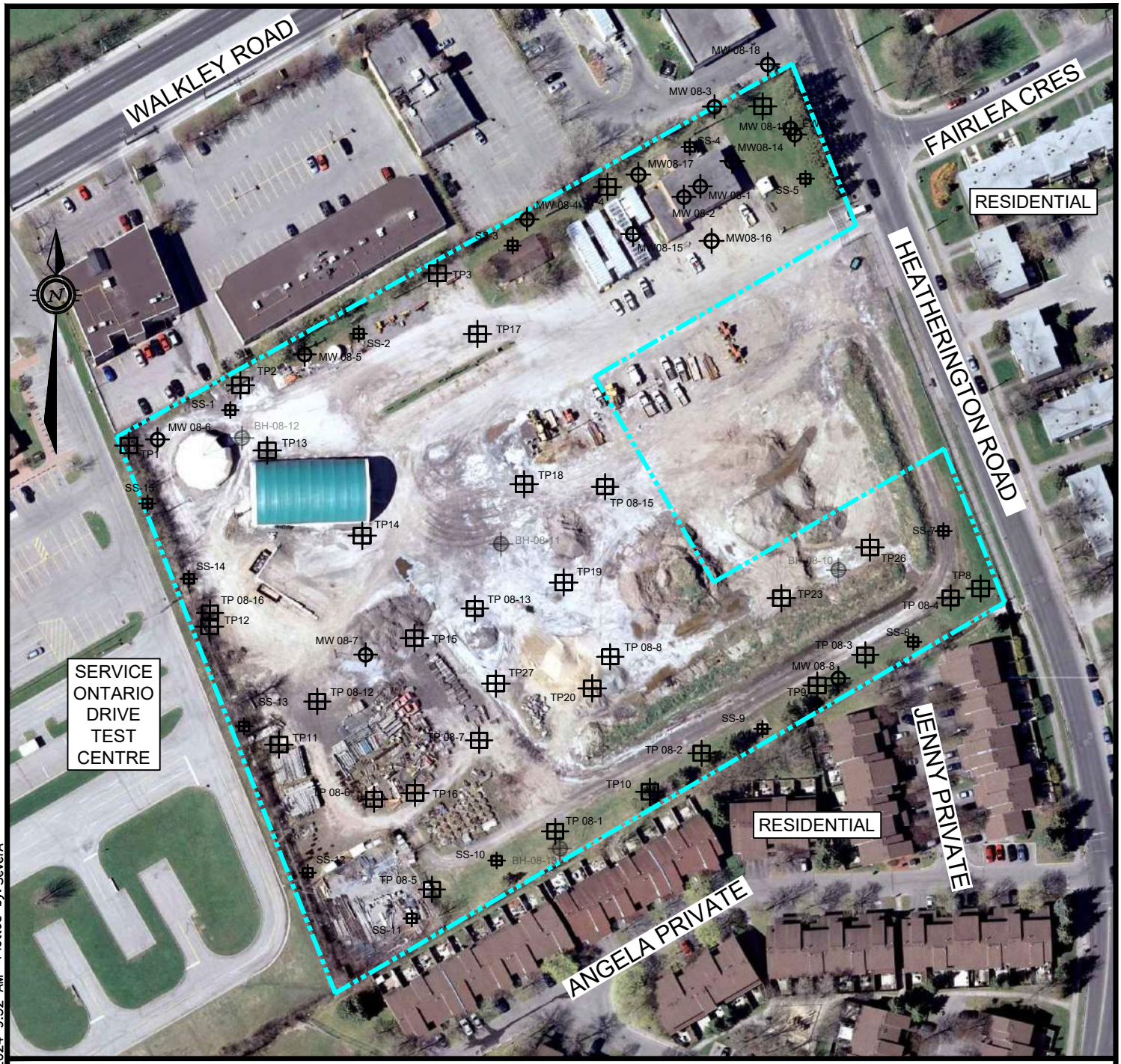
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PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
1770 Heatherington Road, Ottawa, Ontario

250 m STUDY AREA AND POTENTIALLY CONTAMINATING ACTIVITIES (PCA)

SCALE 1:5,000
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LEGEND

- PROPERTY BOUNDARY
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- MW-08-11 — BOREHOLE BY EXP
- TP08-3 — TEST PIT
- SS-8 — SOIL SAMPLE

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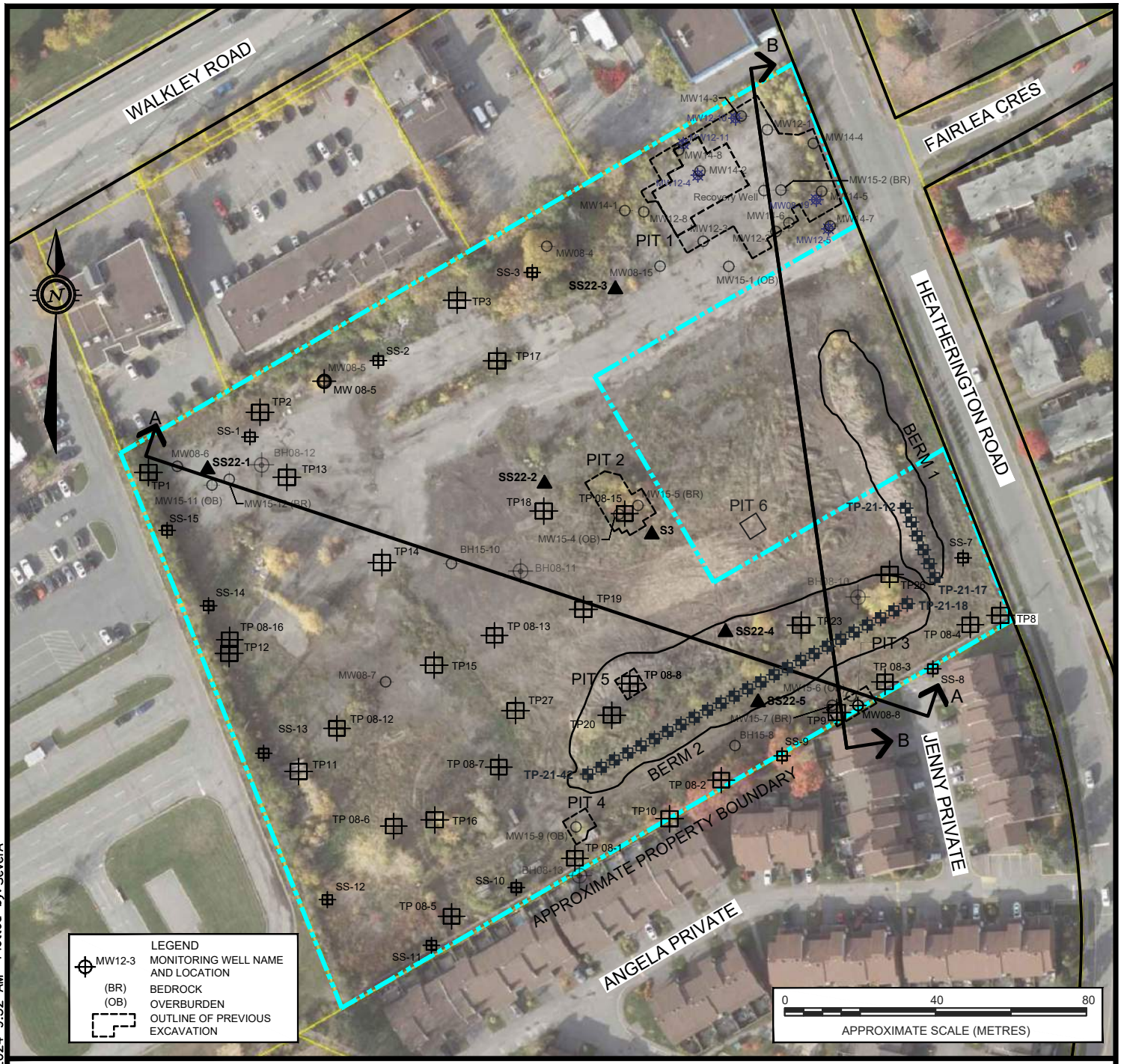
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
1770 Heatherington Road, Ottawa, Ontario

HISTORICAL TEST PIT, MONITORING WELL AND BOREHOLE LOCATIONS

SCALE 1:1,500

SKETCH NO FIG 5A

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LEGEND

- PROPERTY BOUNDARY
- MW08-8 — MONITORING WELL BY JACQUES WHITFORD/EXP
- MW-08-11 — BOREHOLE BY EXP
- TP08-3 — TEST PIT
- MW12-4 — MONITORING WELL REMOVED
- SS-8 — SOIL SAMPLE
- S3 — SOIL SAMPLE (2021-2022)
- BERM 1 (TP-21-12 [NORTH] TO TP-21-17 [SOUTH])
- BERM 2 (TP-21-18 [EAST] TO TP-21-142 [WEST])

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0 15m 30m 60m

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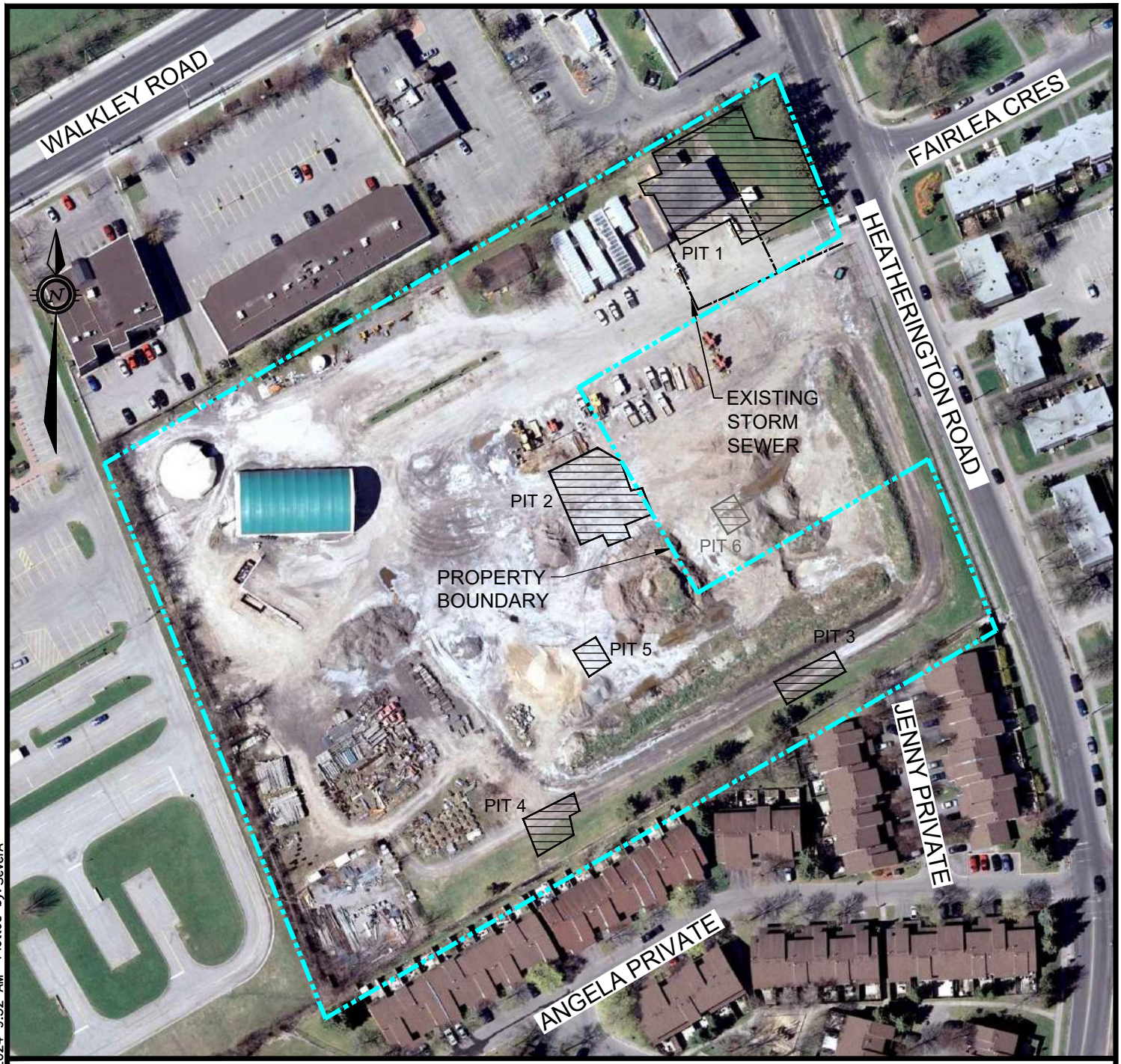
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BOREHOLE, TEST-PIT, MONITORING WELL & CROSS SECTION A-A' AND B-B' PLAN

SCALE 1:1,500

SKETCH NO FIG 5B

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LEGEND

	PROPERTY BOUNDARY
PIT 5	EXP EXCAVATION AREA
PIT 6	*PIT 6 WAS COMPLETED OFF-SITE, AND IS SHOWN FOR REVIEWER REFERENCE.

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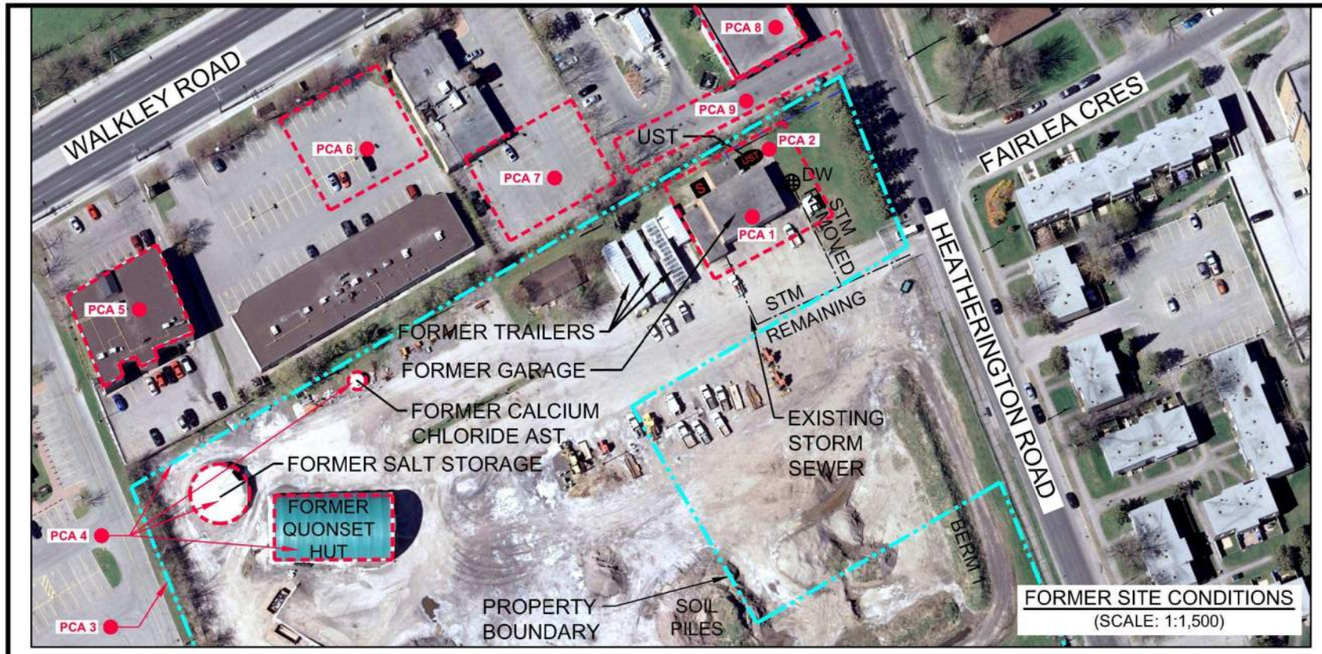
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FORMER REMEDIATION BOUNDARY

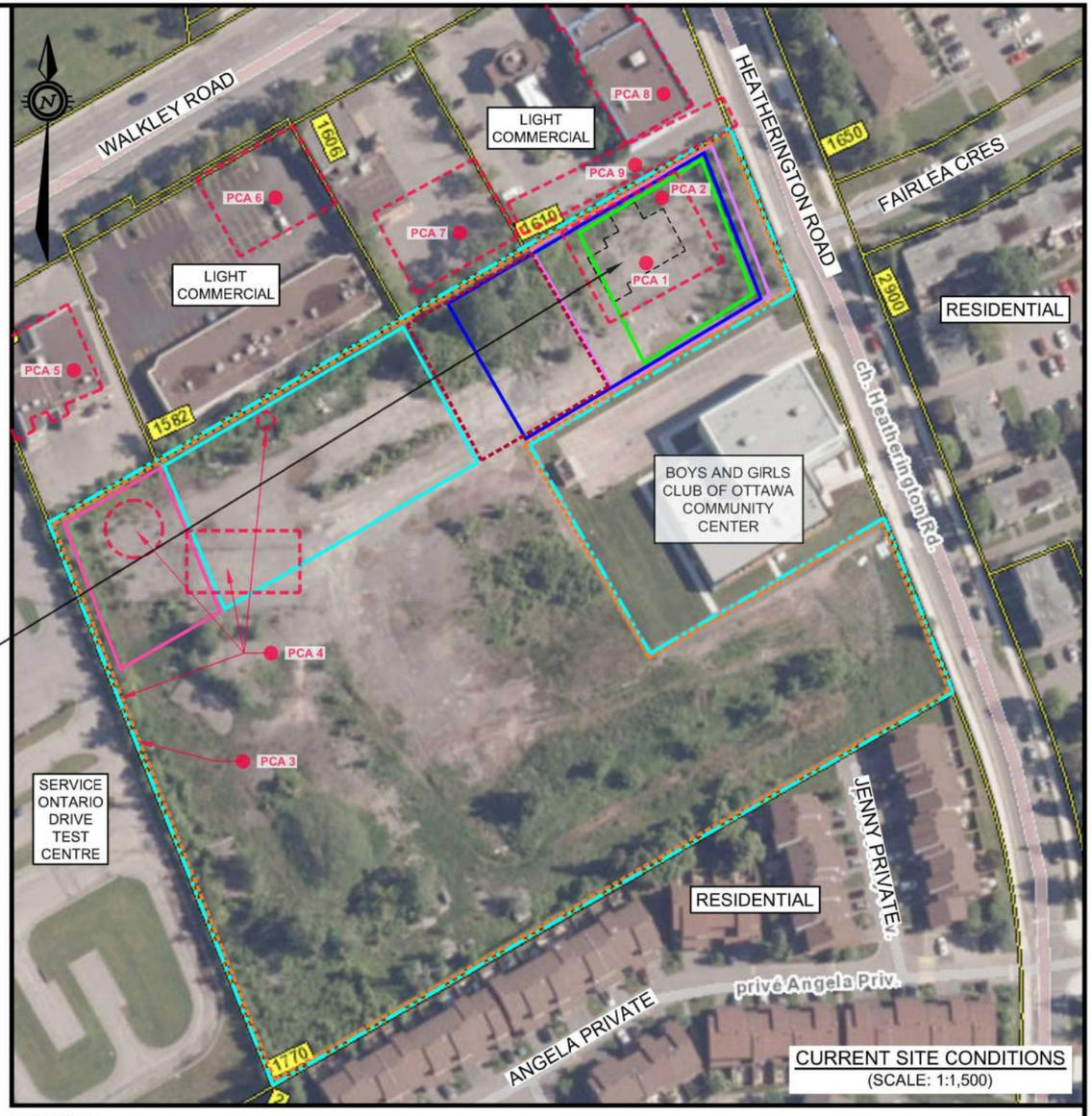
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SKETCH NO FIG 6

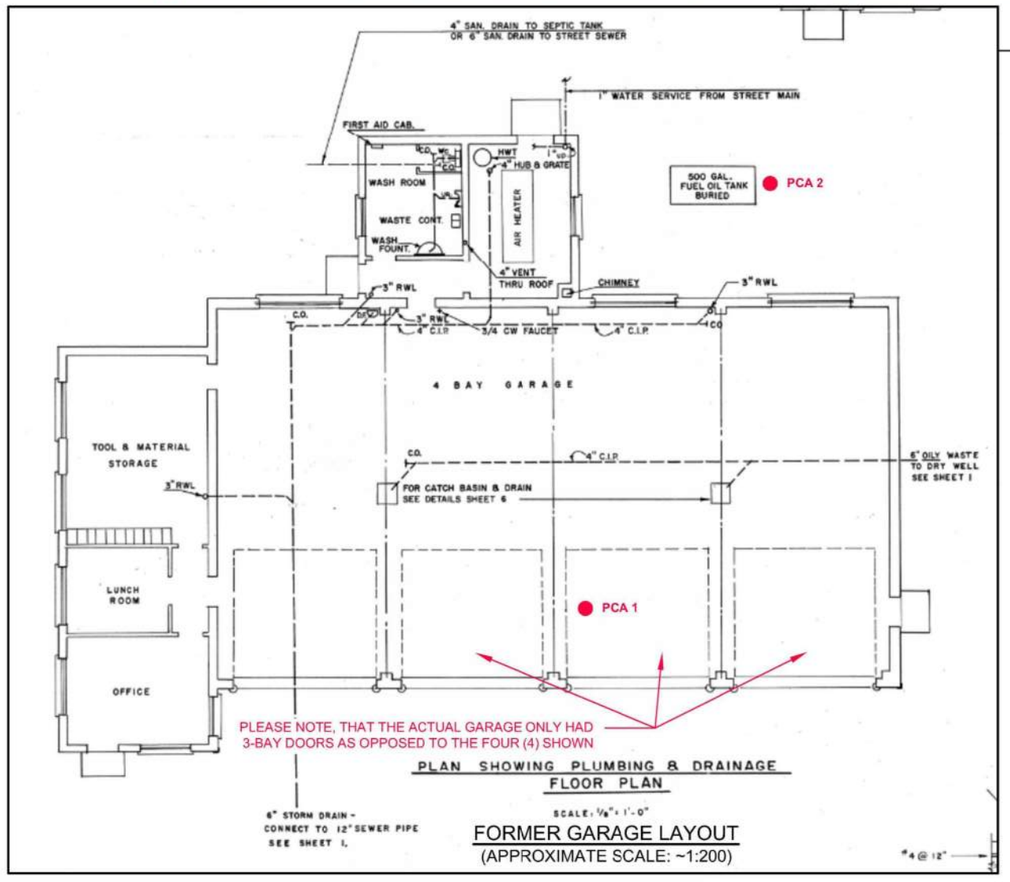
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FORMER SITE CONDITIONS
(SCALE: 1:1,500)



CURRENT SITE CONDITIONS
(SCALE: 1:1,500)



FORMER GARAGE LAYOUT
(APPROXIMATE SCALE: ~1:200)

PCA (CONTRIBUTES TO APEC) LIST DESCRIPTION:

- **PCA #1** – FORMER AUTO-MOTIVE GARAGE
- **PCA #2** – FORMER UST LOCATION
- **PCA #3** – STORAGE, PLACEMENT AND USE OF FILL MATERIALS OF UNKNOWN QUALITY (ENTIRE SITE)
- **PCA #4** – SALT STORAGE, APPROXIMATE AND IDENTIFIED SALT IMPACTS (ENTIRE SITE)
- **PCA #5** – FORMER BETTY BRITE DRY-CLEANERS (OFF-SITE)
- **PCA #6** – APPROXIMATE LOCATION OF FORMER UST (OFF-SITE)
- **PCA #7** – APPROXIMATE LOCATION OF FORMER TRIANGLE PUMP (OFF-SITE)
- **PCA #8** – LOCATION OF FORMER AUTO-MOTIVE DEALERSHIP (OFF-SITE)
- **PCA #9** – ASSUMED LOCATION OF FORMER MOTOR OIL SPILL (OFF-SITE)

LEGEND

- PROPERTY BOUNDARY
- APEC 1 - FORMER ON-SITE STORAGE GARAGE
- APEC 2 - FORMER UST
- APEC 3 - FILL MATERIALS (ENTIRE SITE)
- APEC 4 - SALT STORAGE AND APPLICATION (ENTIRE SITE)
- APEC 5 - FORMER OFF-SITE DRY CLEANER
- APEC 6 - FORMER OFF-SITE REMEDIATION CONTRACTOR
- APEC 7 - FORMER OFF-SITE REMEDIATION CONTRACTOR
- APEC 8 - FORMER OFF-SITE AUTOMOTIVE SALES
- APEC 9 - FORMER OFF-SITE FUEL SPILL

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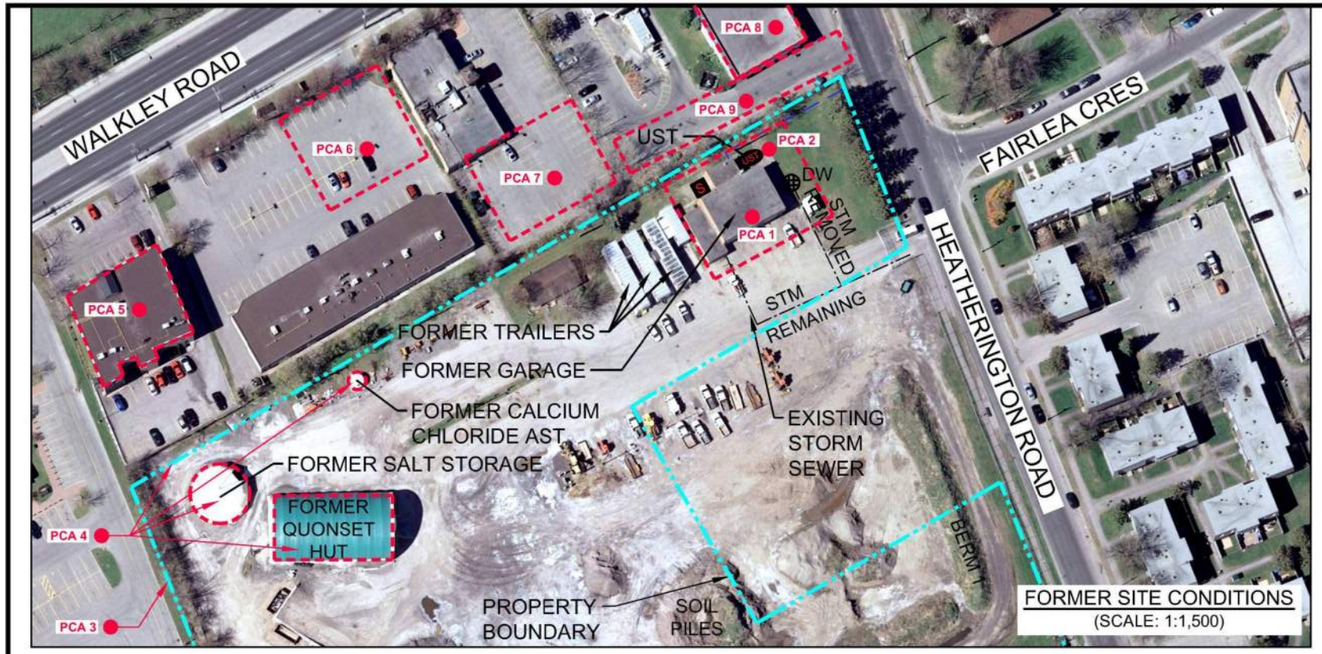
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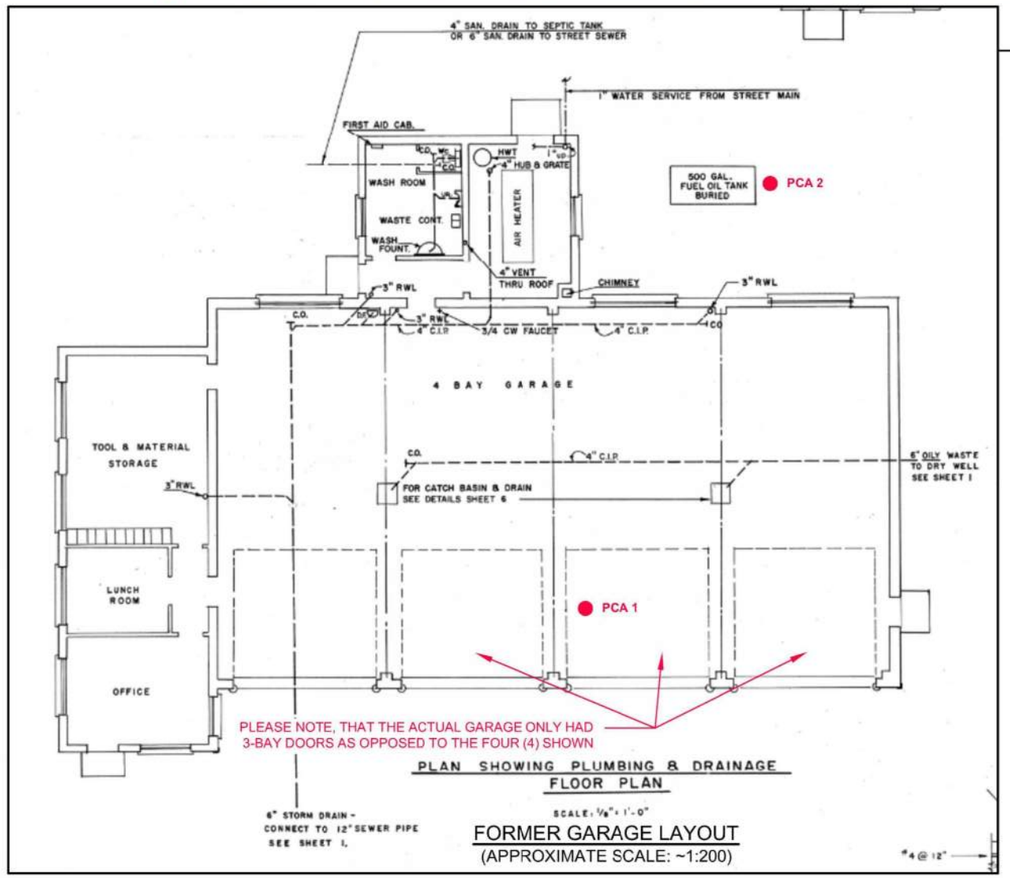
AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APEC)

SCALE 1:1,500
SKETCH NO FIG 7A

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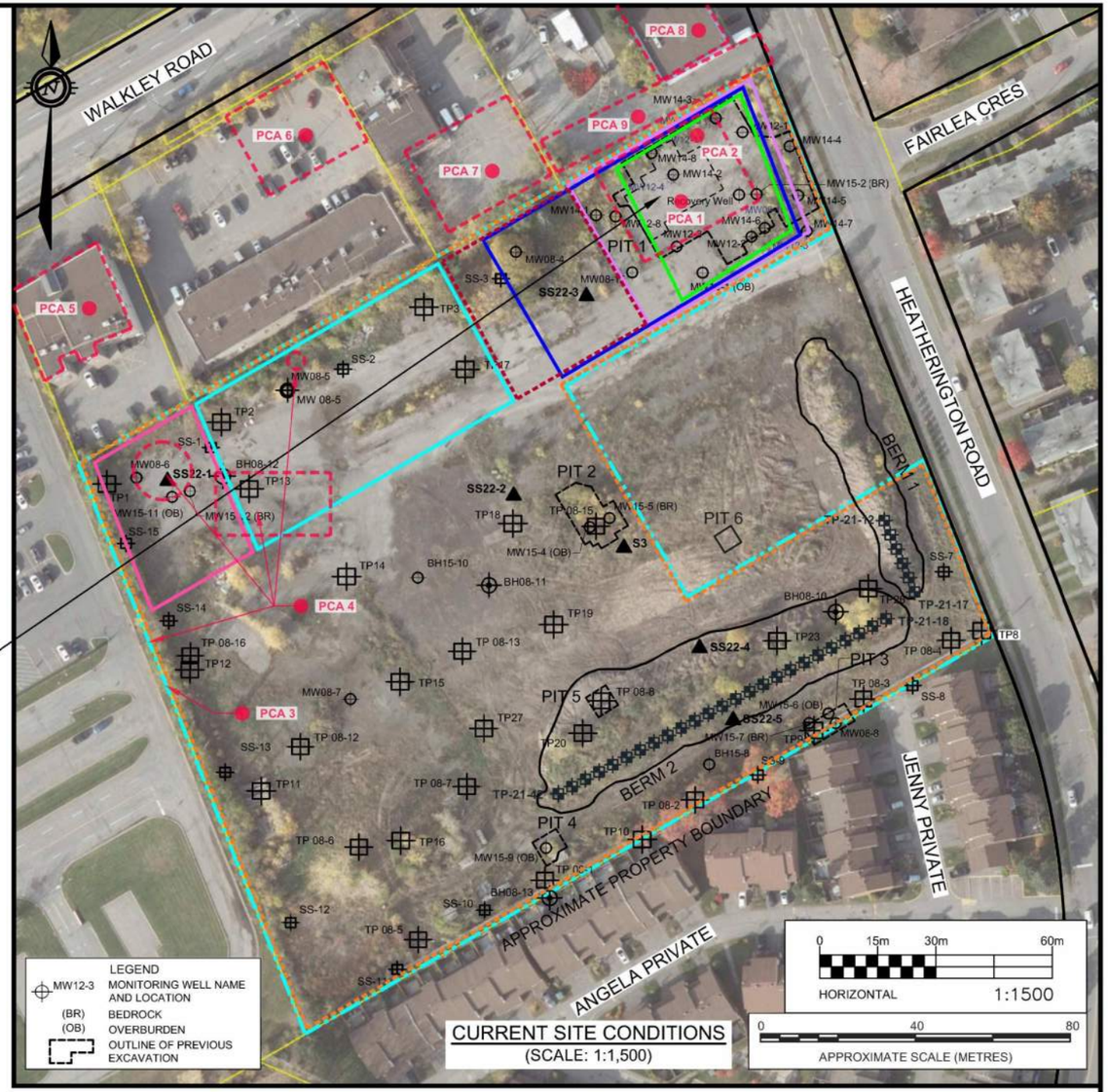
FORMER SITE CONDITIONS
(SCALE: 1:1,500)



FORMER GARAGE LAYOUT
(APPROXIMATE SCALE: ~1:200)

PCA (CONTRIBUTES TO APEC) LIST DESCRIPTION:

- **PCA #1** – FORMER AUTO-MOTIVE GARAGE
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- **PCA #4** – SALT STORAGE, APPROXIMATE AND IDENTIFIED SALT IMPACTS (ENTIRE SITE)
- **PCA #5** – FORMER BETTY BRITE DRY-CLEANERS (OFF-SITE)
- **PCA #6** – APPROXIMATE LOCATION OF FORMER UST (OFF-SITE)
- **PCA #7** – APPROXIMATE LOCATION OF FORMER TRIANGLE PUMP (OFF-SITE)
- **PCA #8** – LOCATION OF FORMER AUTO-MOTIVE DEALERSHIP (OFF-SITE)
- **PCA #9** – ASSUMED LOCATION OF FORMER MOTOR OIL SPILL (OFF-SITE)



LEGEND
- MW12-3 – MONITORING WELL NAME AND LOCATION
- (BR) – BEDROCK
- (OB) – OVERBURDEN
- OUTLINE OF PREVIOUS EXCAVATION

CURRENT SITE CONDITIONS
(SCALE: 1:1,500)

THE BACKGROUND IMAGE CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENSE - CITY OF OTTAWA. IMAGE FROM 2007

LEGEND

- PROPERTY BOUNDARY
- MW08-8 – MONITORING WELL BY JACQUES WHITFORD/EXP
- MW-08-11 – BOREHOLE BY EXP
- TP08-3 – TEST PIT
- SS-8 – SOIL SAMPLE
- S3 – SOIL SAMPLE (2022)
- MW12-4 – MONITORING WELL REMOVED
- BERM 1 (TP-21-12 [NORTH] TO TP-21-17 [SOUTH])
- BERM 2 (TP-21-18 [EAST] TO TP-21-142 [WEST])
- APEC 1 - FORMER ON-SITE STORAGE GARAGE
- APEC 2 - FORMER UST
- APEC 3 - FILL MATERIALS (ENTIRE SITE)
- APEC 4 - SALT STORAGE AND APPLICATION (ENTIRE SITE)
- APEC 5 - FORMER OFF-SITE DRY CLEANER
- APEC 6 - FORMER OFF-SITE REMEDIATION CONTRACTOR
- APEC 7 - FORMER OFF-SITE REMEDIATION CONTRACTOR
- APEC 8 - FORMER OFF-SITE AUTOMOTIVE SALES
- APEC 9 - FORMER OFF-SITE FUEL SPILL

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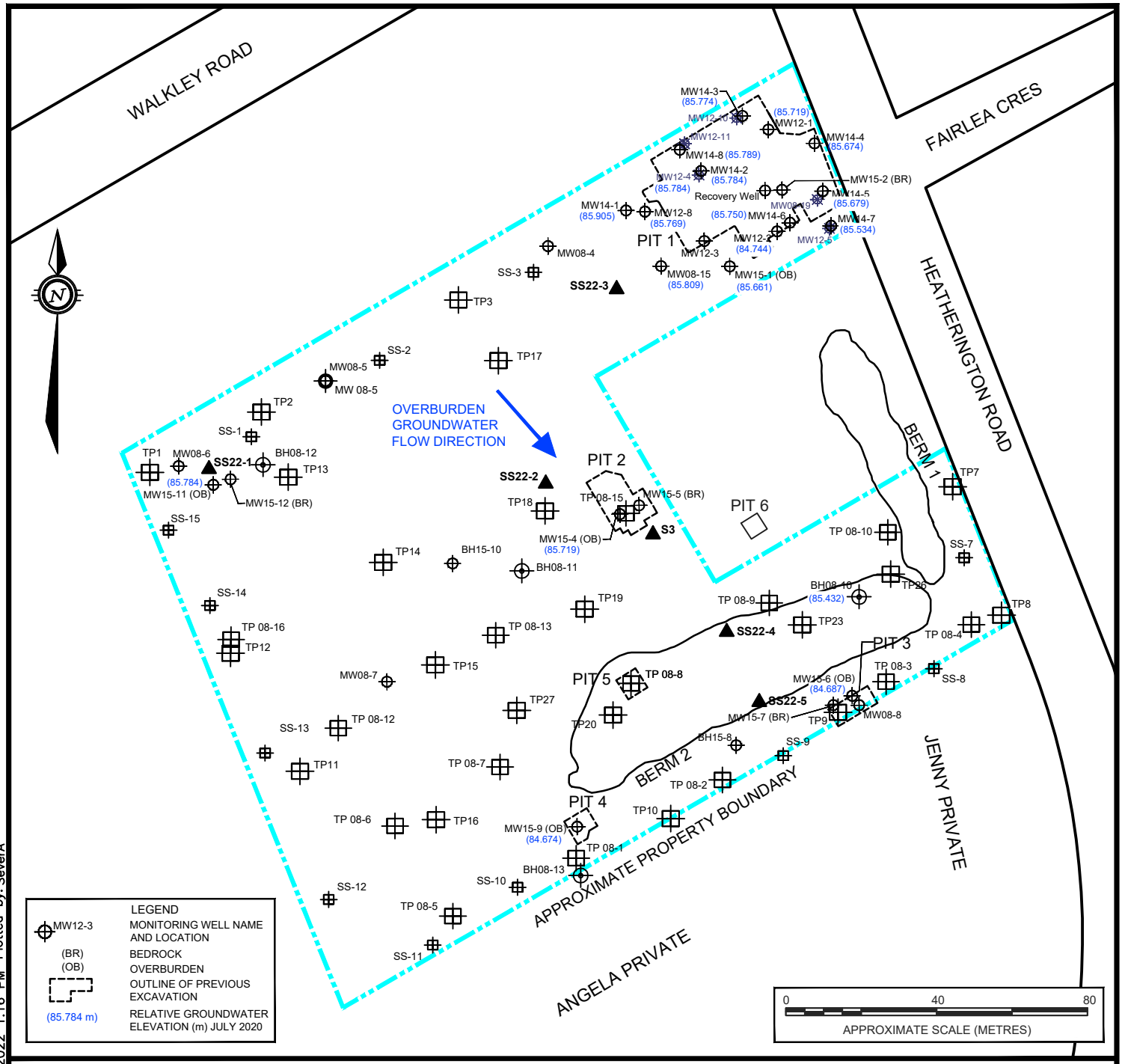
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BOREHOLE, TEST-PIT, MONITORING WELL & SITE APECs (CURRENT)

SCALE 1:1,500

SKETCH NO FIG 7B

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LEGEND

- PROPERTY BOUNDARY
- MW08-8 — MONITORING WELL BY JACQUES WHITFORD/EXP
- MW-08-11 — BOREHOLE BY EXP
- TP08-3 — TEST PIT
- MW12-4 — MONITORING WELL REMOVED
- SS-8 — SOIL SAMPLE
- S3 — SOIL SAMPLE (2022)

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0 15m 30m 60m

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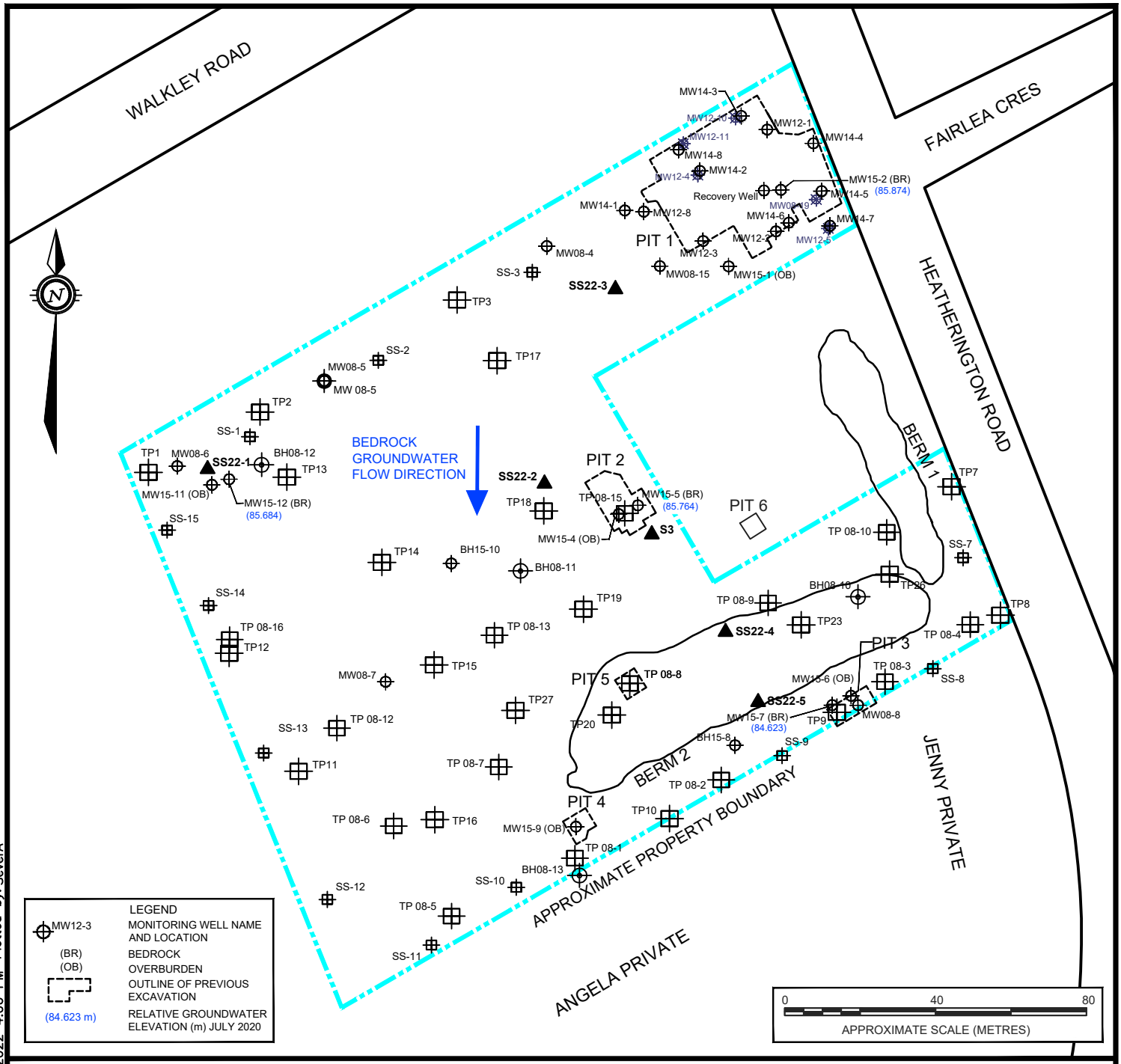
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PHASE TWO ESA OVERBURDEN GROUNDWATER ELEVATION

SCALE 1:1,500

SKETCH NO **FIG 8A**

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2022 Figures Edits\18293-J6_C100_Enviro Fig 1-8.dwg
Last Saved: Dec 21, 2022 1:16 PM Last Plotted: Dec 21, 2022 1:16 PM Plotted by: SeverA



LEGEND

- PROPERTY BOUNDARY
- MW08-8 — MONITORING WELL BY JACQUES WHITFORD/EXP
- MW-08-11 — BOREHOLE BY EXP
- TP08-3 — TEST PIT
- MW12-4 — MONITORING WELL REMOVED
- SS-8 — SOIL SAMPLE
- S3 — SOIL SAMPLE (2022)

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0 15m 30m 60m

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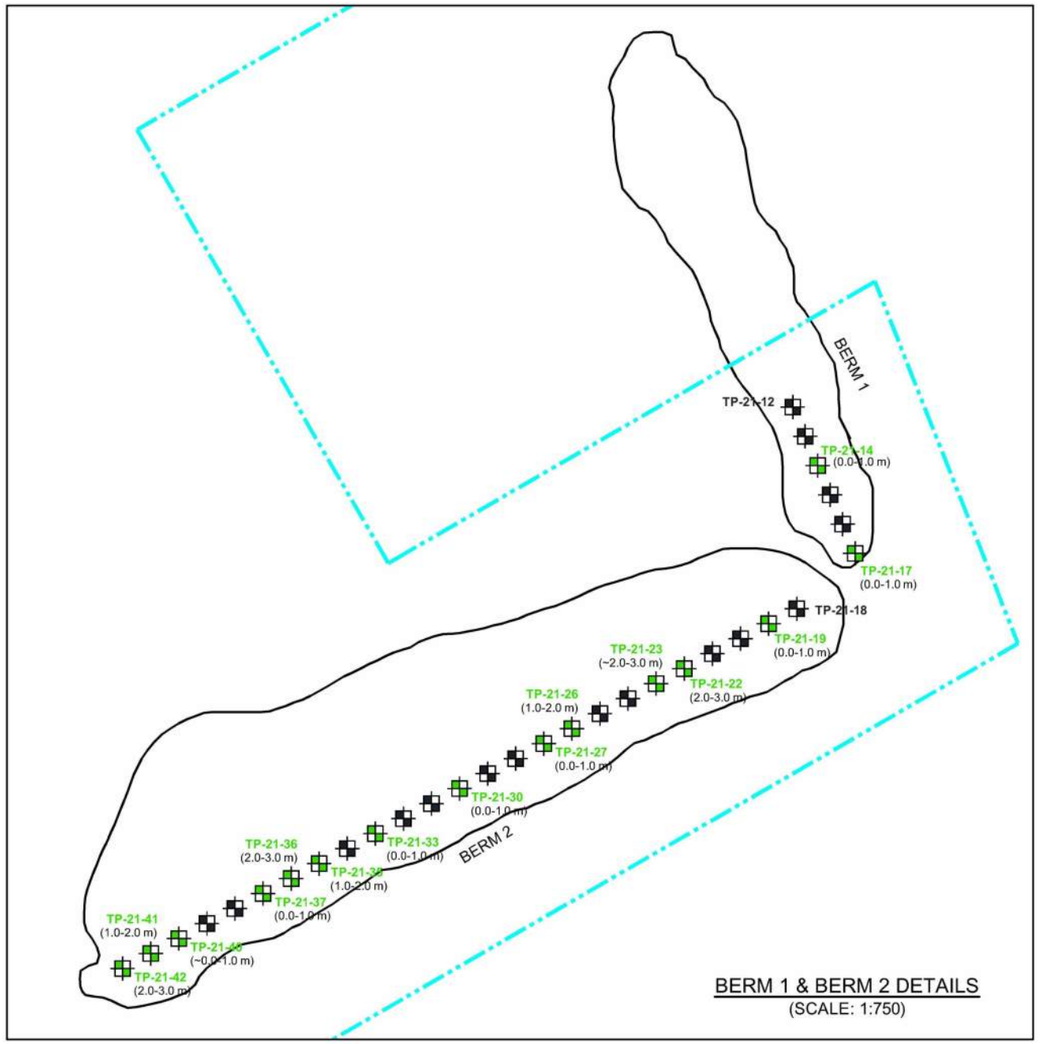
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PHASE TWO ESA BEDROCK GROUNDWATER ELEVATION

SCALE 1:1,500

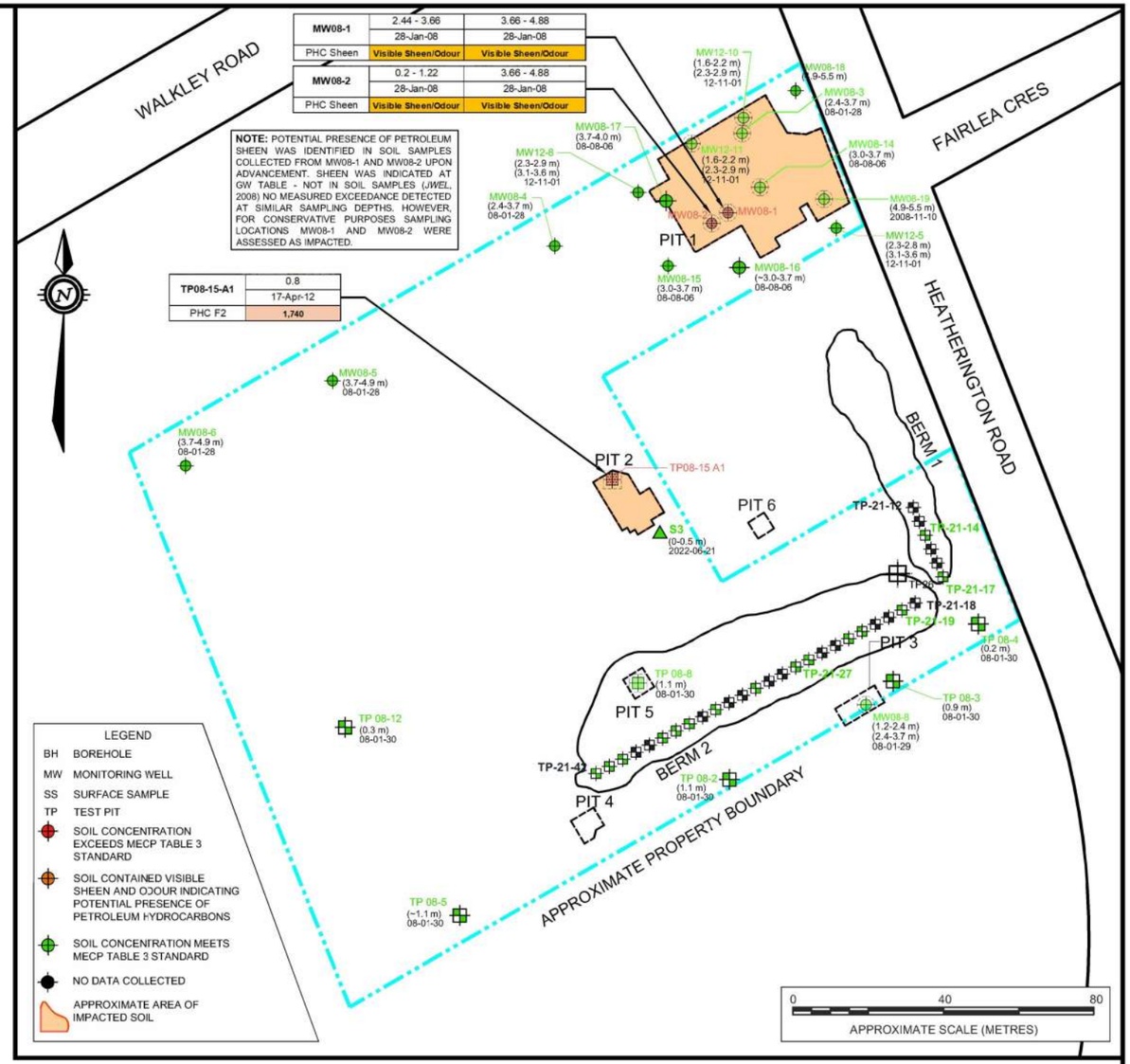
SKETCH NO **FIG 8B**

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BERM 1 & BERM 2 DETAILS
(SCALE: 1:750)

0 5m 10m 30m
HORIZONTAL 1:750



Legend

Sample ID	Sample Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/g)

2011 MECP Table 3 SCS		
Parameter	Units	Conc.
PHC F2	µg/g	150

(1) MECP(2011) Table 3 Site Condition Standards for Residential/Parkland/Institutional Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample

LEGEND

- PROPERTY BOUNDARY
- MW08-8 MONITORING WELL / BOREHOLE
- TP08-3 TEST PIT
- SS-8 SOIL SAMPLE
- S3 SOIL SAMPLE (2022)
- SOIL SAMPLING LOCATION (CLEAN) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)
- SOIL SAMPLING LOCATION (IMPACTED) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)
- BERM 1 (TP-21-12 [NORTH] TO TP-21-17 [SOUTH])
- BERM 2 (TP-21-18 [EAST] TO TP-21-142 [WEST])

0 15m 30m 60m
HORIZONTAL 1:1500

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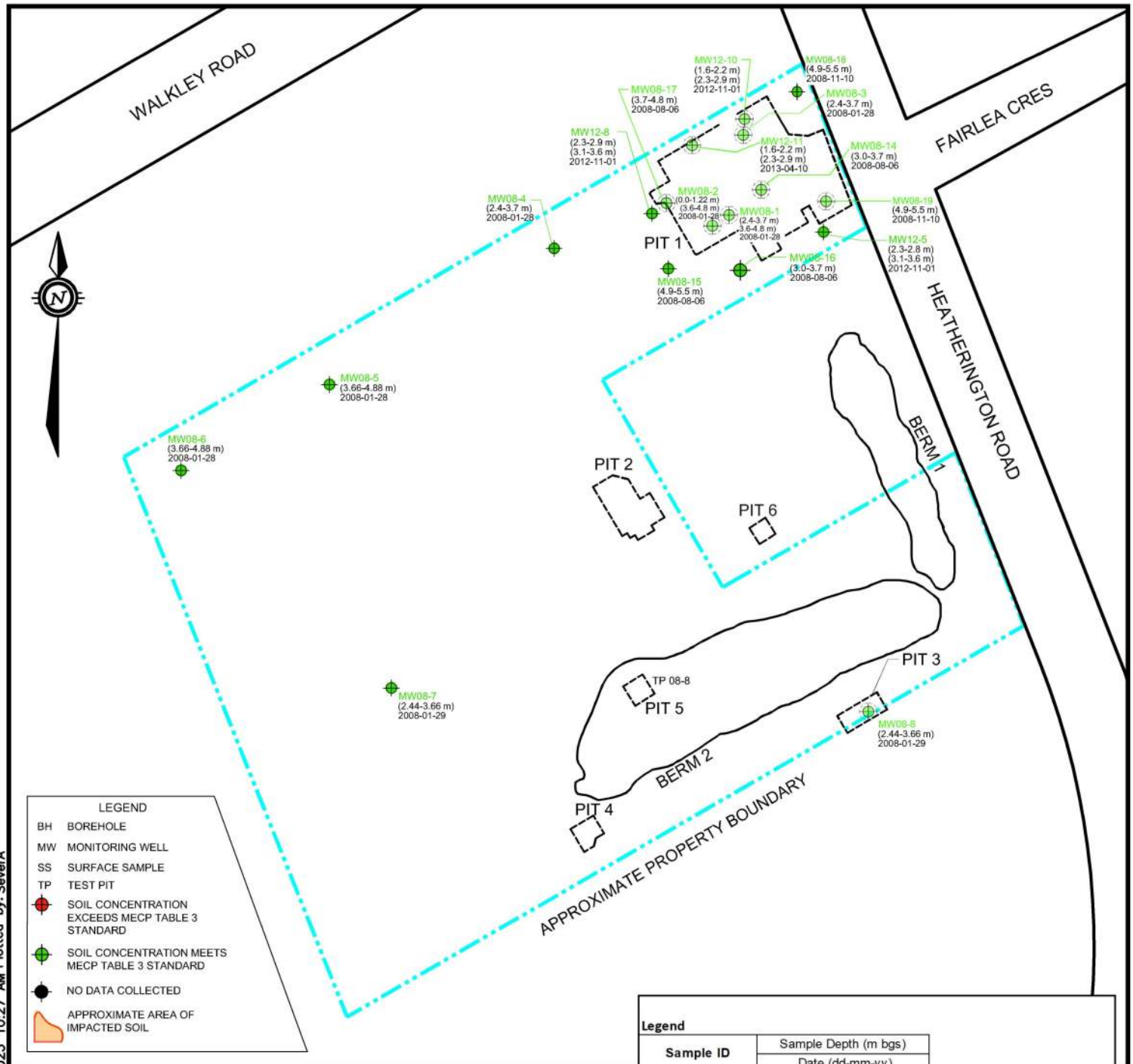
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DATE	AUGUST 2023
FILE NO	OTT-00018293-J5

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PHCs AND BTEX
ANALYTICAL RESULTS IN SOIL

SCALE 1:1,500 / 1:750
SKETCH NO
FIG 9

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293–J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293–J5 Enviro Fig 9–31_Plans+Sections.dwg
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Legend

Sample ID	Sample Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/g)

2011 MECP Table 3 SCS		
Parameter	Units	Conc.
	µg/g	

(1) MECP(2011) Table 3 Site Condition Standards for Residential/Parkland/Institutional Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample

LEGEND

- PROPERTY BOUNDARY
- MW08-8 MONITORING WELL / BOREHOLE
- TP08-3 TEST PIT
- SS-8 SOIL SAMPLE
- S3 SOIL SAMPLE (2022)
- BERM 1 (TP-21-12 [NORTH] TO TP-21-17 [SOUTH])
- BERM 2 (TP-21-18 [EAST] TO TP-21-142 [WEST])
- SOIL SAMPLING LOCATION (CLEAN) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)
- SOIL SAMPLING LOCATION (IMPACTED) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)

0 15m 30m 60m

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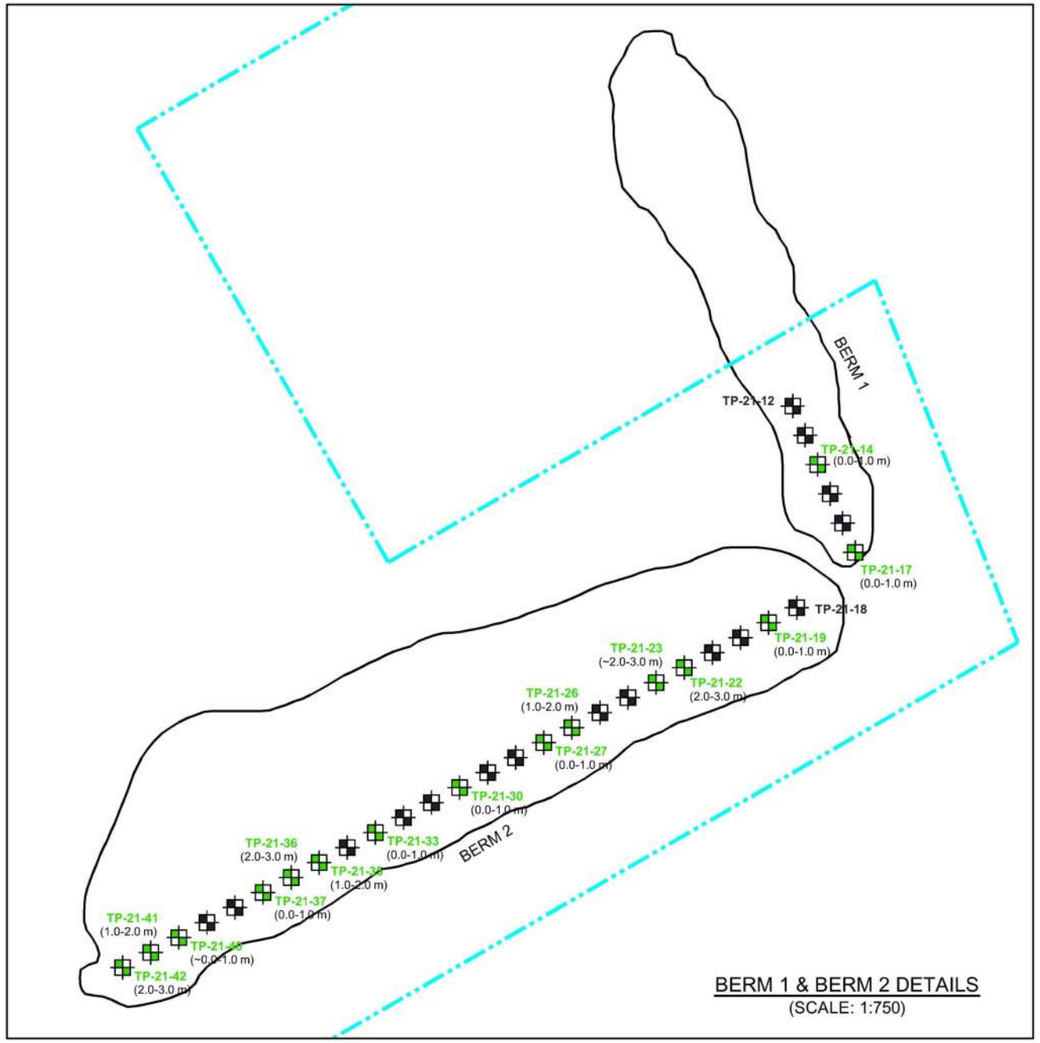
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VOC ANALYTICAL RESULTS IN SOIL

SCALE 1:1,500

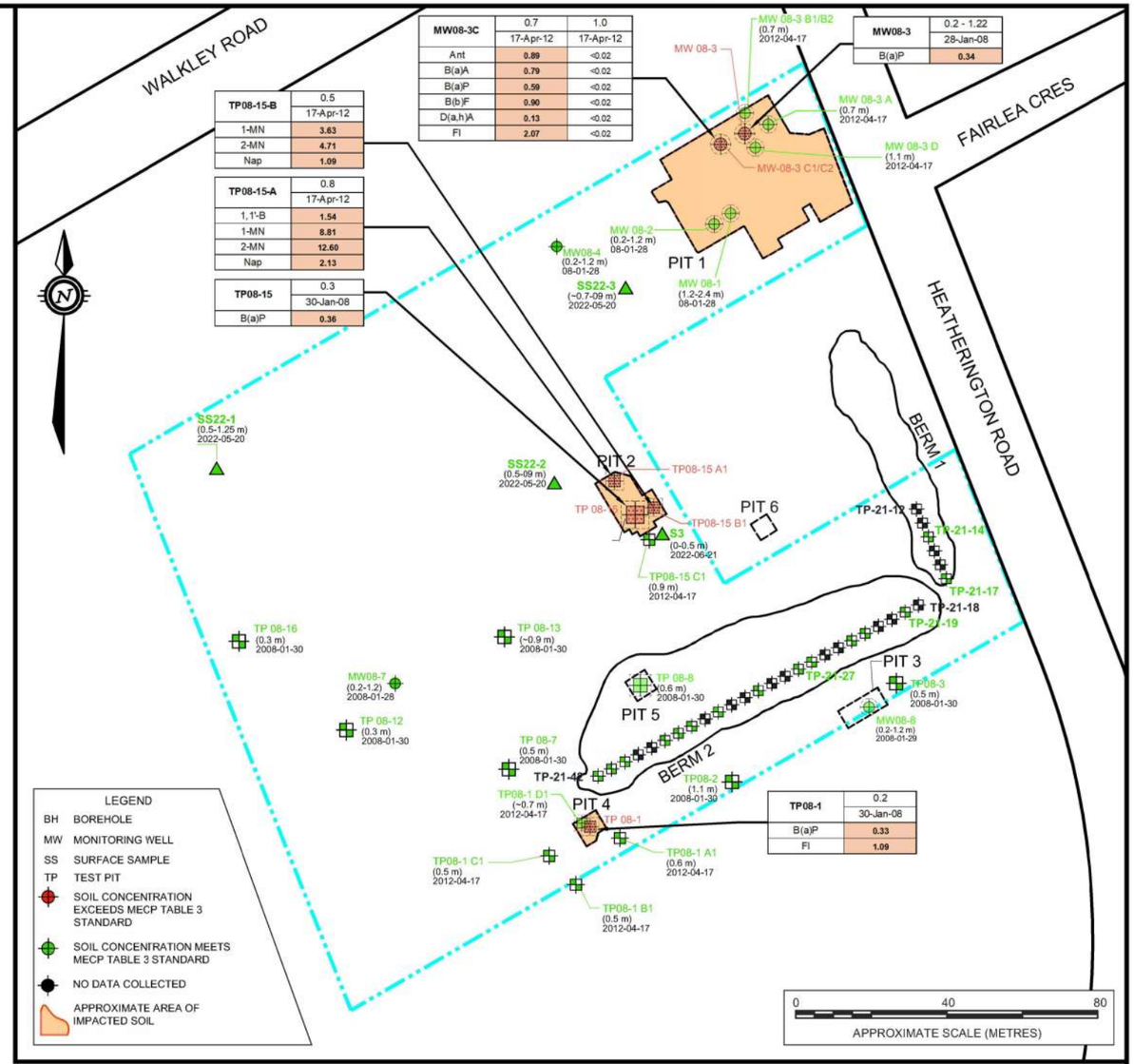
SKETCH NO FIG 10

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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BERM 1 & BERM 2 DETAILS
(SCALE: 1:750)

HORIZONTAL 1:750



MW08-3C	0.7	1.0
	17-Apr-12	17-Apr-12
Ant	0.89	<0.02
B(a)A	0.79	<0.02
B(a)P	0.59	<0.02
B(b)F	0.90	<0.02
D(a,h)A	0.13	<0.02
Fl	2.07	<0.02

MW08-3	0.2 - 1.22
	28-Jan-08
B(a)P	0.34

TP08-15-B	0.5
	17-Apr-12
1-MN	3.63
2-MN	4.71
Nap	1.09

TP08-15-A	0.8
	17-Apr-12
1,1'-B	1.54
1-MN	8.81
2-MN	12.60
Nap	2.13

TP08-15	0.3
	30-Jan-08
B(a)P	0.36

TP08-1	0.2
	30-Jan-08
B(a)P	0.33
FI	1.09

LEGEND
- BH BOREHOLE
- MW MONITORING WELL
- SS SURFACE SAMPLE
- TP TEST PIT
- SOIL CONCENTRATION EXCEEDS MECP TABLE 3 STANDARD
- SOIL CONCENTRATION MEETS MECP TABLE 3 STANDARD
- NO DATA COLLECTED
- APPROXIMATE AREA OF IMPACTED SOIL

HORIZONTAL 1:1500

Legend

Sample ID	Sample Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/g)

2011 MECP Table 3 SCS		
Parameter	**Units**	**Conc.**
Anthracene (Ant)	µg/g	0.74
Benzo(a)anthracene (B(a)A)	µg/g	0.63
Benzo(a)pyrene (B(a)P)	µg/g	0.30
Benzo(b)fluoranthene (B(b)F)	µg/g	0.78
Dibenzo(a,h)anthracene (D(a,h)A)	µg/g	0.10
Fluoranthene (FI)	µg/g	0.69
1,1'-Biphenyl (1,1'-B)	µg/g	1.10
1-Methylnaphthalene (1-MN)	µg/g	3.40
2-Methylnaphthalene (2-MN)	µg/g	3.40
Naphthalene (Nap)	µg/g	0.75

(1) MECP(2011) Table 3 Site Condition Standards for Residential/Parkland/Institutional Property Use (medium-fine)
BOLD Exceeds the applicable range for the Table 3 SCS
~ Indicates duplicate sample

LEGEND
- PROPERTY BOUNDARY
- MW08-8 MONITORING WELL / BOREHOLE
- TP08-3 TEST PIT
- SS-8 SOIL SAMPLE
- S3 SOIL SAMPLE (2022)
- SOIL SAMPLING LOCATION (CLEAN) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)
- SOIL SAMPLING LOCATION (IMPACTED) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)
- BERM 1 (TP-21-12 [NORTH] TO TP-21-17 [SOUTH])
- BERM 2 (TP-21-18 [EAST] TO TP-21-142 [WEST])

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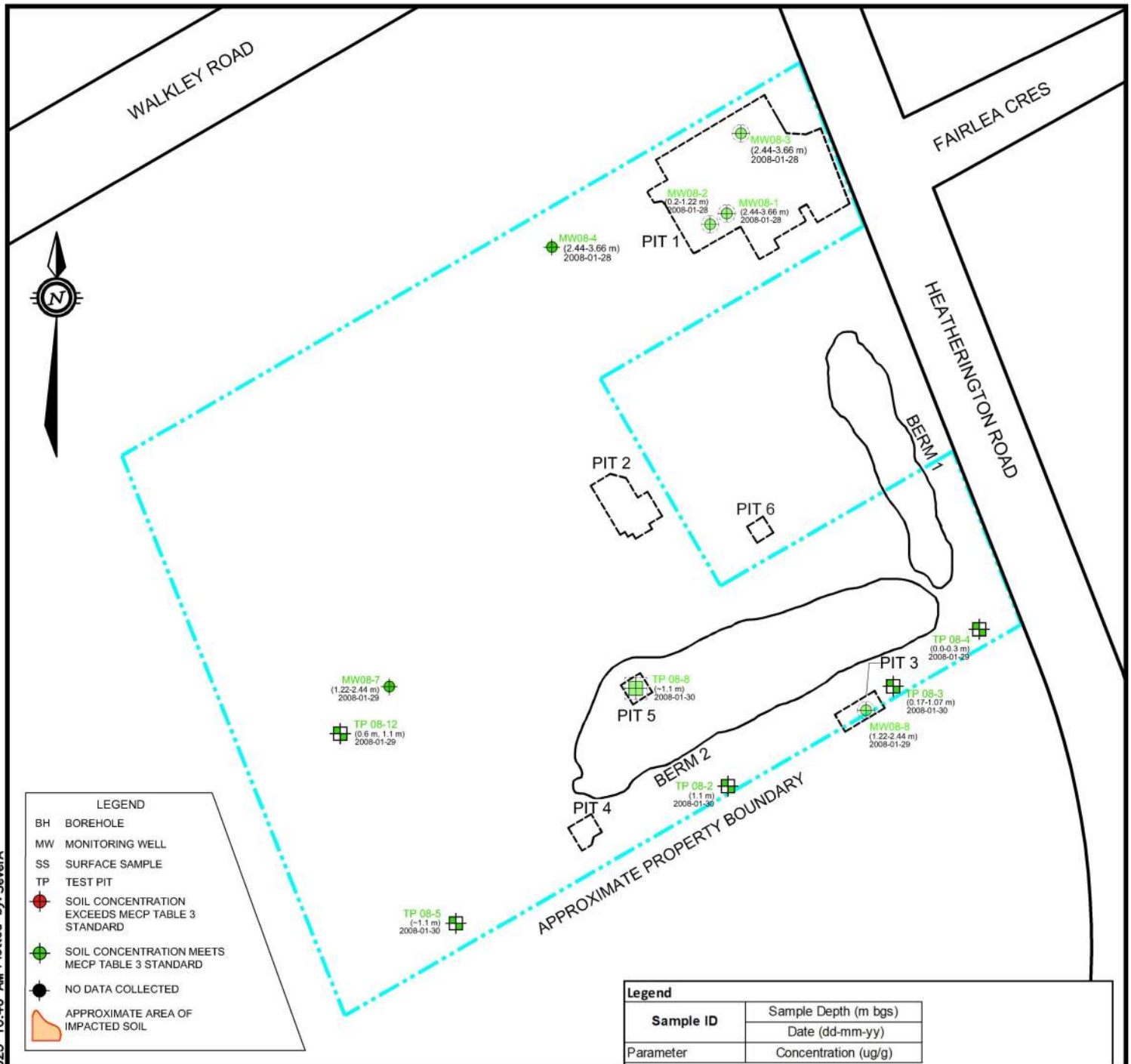
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DATE	AUGUST 2023
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PAH ANALYTICAL RESULTS IN SOIL

SCALE 1:1,500 / 1:750
SKETCH NO FIG 11

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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Legend	
Sample ID	Sample Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/g)

2011 MECP Table 3 SCS		
Parameter	Units	Conc.
	µg/g	

(1) MECP(2011) Table 3 Site Condition Standards for Residential/Parkland/Institutional Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample

LEGEND

- PROPERTY BOUNDARY
- MW08-8 MONITORING WELL / BOREHOLE
- TP08-3 TEST PIT
- SS-8 SOIL SAMPLE
- S3 SOIL SAMPLE (2022)
- SOIL SAMPLING LOCATION (CLEAN) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)
- SOIL SAMPLING LOCATION (IMPACTED) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)
- BERM 1 (TP-21-12 [NORTH] TO TP-21-17 [SOUTH])
- BERM 2 (TP-21-18 [EAST] TO TP-21-142 [WEST])

0 15m 30m 60m

HORIZONTAL 1:1500

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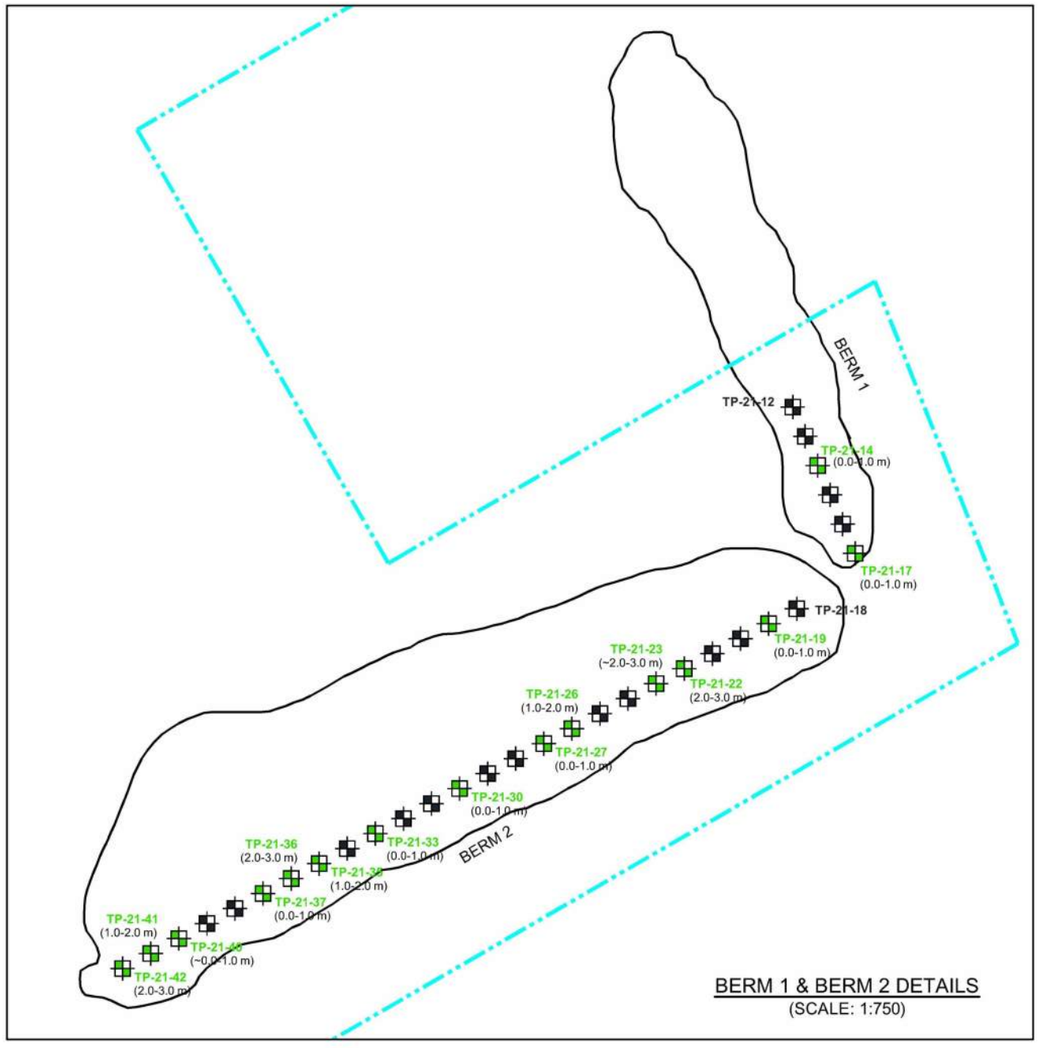
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PCB ANALYTICAL RESULTS IN SOIL

SCALE 1:1,500

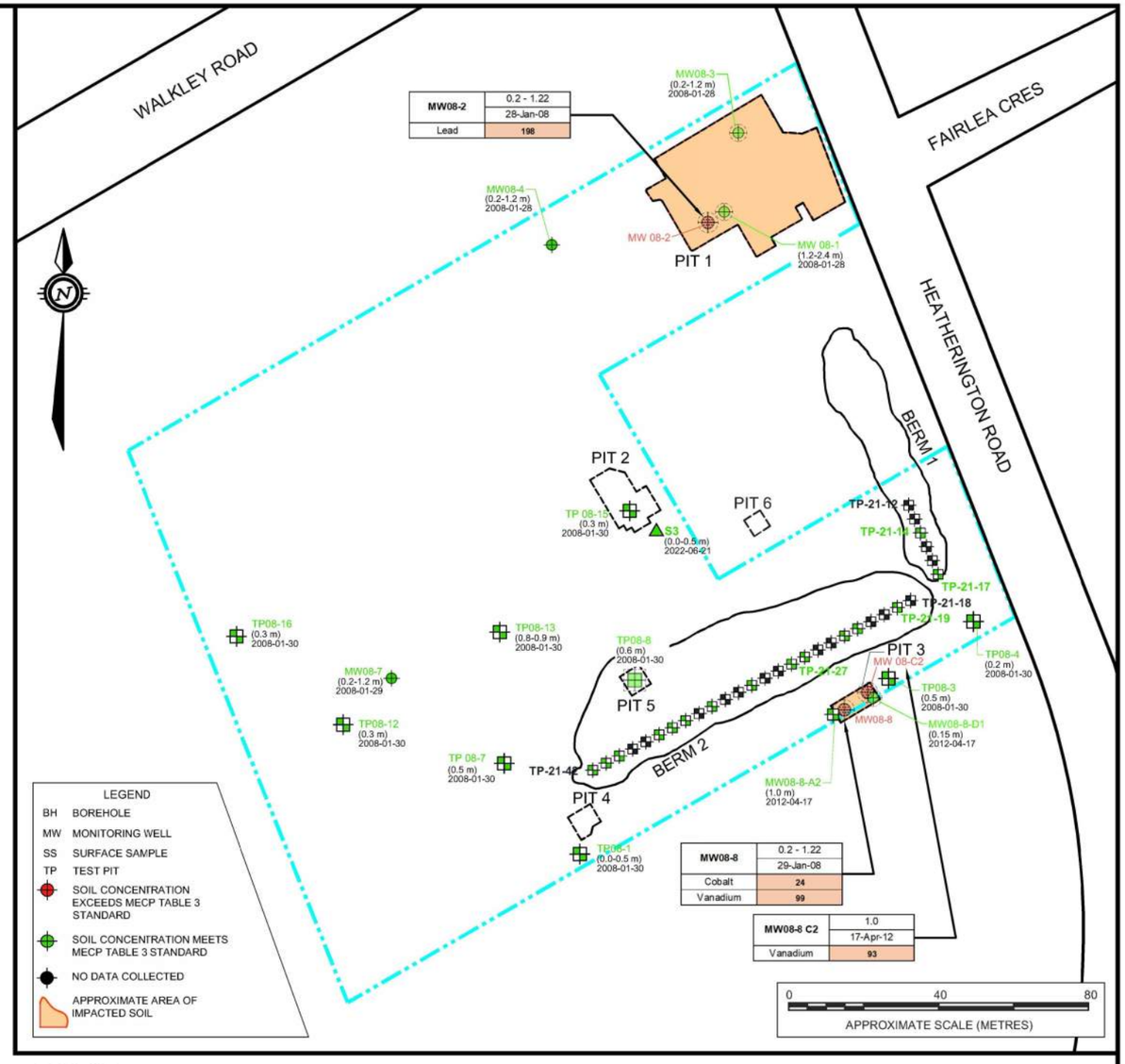
SKETCH NO FIG 12

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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BERM 1 & BERM 2 DETAILS
(SCALE: 1:750)

0 5m 10m 30m
HORIZONTAL 1:750



Legend

Sample ID	Sample Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/g)

2011 MECP Table 3 SCS		
Parameter	**Units**	**Conc.**
Cobalt	µg/g	22
Lead	µg/g	120
Vanadium	µg/g	86

(1) MECP(2011) Table 3 Site Condition Standards for Residential/Parkland/Institutional Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample

LEGEND

- PROPERTY BOUNDARY
- MW08-8 MONITORING WELL / BOREHOLE
- TP08-3 TEST PIT
- SS-8 SOIL SAMPLE
- S3 SOIL SAMPLE (2022)
- BERM 1 (TP-21-12 [NORTH] TO TP-21-17 [SOUTH])
- BERM 2 (TP-21-18 [EAST] TO TP-21-142 [WEST])
- SOIL SAMPLING LOCATION (CLEAN) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)
- SOIL SAMPLING LOCATION (IMPACTED) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)

0 15m 30m 60m
HORIZONTAL 1:1500

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DATE	AUGUST 2023
FILE NO	OTT-00018293-J5

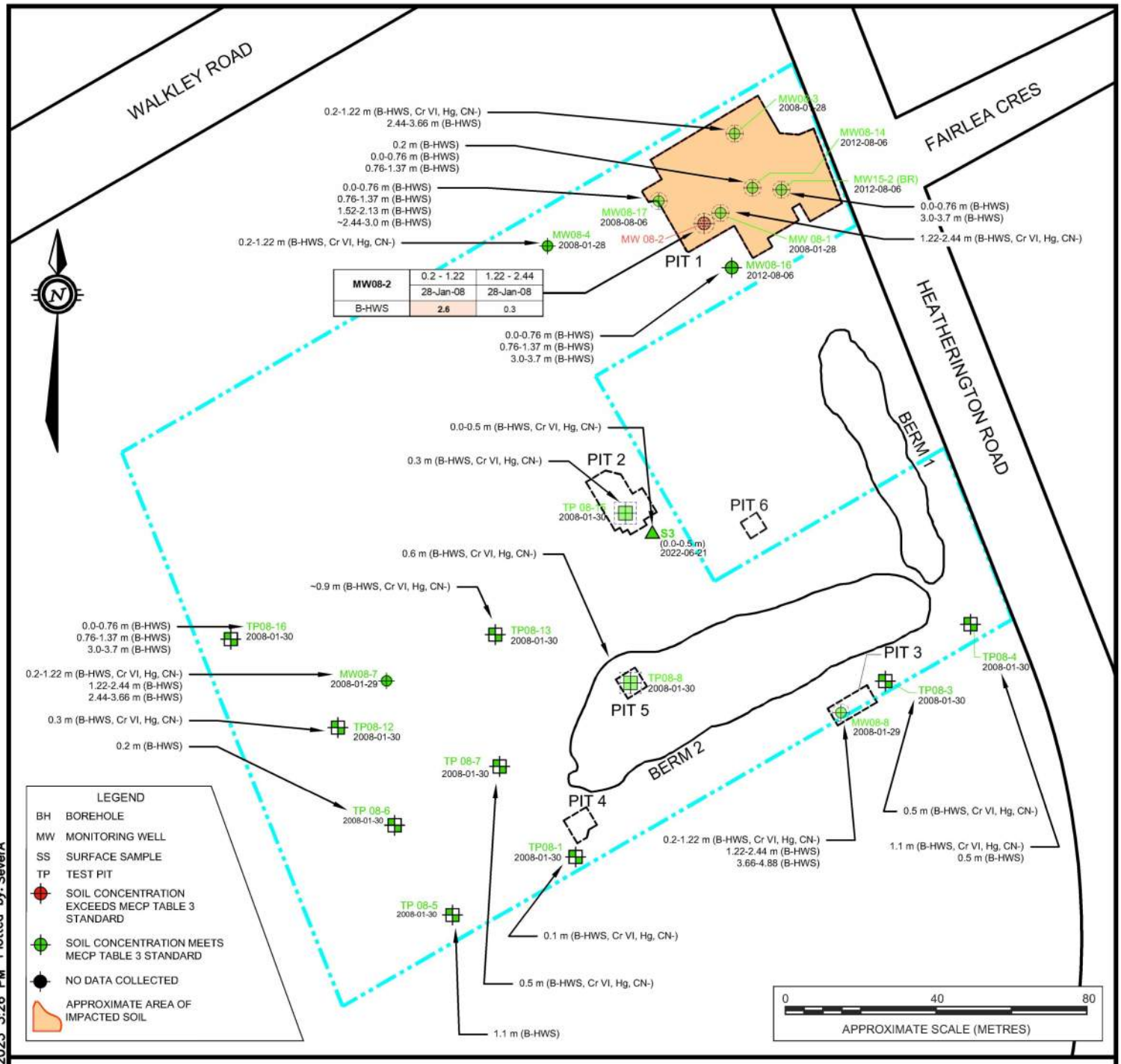
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METALS AND HYDRIDE FORMING METALS ANALYTICAL RESULTS IN SOIL

SCALE 1:1,500 / 1:750

SKETCH NO FIG 13

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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Legend

Sample ID	Sample Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/g)

2011 MECP Table 3 SCS		
Parameter	**Units**	**Conc.**
Boron Hot Water Soluble (B-HWS)	µg/g	1.50

(1) MECP(2011) Table 3 Site Condition Standards for Residential/Parkland/Institutional Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample

LEGEND

- PROPERTY BOUNDARY
- MW08-8 MONITORING WELL / BOREHOLE
- TP08-3 TEST PIT
- SS-8 SOIL SAMPLE
- S3 SOIL SAMPLE (2022)
- SOIL SAMPLING LOCATION (CLEAN) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)
- SOIL SAMPLING LOCATION (IMPACTED) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)
- BERM 1 (TP-21-12 [NORTH] TO TP-21-17 [SOUTH])
- BERM 2 (TP-21-18 [EAST] TO TP-21-142 [WEST])

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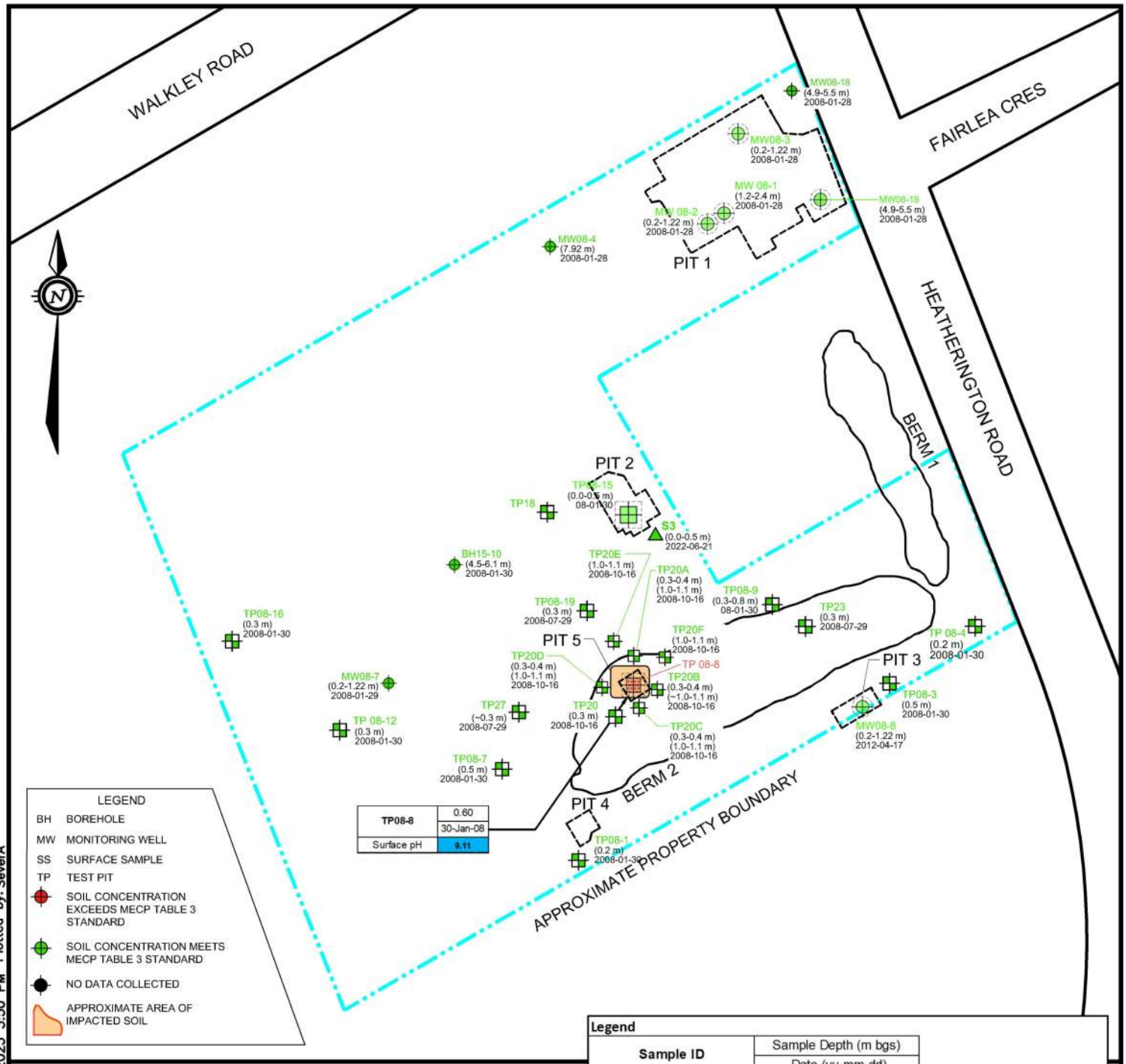
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OTHER REGULATED PARAMETERS (INCLUDING B-HWS, Cr VI, Hg and CN-) ANALYTICAL RESULTS IN SOIL

SCALE 1:1,500

SKETCH NO FIG 13a

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
Last Saved: Aug 25, 2023 3:25 PM Last Plotted: Aug 25, 2023 3:26 PM Plotted by: SeverA



Legend

Sample ID	Sample Depth (m bgs)
	Date (yy-mm-dd)
Parameter	Concentration (ug/g)

2011 MECP Table 3 SCS		
Parameter	**Units**	**Conc.**
Surface Soil pH	pH Units	5 - 9

(1) MECP(2011) Table 3 Site Condition Standards for Residential/Parkland/Institutional Property Use (medium-fine)

BOLD pH exceeds the applicable range for the Table 3 SCS

LEGEND

- PROPERTY BOUNDARY
- MW08-8 — MONITORING WELL / BOREHOLE
- TP08-3 — TEST PIT
- SS-8 — SOIL SAMPLE
- S3 — SOIL SAMPLE (2022)
- BERM 1 (TP-21-12 [NORTH] TO TP-21-17 [SOUTH])
- BERM 2 (TP-21-18 [EAST] TO TP-21-142 [WEST])
- SOIL SAMPLING LOCATION (CLEAN) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)
- SOIL SAMPLING LOCATION (IMPACTED) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)

0 15m 30m 60m

HORIZONTAL 1:1500

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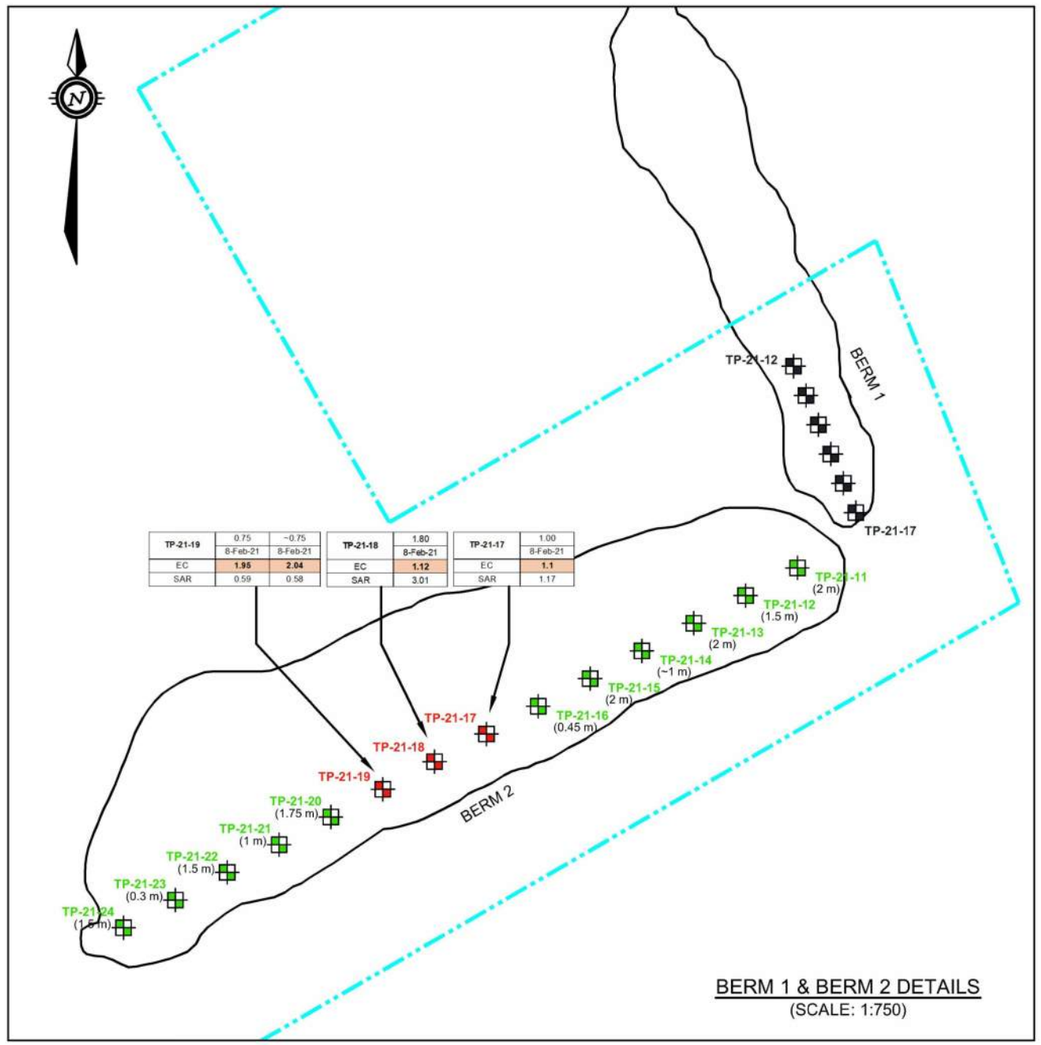
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pH ANALYTICAL RESULTS IN SOIL

SCALE 1:1,500

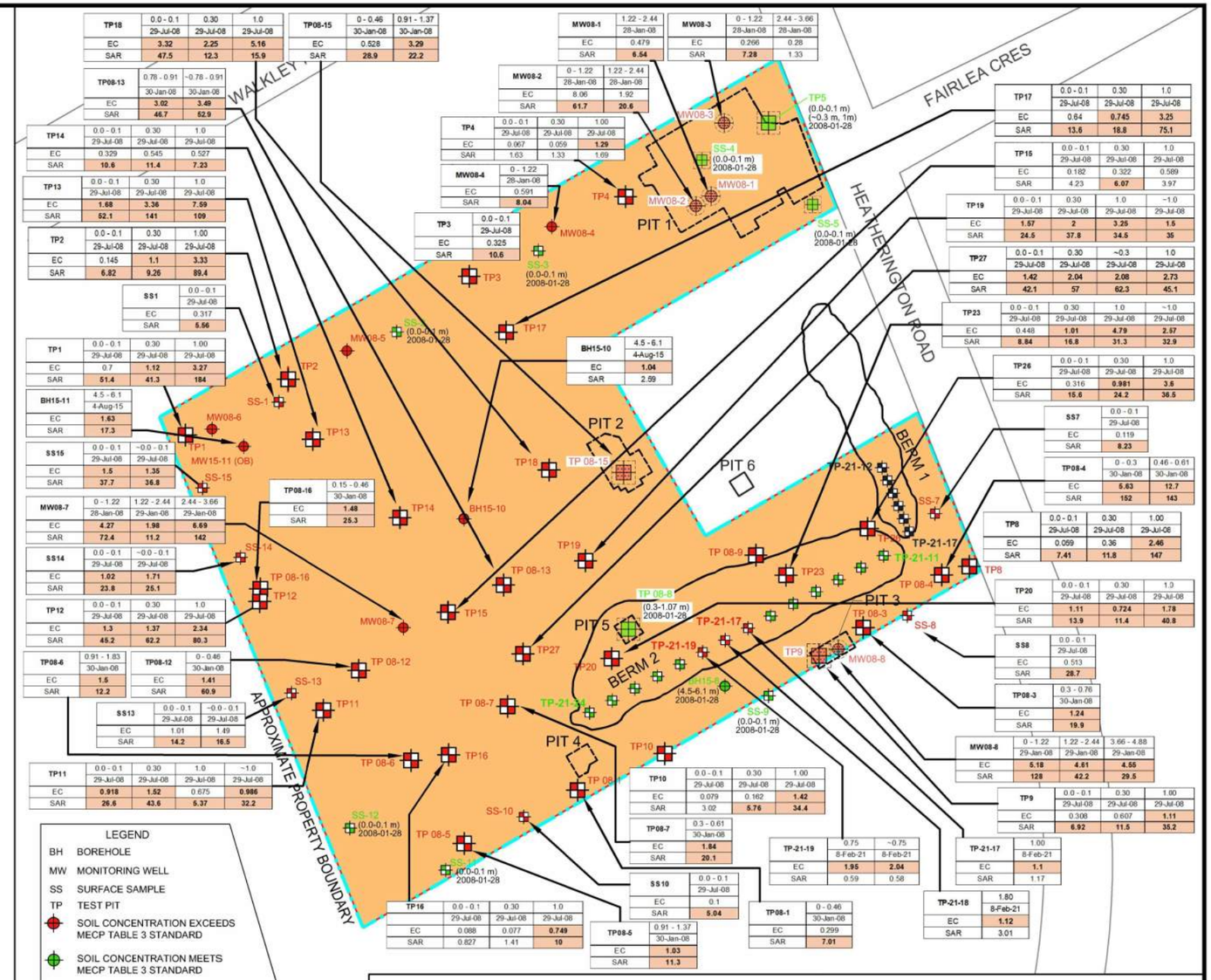
SKETCH NO FIG 14

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BERM 1 & BERM 2 DETAILS
(SCALE: 1:750)

0 5m 10m 30m
HORIZONTAL 1:750



LEGEND
BH BOREHOLE
MW MONITORING WELL
SS SURFACE SAMPLE
TP TEST PIT
SOIL CONCENTRATION EXCEEDS MECP TABLE 3 STANDARD
SOIL CONCENTRATION MEETS MECP TABLE 3 STANDARD
NO DATA COLLECTED
APPROXIMATE AREA OF IMPACTED SOIL

Legend

Sample ID	Sample Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/g)

2011 MECP Table 3 SCS		
Parameter	**Units**	**Conc.**
Electrical Conductivity (EC)	mS/cm	0.70
Sodium Adsorption Ratio (SAR)	Unitless	5.00

(1) MECP(2011) Table 3 Site Condition Standards for Residential/Parkland/Institutional Property Use (medium-fine)
BOLD Exceeds the applicable range for the Table 3 SCS
~ Indicates duplicate sample

0 15m 30m 60m
HORIZONTAL 1:1500

LEGEND
PROPERTY BOUNDARY
MW08-8 MONITORING WELL / BOREHOLE
TP08-3 TEST PIT
SS-8 SOIL SAMPLE
S3 SOIL SAMPLE (2022)
SOIL SAMPLING LOCATION (CLEAN) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)
SOIL SAMPLING LOCATION (IMPACTED) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)
BERM 1 (TP-21-12 [NORTH] TO TP-21-17 [SOUTH])
BERM 2 (TP-21-18 [EAST] TO TP-21-142 [WEST])

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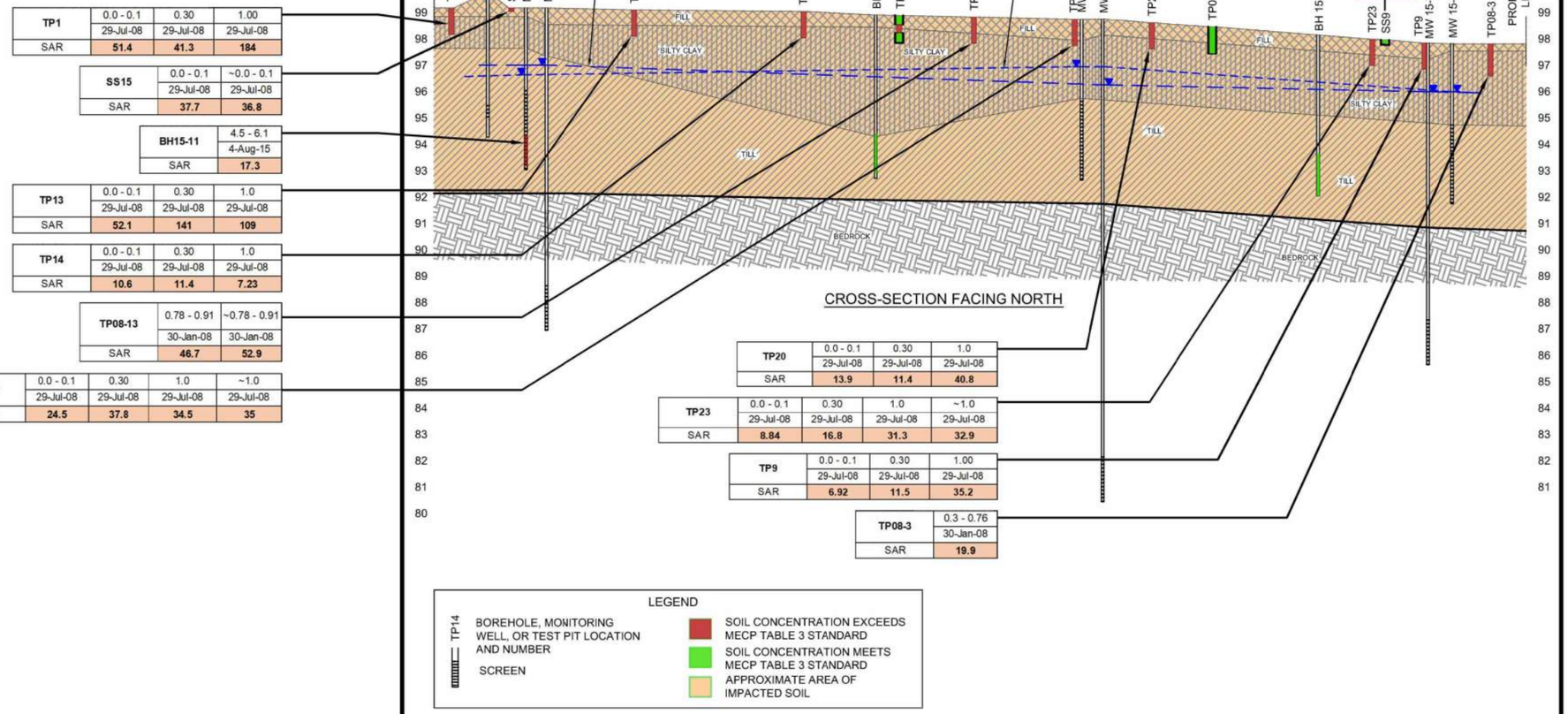
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ELECTRICAL CONDUCTIVITY AND SODIUM ADSORPTION RATIO ANALYTICAL RESULTS IN SOIL

SCALE 1:1,500 / 1:750
SKETCH NO FIG 15

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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CROSS-SECTION FACING NORTH

TP1	0.0 - 0.1	0.30	1.00
	29-Jul-08	29-Jul-08	29-Jul-08
SAR	**51.4**	**41.3**	**184**

SS15	0.0 - 0.1	~0.0 - 0.1
	29-Jul-08	29-Jul-08
SAR	**37.7**	**36.8**

BH15-11	4.5 - 6.1
	4-Aug-15
SAR	**17.3**

TP13	0.0 - 0.1	0.30	1.0
	29-Jul-08	29-Jul-08	29-Jul-08
SAR	**52.1**	**141**	**109**

TP14	0.0 - 0.1	0.30	1.0
	29-Jul-08	29-Jul-08	29-Jul-08
SAR	**10.6**	**11.4**	**7.23**

TP08-13	0.78 - 0.91	~0.78 - 0.91
	30-Jan-08	30-Jan-08
SAR	**46.7**	**52.9**

TP19	0.0 - 0.1	0.30	1.0	~1.0
	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08
SAR	**24.5**	**37.8**	**34.5**	**35**

TP20	0.0 - 0.1	0.30	1.0
	29-Jul-08	29-Jul-08	29-Jul-08
SAR	**13.9**	**11.4**	**40.8**

TP23	0.0 - 0.1	0.30	1.0	~1.0
	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08
SAR	**8.84**	**16.8**	**31.3**	**32.9**

TP9	0.0 - 0.1	0.30	1.00
	29-Jul-08	29-Jul-08	29-Jul-08
SAR	**6.92**	**11.5**	**35.2**

TP08-3	0.3 - 0.76
	30-Jan-08
SAR	**19.9**

LEGEND

- TP14 — BOREHOLE, MONITORING WELL, OR TEST PIT LOCATION AND NUMBER
- SCREEN
- SOIL CONCENTRATION EXCEEDS MECP TABLE 3 STANDARD
- SOIL CONCENTRATION MEETS MECP TABLE 3 STANDARD
- APPROXIMATE AREA OF IMPACTED SOIL

Legend

Sample ID	Sample Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/g)

2011 MECP Table 3 SCS		
Parameter	**Units**	**Conc.**
Sodium Adsorption Ratio (SAR)	Unitless	5.00

(1) MECP(2011) Table 3 Site Condition Standards for Residential/Parkland/Institutional Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample

HORIZONTAL 0 10m 20m 40m 1:1000

VERTICAL 0 2m 4m 8m 1:200

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SODIUM ADSORPTION RATIO ANALYTICAL RESULTS IN SOIL - CROSS-SECTION A-A'

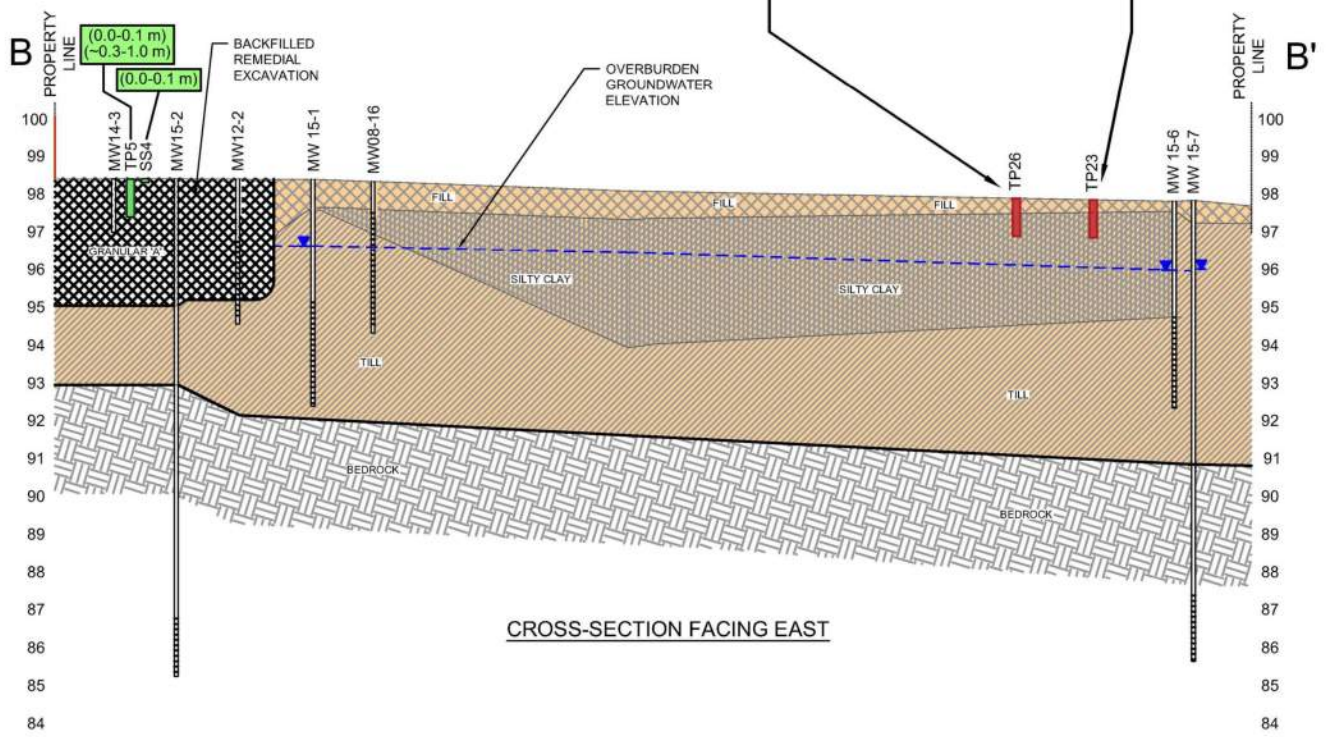
SCALE HORIZ. 1:1000 VERT. 1:200

SKETCH NO FIG 15A

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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TP26	0.0 - 0.1	0.30	1.0
	29-Jul-08	29-Jul-08	29-Jul-08
SAR	**15.6**	**24.2**	**36.5**

TP23	0.0 - 0.1	0.30	1.0	~1.0
	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08
SAR	**8.84**	**16.8**	**31.3**	**32.9**



CROSS-SECTION FACING EAST

LEGEND

TP14 — BOREHOLE, MONITORING WELL, OR TEST PIT LOCATION AND NUMBER

SCREEN

SOIL CONCENTRATION EXCEEDS MECP TABLE 3 STANDARD

SOIL CONCENTRATION MEETS MECP TABLE 3 STANDARD

APPROXIMATE AREA OF IMPACTED SOIL

Legend

Sample ID	Sample Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/g)

2011 MECP Table 3 SCS		
Parameter	**Units**	**Conc.**
Sodium Adsorption Ratio (SAR)	Unitless	5.00

(1) MECP(2011) Table 3 Site Condition Standards for Residential/Parkland/Institutional Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample

0 10m 20m 40m

HORIZONTAL 1:1000

8m 4m 2m 0

VERTICAL 1:200

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SODIUM ADSORPTION RATIO ANALYTICAL RESULTS IN SOIL - CROSS-SECTION B-B'

SCALE HORIZ. 1:1000 VERT. 1:200

SKETCH NO

FIG 15B

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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TP1	0.0 - 0.1	0.30	1.00
	29-Jul-08	29-Jul-08	29-Jul-08
EC	0.7	**1.12**	**3.27**

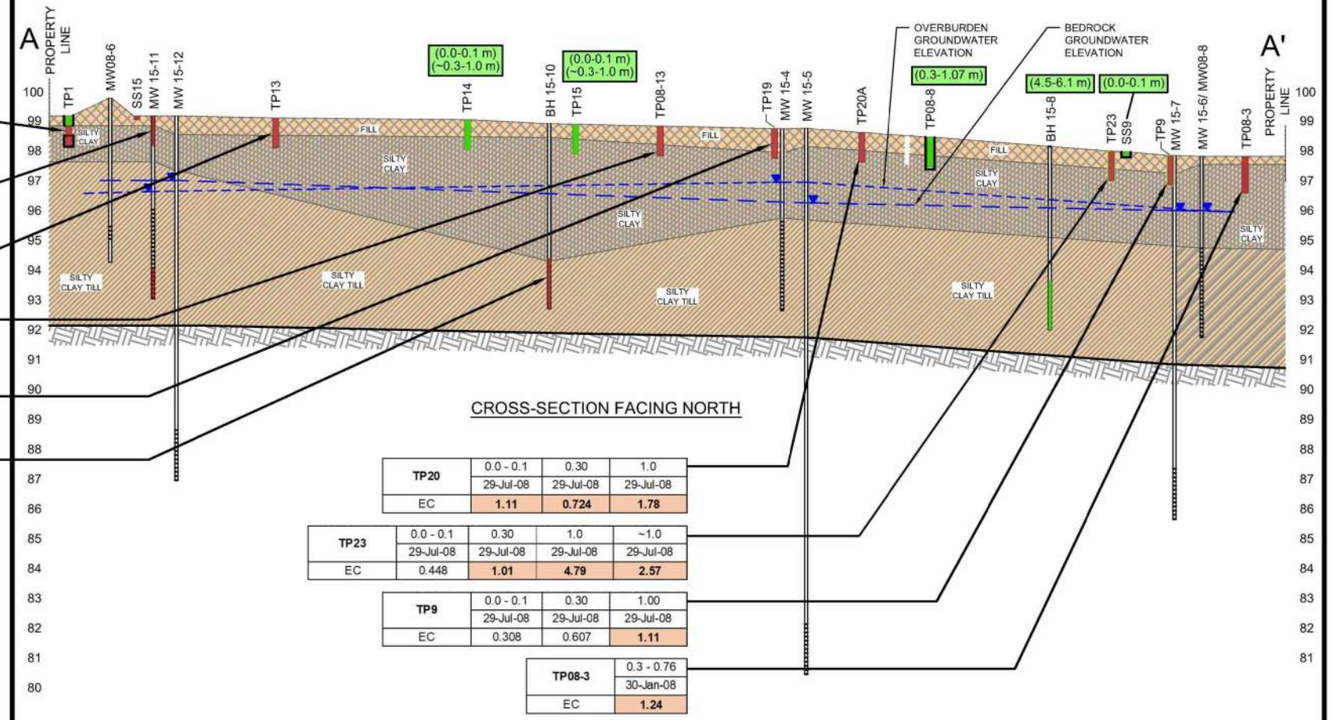
BH15-11	4.5 - 6.1
	4-Aug-15
EC	**1.63**

TP13	0.0 - 0.1	0.30	1.0
	29-Jul-08	29-Jul-08	29-Jul-08
EC	**1.68**	**3.36**	**7.59**

TP08-13	0.78 - 0.91	~0.78 - 0.91
	30-Jan-08	30-Jan-08
EC	**3.02**	**3.49**

TP19	0.0 - 0.1	0.30	1.0	~1.0
	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08
EC	**1.57**	**2**	**3.25**	**1.5**

BH15-10	4.5 - 6.1
	4-Aug-15
EC	**1.04**



CROSS-SECTION FACING NORTH

TP20	0.0 - 0.1	0.30	1.0
	29-Jul-08	29-Jul-08	29-Jul-08
EC	**1.11**	**0.724**	**1.78**

TP23	0.0 - 0.1	0.30	1.0	~1.0
	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08
EC	0.448	**1.01**	**4.79**	**2.57**

TP9	0.0 - 0.1	0.30	1.00
	29-Jul-08	29-Jul-08	29-Jul-08
EC	0.308	0.607	**1.11**

TP08-3	0.3 - 0.76
	30-Jan-08
EC	**1.24**

LEGEND

TP14 — BOREHOLE, MONITORING WELL, OR TEST PIT LOCATION AND NUMBER

SCREEN

SOIL CONCENTRATION EXCEEDS MECP TABLE 3 STANDARD

SOIL CONCENTRATION MEETS MECP TABLE 3 STANDARD

APPROXIMATE AREA OF IMPACTED SOIL

Legend

Sample ID	Sample Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/g)

2011 MECP Table 3 SCS		
Parameter	**Units**	**Conc.**
Electrical Conductivity (EC)	mS/cm	0.70

(1) MECP(2011) Table 3 Site Condition Standards for Residential/Parkland/Institutional Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~Indicates duplicate sample

HORIZONTAL 0 10m 20m 40m 1:1000

VERTICAL 0 2m 4m 8m 1:200

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ELECTRICAL CONDUCTIVITY ANALYTICAL RESULTS IN SOIL - CROSS-SECTION A-A'

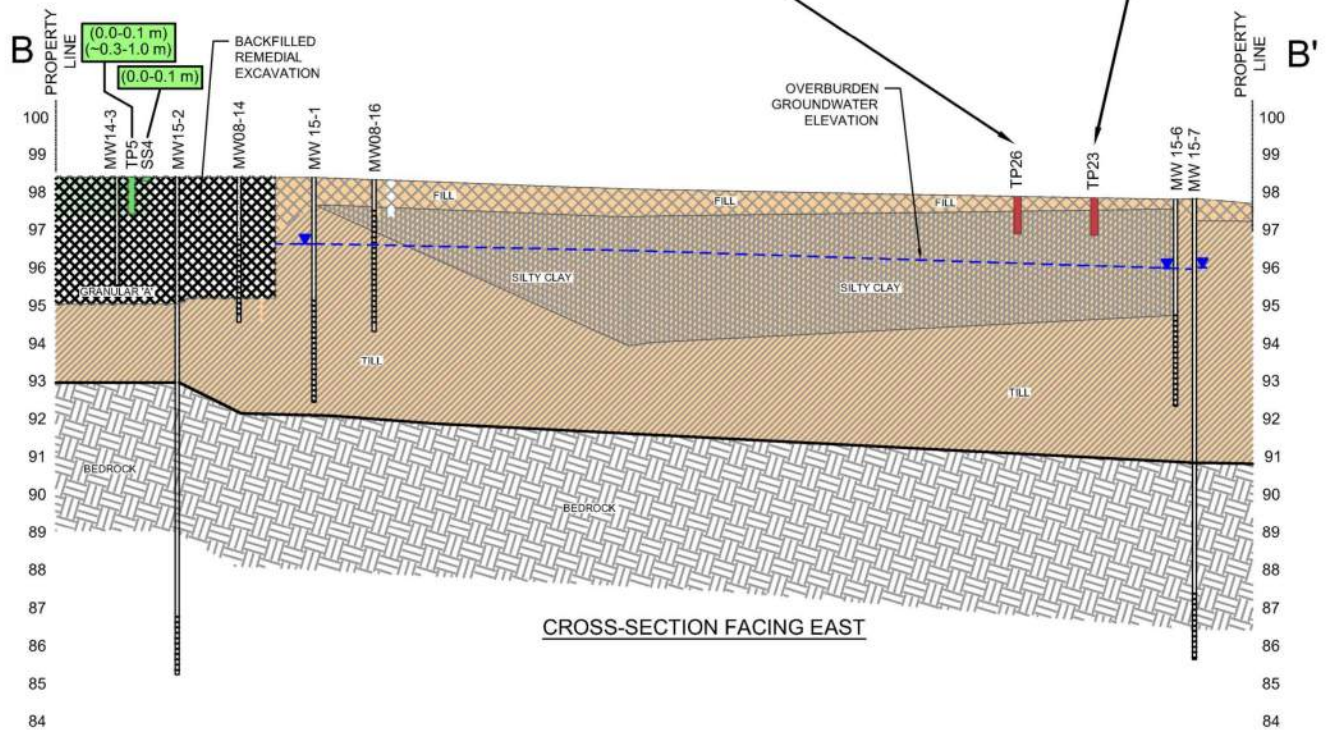
SCALE HORIZ. 1:1000 VERT. 1:200

SKETCH NO

FIG 15C

TP26	0.0 - 0.1	0.30	1.0
	29-Jul-08	29-Jul-08	29-Jul-08
EC	0.316	**0.981**	**3.6**

TP23	0.0 - 0.1	0.30	1.0	~1.0
	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08
EC	0.448	**1.01**	**4.79**	**2.57**



CROSS-SECTION FACING EAST

LEGEND

TP14 — BOREHOLE, MONITORING WELL, OR TEST PIT LOCATION AND NUMBER

SCREEN

SOIL CONCENTRATION EXCEEDS MECP TABLE 3 STANDARD

SOIL CONCENTRATION MEETS MECP TABLE 3 STANDARD

APPROXIMATE AREA OF IMPACTED SOIL

Legend

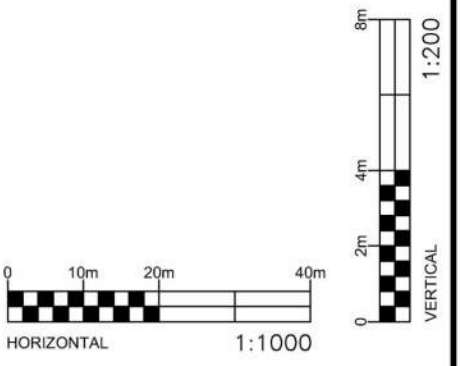
Sample ID	Sample Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/g)

2011 MECP Table 3 SCS		
Parameter	**Units**	**Conc.**
Electrical Conductivity (EC)	mS/cm	0.70

(1) MECP(2011) Table 3 Site Condition Standards for Residential/Parkland/Institutional Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample



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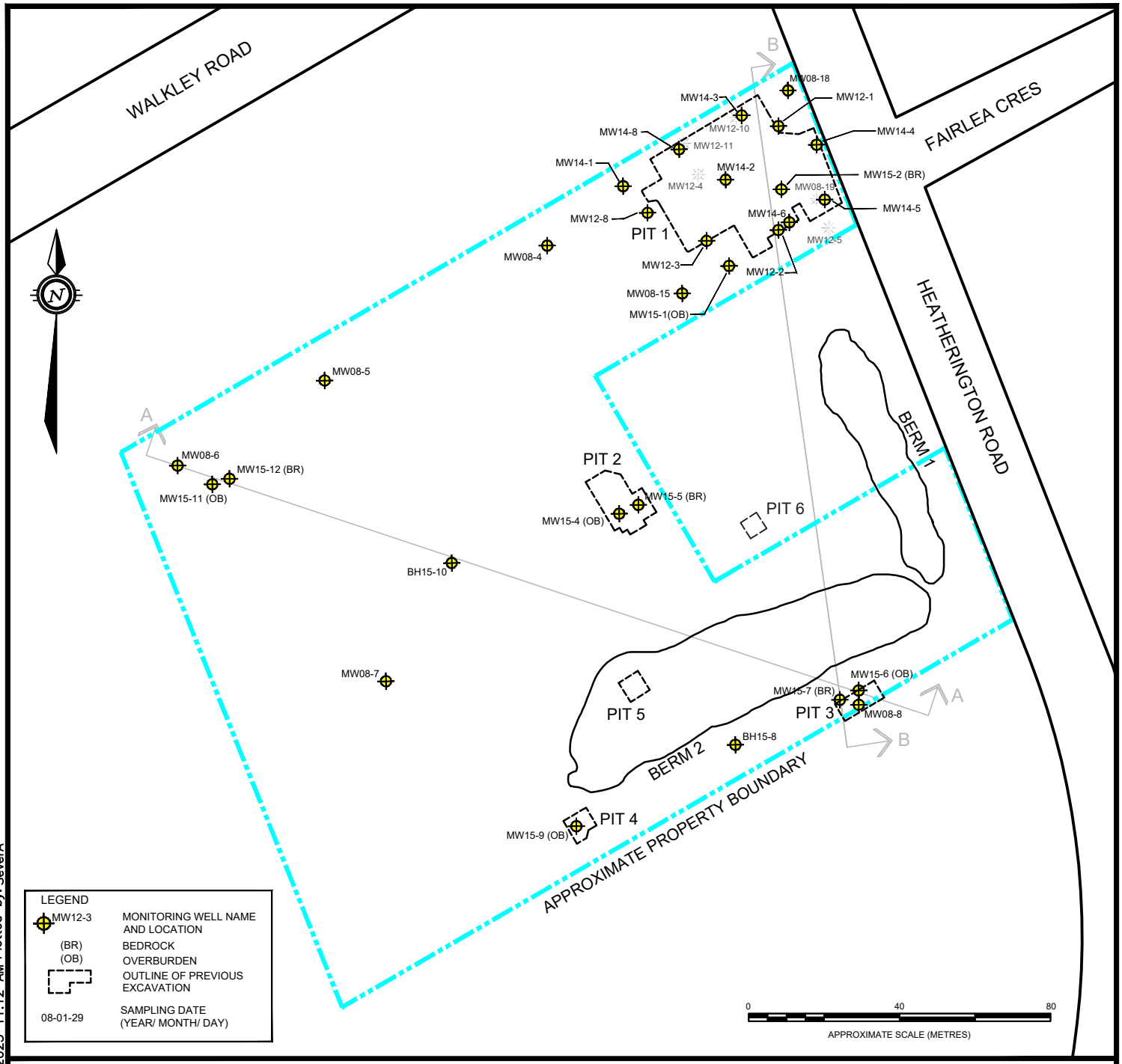
ELECTRICAL CONDUCTIVITY ANALYTICAL RESULTS IN SOIL - CROSS-SECTION B-B'

SCALE HORIZ. 1:1000 VERT. 1:200

SKETCH NO

FIG 15D

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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LEGEND

- PROPERTY BOUNDARY
- MW08-8 — MONITORING WELL / BOREHOLE
- TP08-3 — TEST PIT
- SS-8 — SOIL SAMPLE
- S3 — SOIL SAMPLE (2022)
- MW12-4 — MONITORING WELL REMOVED

0 15m 30m 60m

HORIZONTAL 1:1500

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PHASE TWO ESA MONITORING WELL LOCATION PLAN (POST-REMEDIATION)

SCALE 1:1,500

SKETCH NO **FIG 16**

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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MW08-14 (D)	3.72 - 6.72
	11-Aug-08
PHC F3 (C16-C34)	**900**

MW08-1 (A)	1.53 - 5.49				
	5-Feb-08	~5-Feb-08	11-Aug-08	~11-Aug-08	14-Nov-08
PHC F2 (C10-C16)	**160**	90	<50	<50	<100
PHC F3 (C16-C34)	**900**	**1,000**	**600**	**700**	<100
PHC F4 (C34-C50)	**<600**	<500	<500	<500	<100

MW08-2 (B)	1.53 - 5.49			
	4-Feb-08	11-Aug-08	30-Aug-10	25-Jan-12
PHC F3 (C16-C34)	**4,400**	<500	<100	<100

MW08-15 (E)	3.1 - 6.1		
	11-Aug-08	17-Apr-12	~17-Apr-12
PHC F3 (C16-C34)	**1,000**	<100	<100

MW08-16 (F)	2.72 - 5.72
	11-Aug-08
PHC F3 (C16-C34)	**2,200**
PHC F4 (C34-C50)	**1,700**

MW08-13 (C)	3.9 - 6.9	
	11-Aug-08	17-Apr-12
PHC F2 (C10-C16)	**180**	<100
PHC F3 (C16-C34)	**1,300**	<100
PHC F4 (C34-C50)	**600**	<100

Legend

Sample ID	Screen Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/L)

2011 MECP Table 3 SCS		
Parameter	Units	Conc.
PHC F2 (C10-C16)	ug/L	150
PHC F3 (C16-C34)	ug/L	500
PHC F4 (C34-C50)	ug/L	500

(1) MECP(2011) Table 3 Site Condition Standards for All Types of Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample

(A) - MW08-1 - 1 x clean round of groundwater sampling was completed at this location in November 2014. Following decommission and during remedial activities, this well was replaced by MW12-3 (screened 3.1 - 6.1 m bgs) and was sampled 3x with clean sampling results. As such, MW08-1 was no longer considered impacted.

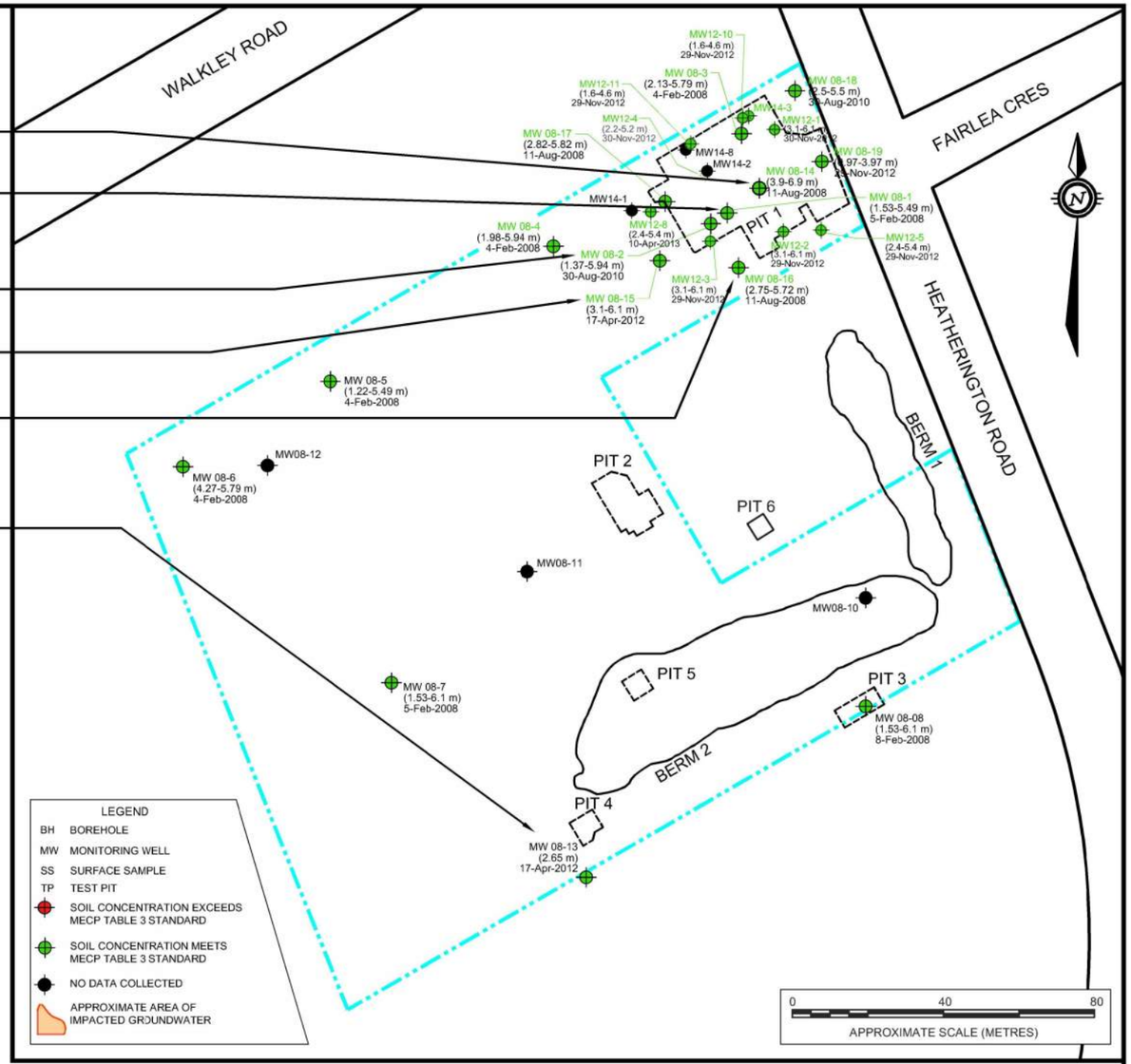
(B) - MW08-2 - 3 x clean rounds of groundwater sampling were completed at this location on August 11 and 30, 2008 and January 25, 2012. As such, the initial PHC F3 exceedance was no longer considered to be present.

(C) - MW08-13 - 1 x clean round of groundwater sampling was completed at this location in April 2012. Following decommission and remedial activities, this well was replaced by MW15-9 (screened at 3.0 - 6.0 m bgs) and was sampled 1x with clean sampling results. As such, MW08-13 is no longer considered to be impacted.

(D) - MW08-14 - This monitoring well location was not re-sampled prior to remediation at Pit No. 1. During and after remedial activities, MW12-2 (screened at 3.1 - 6.1 m bgs) was sampled 3x with clean sampling results. As such, MW08-14 is no longer considered to be impacted.

(E) - MW08-15 - 1x clean round of groundwater sampling was completed at this location in April 2012 during the completion of remedial activities. MW15-1 (screened 2.9 - 5.9 m bgs) was installed within proximity to MW08-15 and was sampled with clean results in August 2015 and in May 2022.

(F) - MW08-16 - This monitoring well location was not re-sampled prior to remediation at Pit No. 1. After remedial activities, MW15-1 (screened at 2.9 - 5.9 m bgs) was installed within proximity to MW08-16 and was sample 2x with clean results in August 2015 and May 2022.



LEGEND

- PROPERTY BOUNDARY
- MW08-8 — MONITORING WELL / BOREHOLE
- TP08-3 — TEST PIT
- SS-8 — SOIL SAMPLE
- S3 — SOIL SAMPLE (2022)
- MW12-4 — MONITORING WELL REMOVED

0 15m 30m 60m

HORIZONTAL 1:1500

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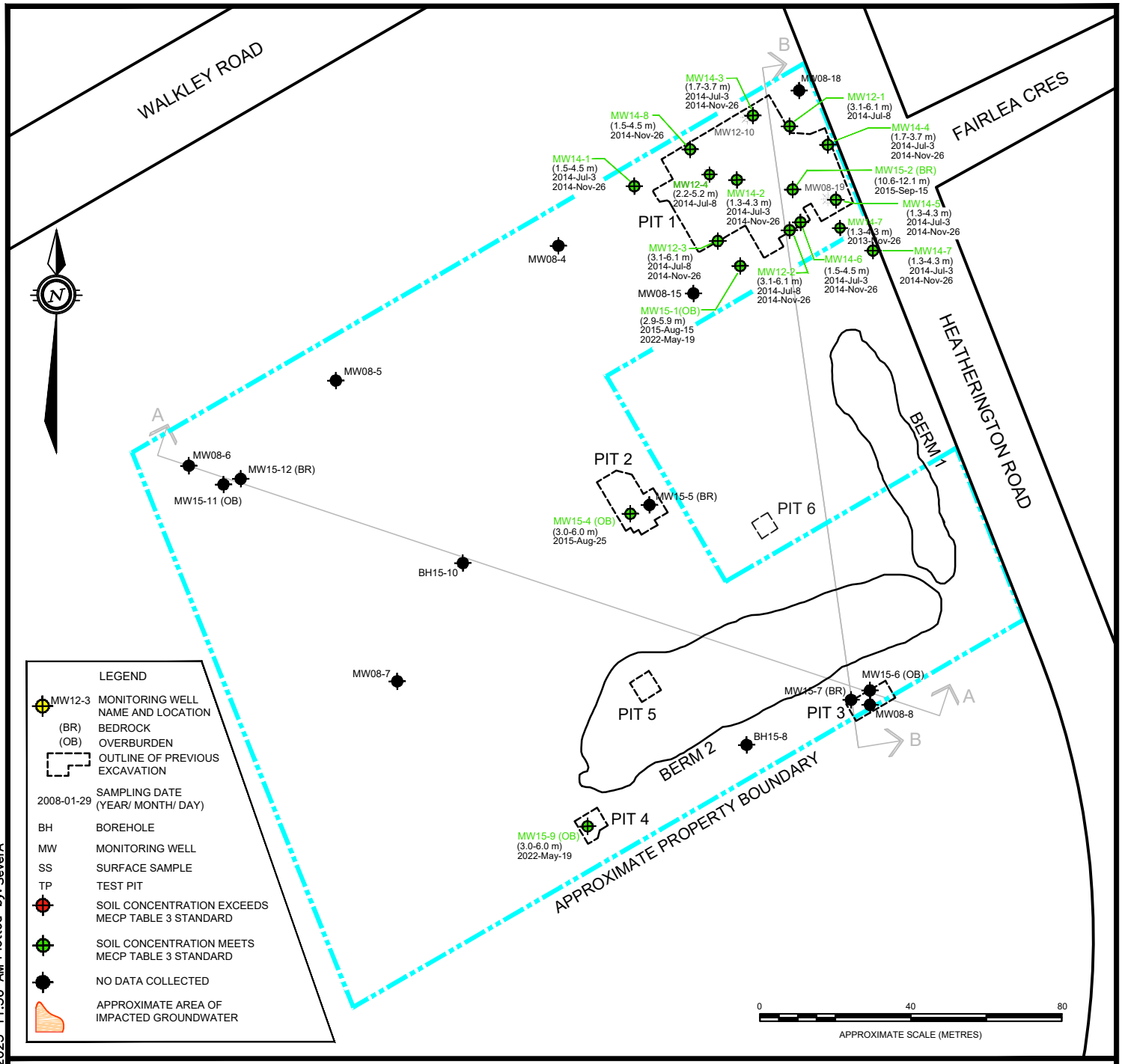
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PHC ANALYTICAL RESULTS IN GROUNDWATER (PRE-REMEDIATION)

SCALE 1:1,500

SKETCH NO FIG 17

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293–J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293–J5 Enviro Fig 9–31_Plans+Sections.dwg
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LEGEND

- PROPERTY BOUNDARY
- MW08-8 — MONITORING WELL / BOREHOLE
- TP08-3 — TEST PIT
- SS-8 — SOIL SAMPLE
- S3 — SOIL SAMPLE (2022)
- MW12-4 — MONITORING WELL REMOVED

0 15m 30m 60m

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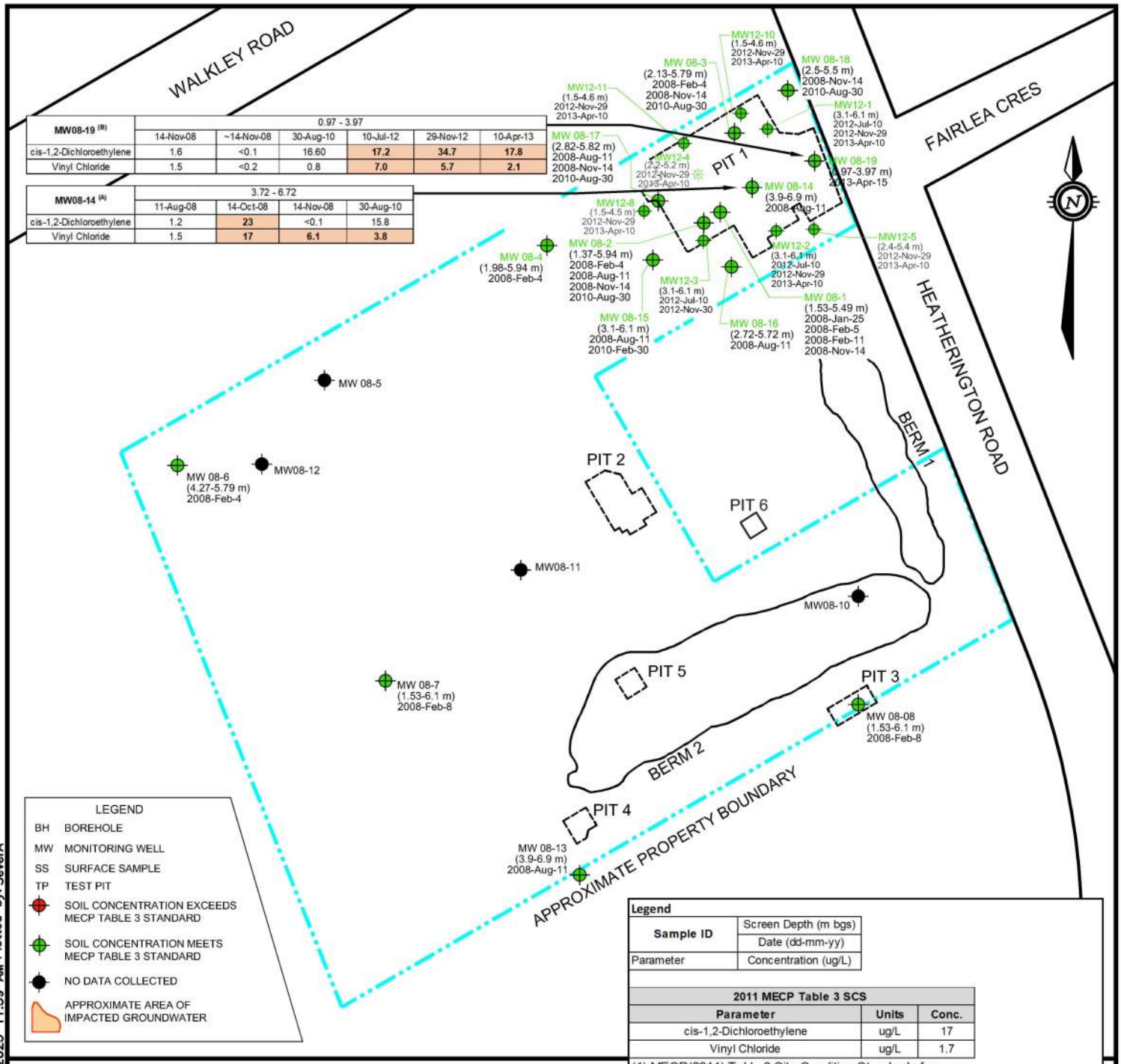
PHC ANALYTICAL RESULTS IN GROUNDWATER (POST-REMEDIATION)

SCALE 1:1,500

SKETCH NO

FIG 18

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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MW08-19 (B)	0.97 - 3.97					
	14-Nov-08	~14-Nov-08	30-Aug-10	10-Jul-12	29-Nov-12	10-Apr-13
cis-1,2-Dichloroethylene	1.6	<0.1	16.60	**17.2**	**34.7**	**17.8**
Vinyl Chloride	1.5	<0.2	0.8	**7.0**	**5.7**	**2.1**

MW08-14 (A)	3.72 - 6.72			
	11-Aug-08	14-Oct-08	14-Nov-08	30-Aug-10
cis-1,2-Dichloroethylene	1.2	**23**	<0.1	15.8
Vinyl Chloride	1.5	**17**	**6.1**	**3.8**

LEGEND

- BH BOREHOLE
- MW MONITORING WELL
- SS SURFACE SAMPLE
- TP TEST PIT
- SOIL CONCENTRATION EXCEEDS MECP TABLE 3 STANDARD
- SOIL CONCENTRATION MEETS MECP TABLE 3 STANDARD
- NO DATA COLLECTED
- APPROXIMATE AREA OF IMPACTED GROUNDWATER

Legend

Sample ID	Screen Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/L)

2011 MECP Table 3 SCS		
Parameter	**Units**	**Conc.**
cis-1,2-Dichloroethylene	ug/L	17
Vinyl Chloride	ug/L	1.7

(1) MECP(2011) Table 3 Site Condition Standards for All Types of Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample

(A) - Sampling location MW08-14 was replaced with MW12-2 (screened at 3.1 - 6.1 m bgs) and was sampled for VOCs 5x times between 2012 and 2014 with clean sampling results.

(B) - Sampling location MW08-19 was replaced with MW14-5 (screened at 1.3 - 4.3 m bgs) and was sampled for VOCs 4x between 2014 and 2019 with clean sampling results.

LEGEND

- PROPERTY BOUNDARY
- MW08-8 MONITORING WELL / BOREHOLE
- TP08-3 TEST PIT
- SS-8 SOIL SAMPLE
- S3 SOIL SAMPLE (2022)
- MW12-4 MONITORING WELL REMOVED

0 15m 30m 60m

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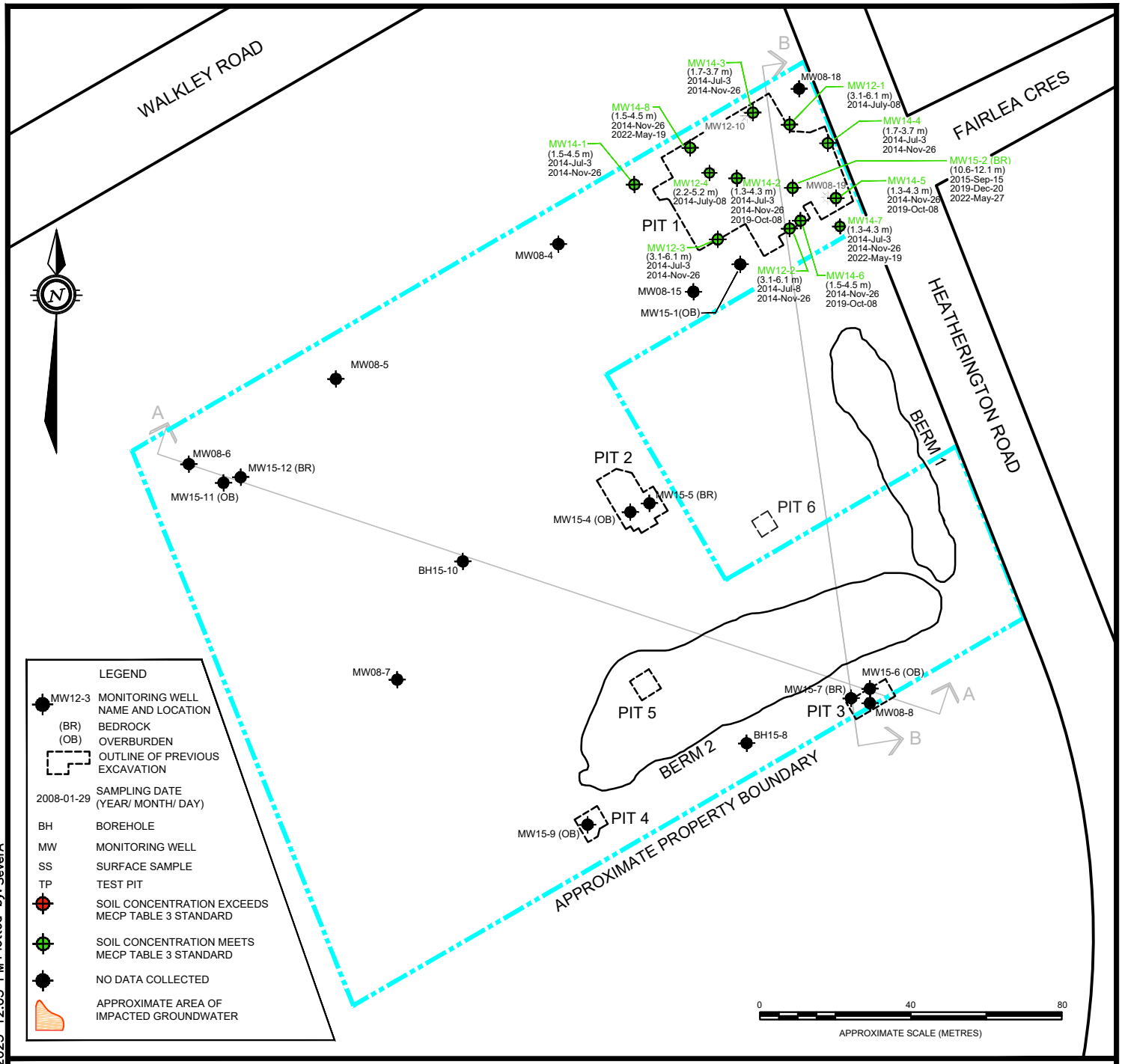
VOC ANALYTICAL RESULTS IN GROUNDWATER (PRE-REMEDIATION)

SCALE 1:1,500

SKETCH NO

FIG 19

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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LEGEND

- PROPERTY BOUNDARY
- MW08-8 — MONITORING WELL / BOREHOLE
- TP08-3 — TEST PIT
- SS-8 — SOIL SAMPLE
- S3 — SOIL SAMPLE (2022)
- MW12-4 — MONITORING WELL REMOVED

0 15m 30m 60m

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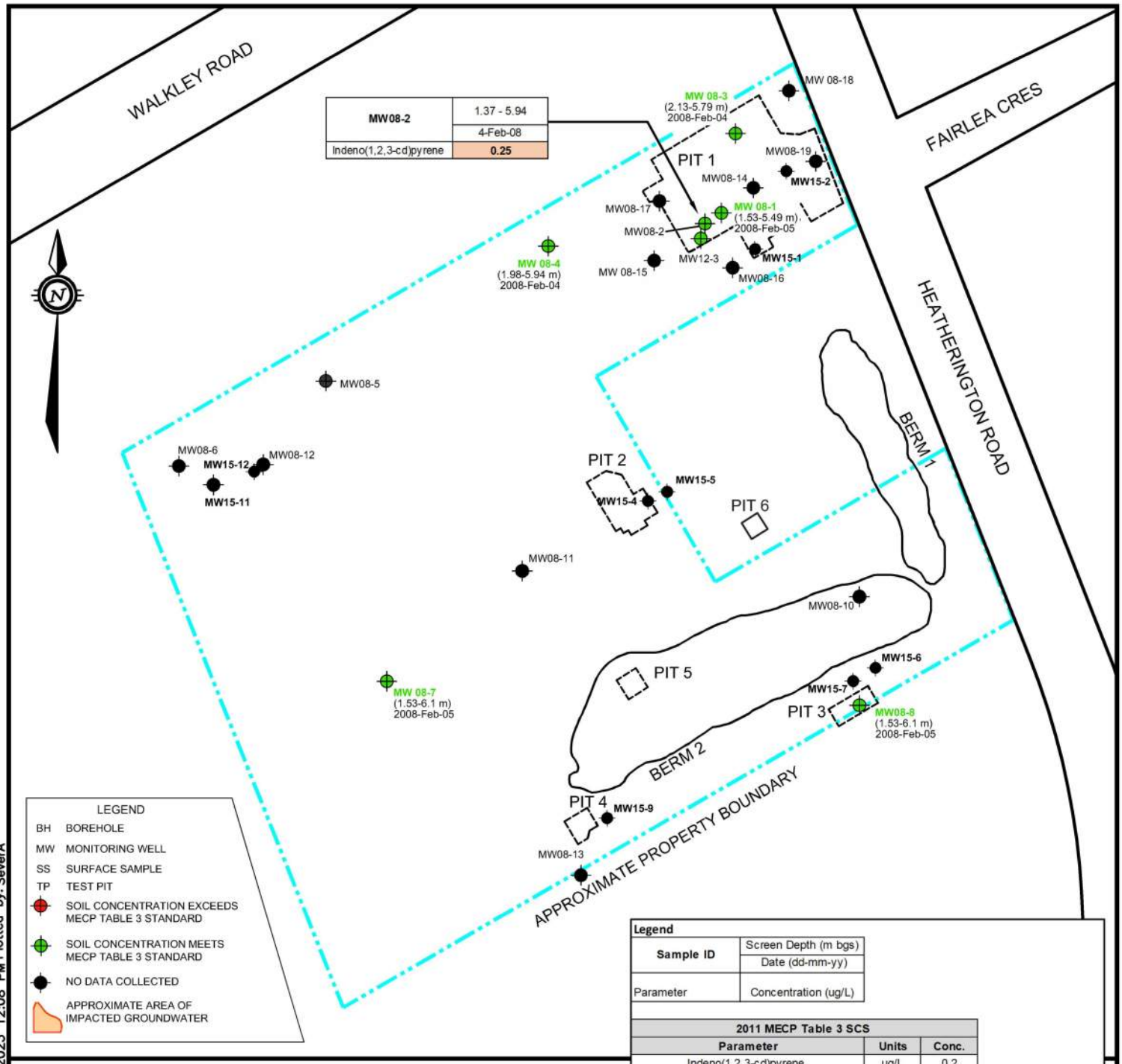
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VOC ANALYTICAL RESULTS IN GROUNDWATER (POST-REMEDIATION)

SCALE 1:1,500

SKETCH NO **FIG 20**

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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Legend

Sample ID	Screen Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/L)

2011 MECP Table 3 SCS		
Parameter	**Units**	**Conc.**
Indeno(1,2,3-cd)pyrene	ug/L	0.2

(1) MECP(2011) Table 3 Site Condition Standards for All Types of Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample

(A) - MW08-2 - This monitoring well location was not re-sampled prior to remediation at Pit No. 1. Following decommission and during remedial activities, this well was replaced by MW12-3 (screened 3.1 - 6.1 m bgs) and was sampled 1x with clean sampling results. As such, MW08-2 was no longer considered impacted.

LEGEND

- PROPERTY BOUNDARY
- MW08-8 — MONITORING WELL / BOREHOLE
- TP08-3 — TEST PIT
- SS-8 — SOIL SAMPLE
- S3 — SOIL SAMPLE (2022)
- MW12-4 — MONITORING WELL REMOVED

0 15m 30m 60m

HORIZONTAL 1:1500

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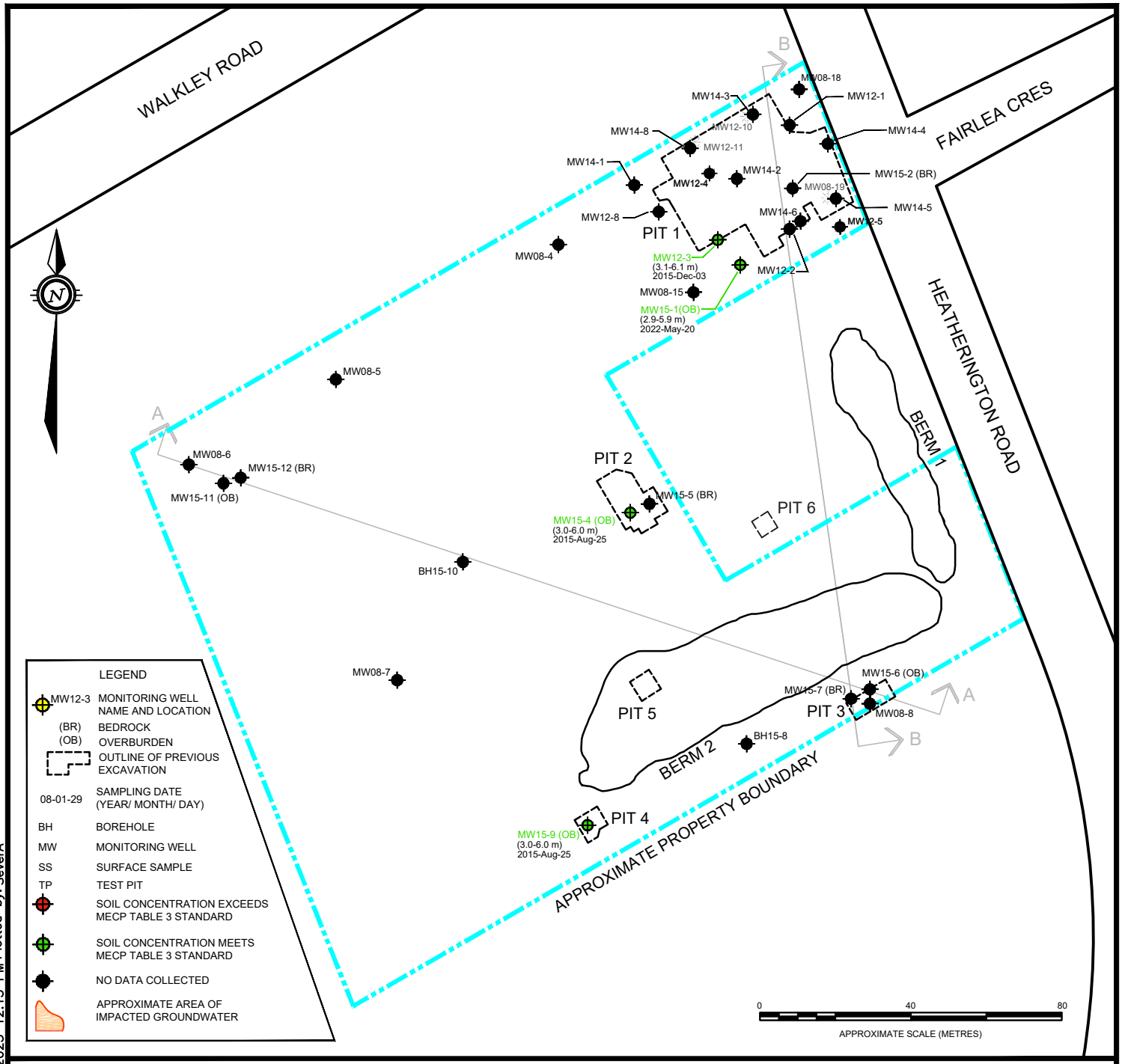
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PAH ANALYTICAL RESULTS IN GROUNDWATER (PRE-REMEDIATION)

SCALE 1:1,500

SKETCH NO FIG 21

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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LEGEND

- PROPERTY BOUNDARY
- MW08-8 MONITORING WELL / BOREHOLE
- TP08-3 TEST PIT
- SS-8 SOIL SAMPLE
- S3 SOIL SAMPLE (2022)
- MW12-4 MONITORING WELL REMOVED

0 15m 30m 60m

HORIZONTAL 1:1500

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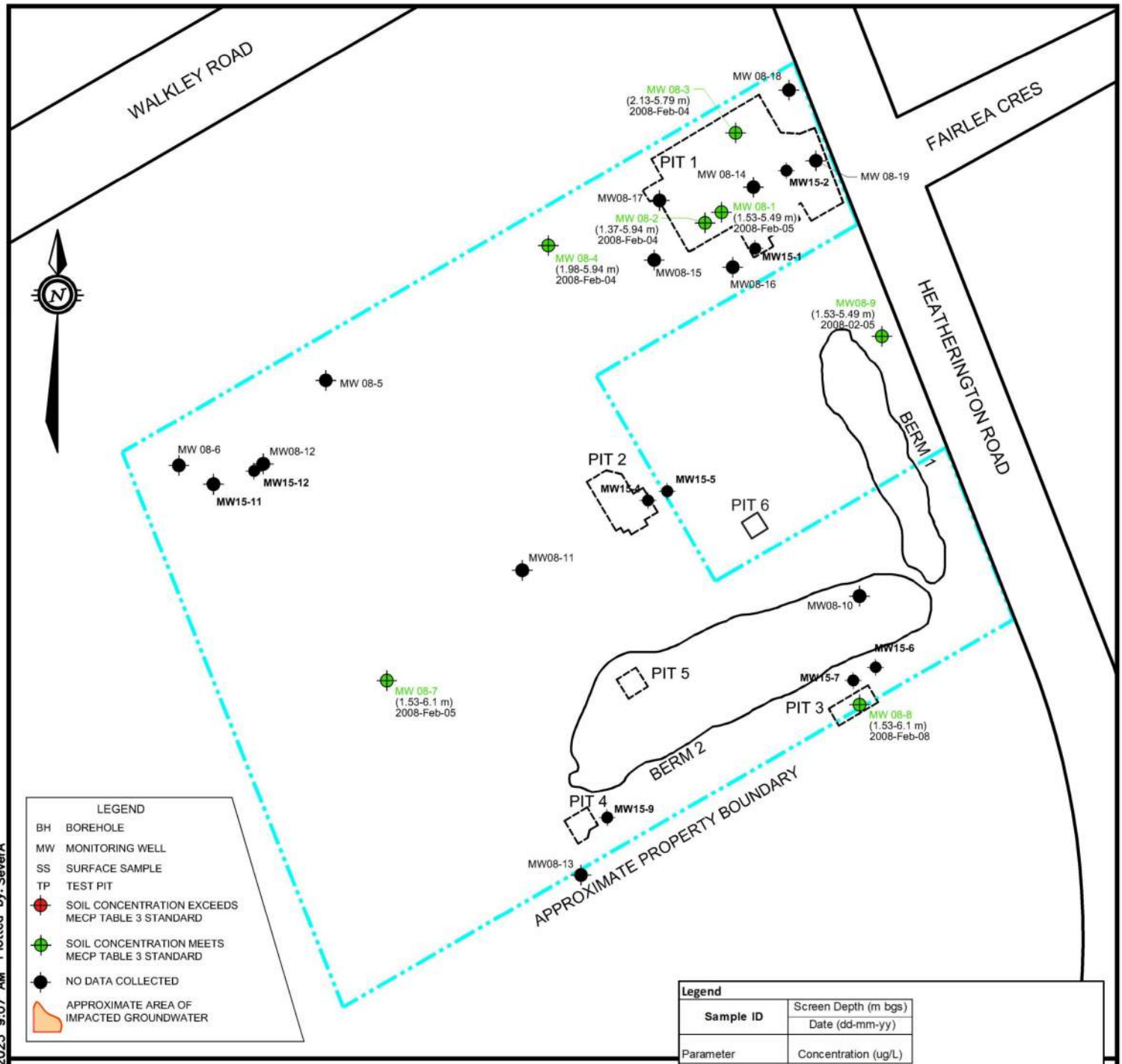
PAH ANALYTICAL RESULTS IN GROUNDWATER (POST-REMEDIATION)

SCALE 1:1,500

SKETCH NO

FIG 22

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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Legend	
Sample ID	Screen Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/L)

2011 MECP Table 3 SCS		
Parameter	Units	Conc.
	ug/L	

(1) MECP(2011) Table 3 Site Condition Standards for All Types of Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample

LEGEND

- PROPERTY BOUNDARY
- MW08-8 MONITORING WELL / BOREHOLE
- TP08-3 TEST PIT
- SS-8 SOIL SAMPLE
- S3 SOIL SAMPLE (2022)
- MW12-4 MONITORING WELL REMOVED

0 15m 30m 60m

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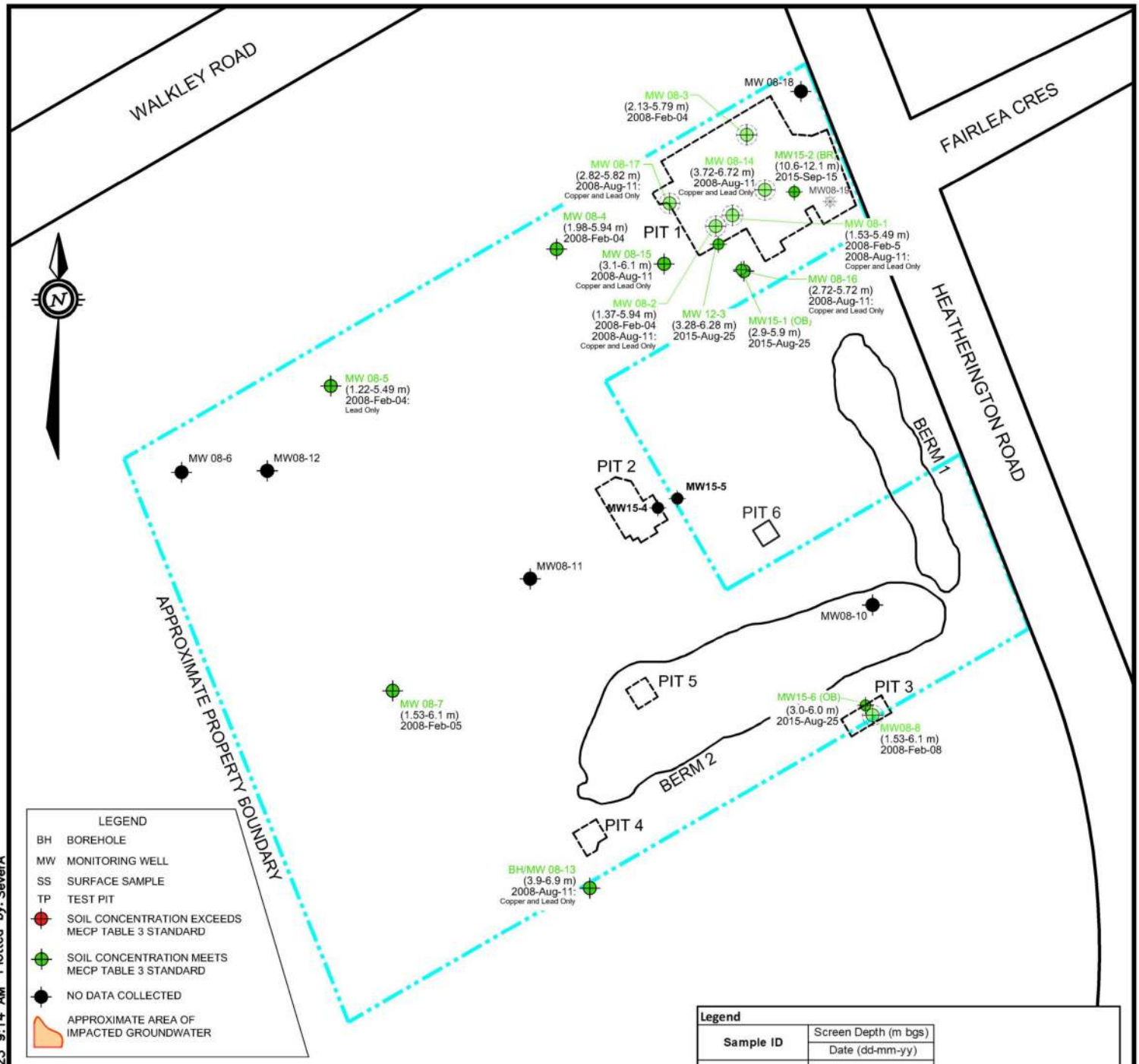
PCB ANALITICAL RESULTS IN GROUNDWATER (ALL RESULTS)

SCALE 1:1,500

SKETCH NO

FIG 23

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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Legend

Sample ID	Screen Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/L)

2011 MECP Table 3 SCS		
Parameter	Units	Conc.
	ug/L	

(1) MECP(2011) Table 3 Site Condition Standards for All Types of Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample

LEGEND

- PROPERTY BOUNDARY
- MW08-8 MONITORING WELL / BOREHOLE
- TP08-3 TEST PIT
- SS-8 SOIL SAMPLE
- MW12-4 MONITORING WELL REMOVED
- S3 SOIL SAMPLE (2022)
- SOIL SAMPLING LOCATION (CLEAN) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)
- SOIL SAMPLING LOCATION (IMPACTED) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)

0 15m 30m 60m

HORIZONTAL 1:1500

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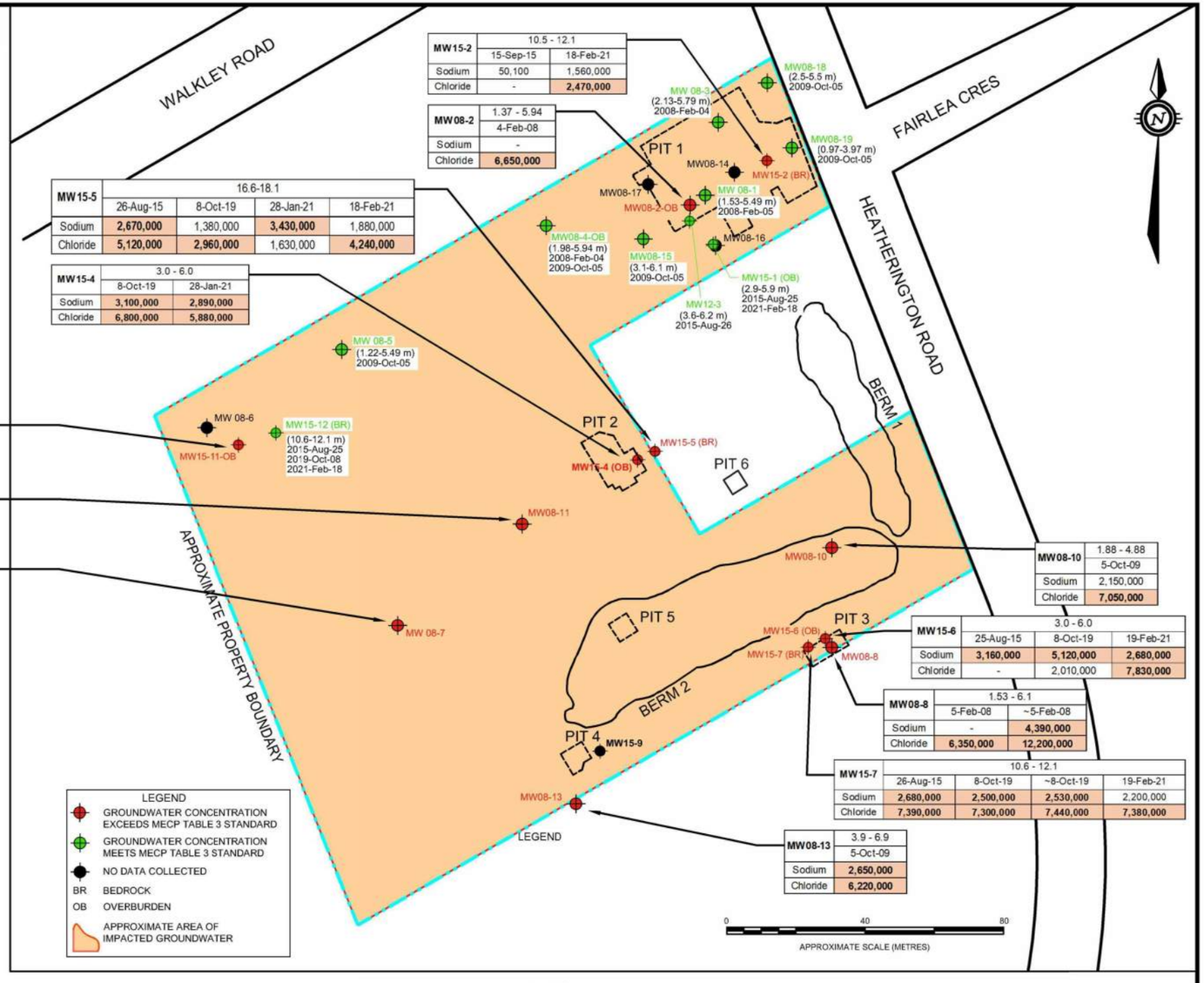
METALS HYDRIDE FORMING METALS AND ORPS (NOT INCLUDING NA+ AND CL-) ANALYTICAL RESULTS IN GROUNDWATER (ALL RESULTS)

SCALE 1:1,500

SKETCH NO

FIG 24

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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MW15-2	10.5 - 12.1	
	15-Sep-15	18-Feb-21
Sodium	50,100	1,560,000
Chloride	-	**2,470,000**

MW08-2	1.37 - 5.94
	4-Feb-08
Sodium	-
Chloride	**6,650,000**

MW15-5	16.6-18.1			
	26-Aug-15	8-Oct-19	28-Jan-21	18-Feb-21
Sodium	**2,670,000**	1,380,000	**3,430,000**	1,880,000
Chloride	**5,120,000**	**2,960,000**	1,630,000	**4,240,000**

MW15-4	3.0 - 6.0	
	8-Oct-19	28-Jan-21
Sodium	**3,100,000**	**2,890,000**
Chloride	**6,800,000**	**5,880,000**

MW15-11	3.0 - 6.0			
	25-Aug-15	~25-Aug-15	8-Oct-19	18-Feb-21
Sodium	**6,760,000**	**6,490,000**	1,840,000	1,590,000
Chloride	**9,280,000**	**9,170,000**	**2,790,000**	**2,560,000**

MW08-11	3.9 - 6.9
	5-Oct-09
Sodium	**6,480,000**
Chloride	**19,300,000**

MW08-7	1.53 - 6.1
	5-Feb-08
Sodium	-
Chloride	**9,320,000**

MW08-10	1.88 - 4.88
	5-Oct-09
Sodium	2,150,000
Chloride	**7,050,000**

MW15-6	3.0 - 6.0		
	25-Aug-15	8-Oct-19	19-Feb-21
Sodium	**3,160,000**	**5,120,000**	**2,680,000**
Chloride	-	2,010,000	**7,830,000**

MW08-8	1.53 - 6.1	
	5-Feb-08	~5-Feb-08
Sodium	-	**4,390,000**
Chloride	**6,350,000**	**12,200,000**

MW15-7	10.6 - 12.1			
	26-Aug-15	8-Oct-19	~8-Oct-19	19-Feb-21
Sodium	**2,680,000**	**2,500,000**	**2,530,000**	2,200,000
Chloride	**7,390,000**	**7,300,000**	**7,440,000**	**7,380,000**

MW08-13	3.9 - 6.9
	5-Oct-09
Sodium	**2,650,000**
Chloride	**6,220,000**

LEGEND

- GROUNDWATER CONCENTRATION EXCEEDS MECP TABLE 3 STANDARD
- GROUNDWATER CONCENTRATION MEETS MECP TABLE 3 STANDARD
- NO DATA COLLECTED
- BR BEDROCK
- OB OVERBURDEN
- APPROXIMATE AREA OF IMPACTED GROUNDWATER

LEGEND

- PROPERTY BOUNDARY
- MW08-8 MONITORING WELL / BOREHOLE
- TP08-3 TEST PIT
- SS-8 SOIL SAMPLE
- S3 SOIL SAMPLE (2022)
- MW12-4 MONITORING WELL REMOVED

Legend

Sample ID	Screen Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/L)

2011 MECP Table 3 SCS		
Parameter	**Units**	**Conc.**
Sodium	µg/L	2,300,000
Chloride	µg/L	2,300,000

(1) MECP(2011) Table 3 Site Condition Standards for All Types of Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample

0 15m 30m 60m

HORIZONTAL 1:1500

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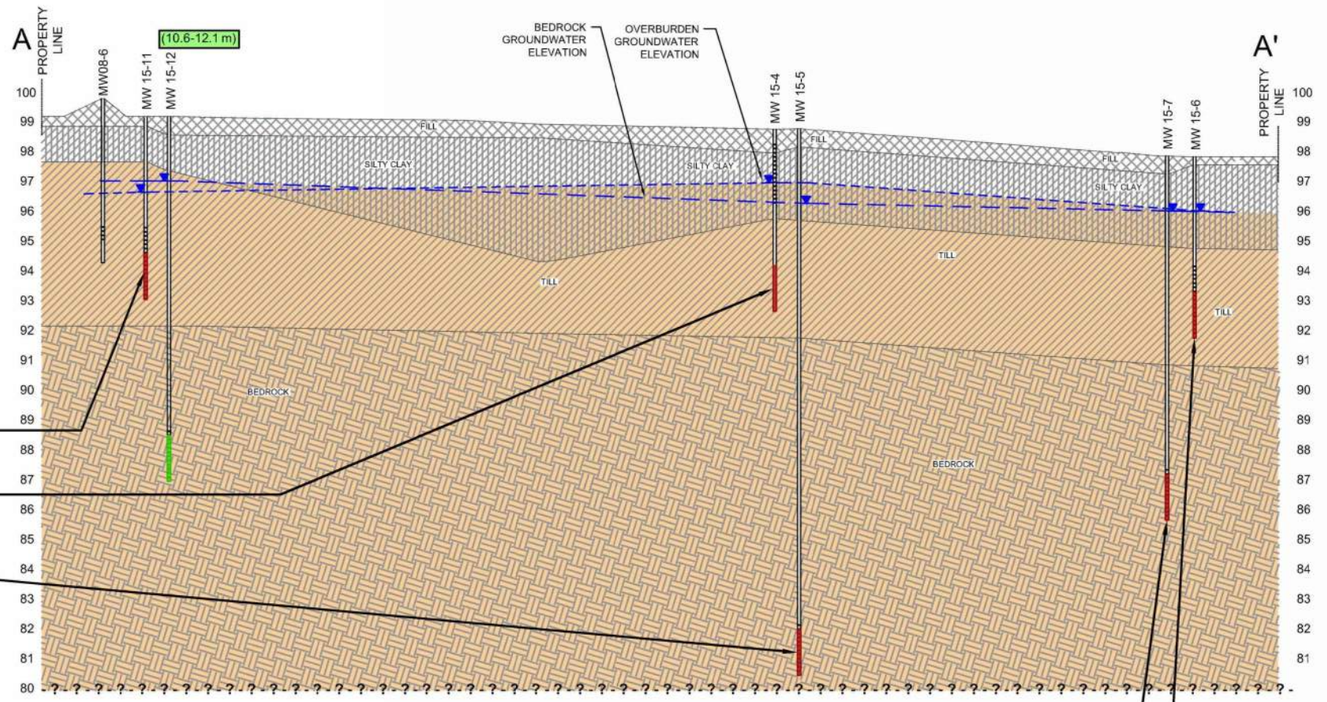
SALT RELATED PARAMETERS (NA+ AND CL-) ANALYTICAL RESULTS IN GROUNDWATER (ALL RESULTS)

SCALE 1:1,500

SKETCH NO

FIG 25

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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CROSS-SECTION FACING NORTH

MW15-11	3.0 - 6.0			
	25-Aug-15	~25-Aug-15	8-Oct-19	18-Feb-21
Sodium	**6,760,000**	**6,490,000**	1,840,000	1,590,000
Chloride	**9,280,000**	**9,170,000**	**2,790,000**	**2,560,000**

MW15-4	3.0 - 6.0	
	8-Oct-19	28-Jan-21
Sodium	**3,100,000**	**2,890,000**
Chloride	**6,800,000**	**5,880,000**

MW15-5	16.6-18.1			
	26-Aug-15	8-Oct-19	28-Jan-21	18-Feb-21
Sodium	**2,670,000**	1,380,000	**3,430,000**	1,880,000
Chloride	**5,120,000**	**2,960,000**	1,630,000	**4,240,000**

MW15-7	10.6 - 12.1			
	26-Aug-15	8-Oct-19	~8-Oct-19	19-Feb-21
Sodium	**2,680,000**	**2,500,000**	**2,530,000**	2,200,000
Chloride	**7,390,000**	**7,300,000**	**7,440,000**	**7,380,000**

MW15-6	3.0 - 6.0		
	25-Aug-15	8-Oct-19	19-Feb-21
Sodium	**3,160,000**	**5,120,000**	**2,680,000**
Chloride	-	2,010,000	**7,830,000**

LEGEND

MW15-11 — MONITORING WELL LOCATION AND NUMBER

SCREEN

- ? - ? - ? - VERTICAL DELINEATION WAS NOT ACHIEVED

GROUNDWATER CONCENTRATION EXCEEDS MECP TABLE 3 STANDARD

GROUNDWATER CONCENTRATION MEETS MECP TABLE 3 STANDARD

APPROXIMATE AREA OF IMPACTED GROUNDWATER

Legend

Sample ID	Screen Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/L)

2011 MECP Table 3 SCS		
Parameter	**Units**	**Conc.**
Sodium	µg/L	2,300,000
Chloride	µg/L	2,300,000

(1) MECP(2011) Table 3 Site Condition Standards for All Types of Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample

HORIZONTAL 0 10m 20m 40m 1:1000

VERTICAL 0 2m 4m 8m 1:200

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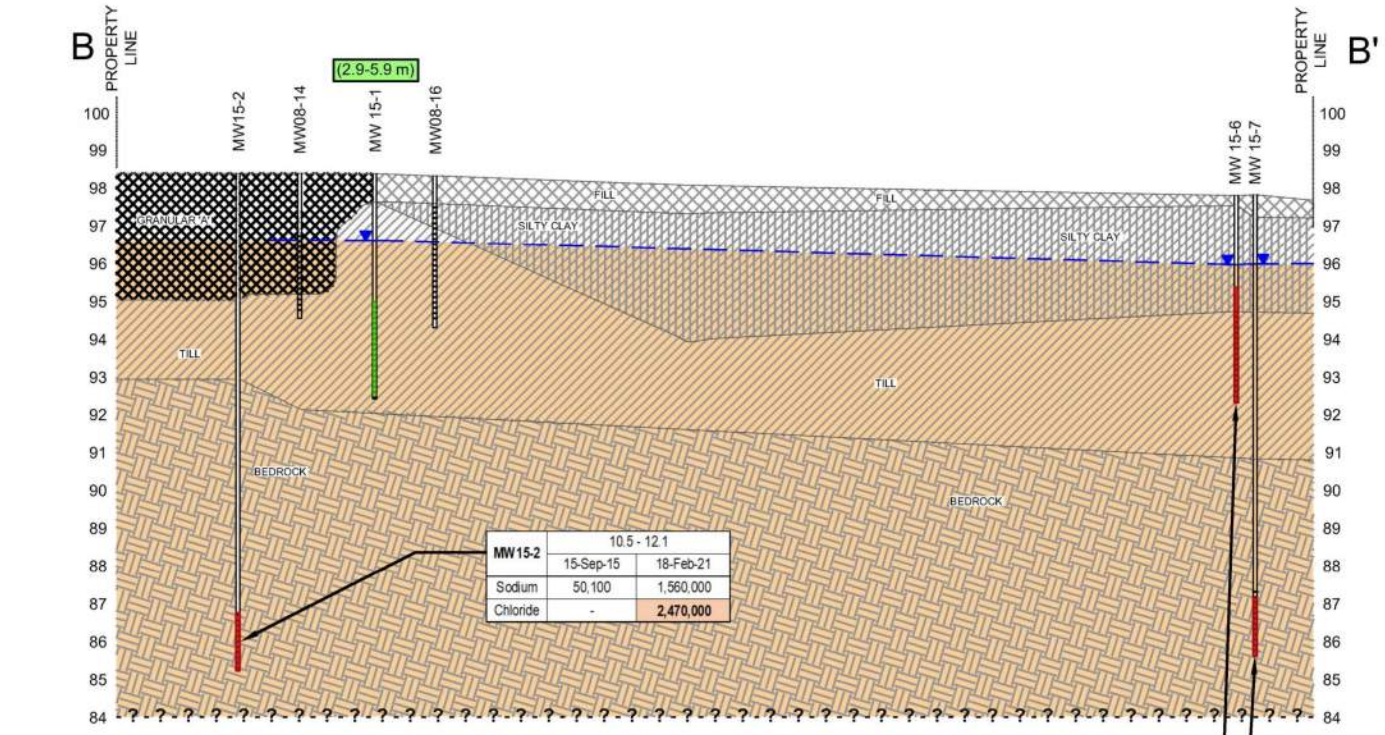
SALT CONCENTRATIONS IN GROUNDWATER
CROSS-SECTION A-A'

SCALE HORIZ. 1:1000 VERT. 1:200

SKETCH NO

FIG 25A

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
Last Saved: Jul 14, 2023 4:24 PM Last Plotted: Jul 14, 2023 4:25 PM Plotted by: SeverA



CROSS-SECTION FACING EAST

MW15-2	10.5 - 12.1	
	15-Sep-15	18-Feb-21
Sodium	50,100	1,560,000
Chloride	-	**2,470,000**

MW15-6	3.0 - 6.0		
	25-Aug-15	8-Oct-19	19-Feb-21
Sodium	**3,160,000**	**5,120,000**	**2,680,000**
Chloride	-	2,010,000	**7,830,000**

MW15-7	10.6 - 12.1			
	26-Aug-15	8-Oct-19	~8-Oct-19	19-Feb-21
Sodium	**2,680,000**	**2,500,000**	**2,530,000**	2,200,000
Chloride	**7,390,000**	**7,300,000**	**7,440,000**	**7,380,000**

LEGEND

MW15-11 — MONITORING WELL LOCATION AND NUMBER

SCREEN

-?-?-?- VERTICAL DELINEATION WAS NOT ACHIEVED

GROUNDWATER CONCENTRATION EXCEEDS MECP TABLE 3 STANDARD

GROUNDWATER CONCENTRATION MEETS MECP TABLE 3 STANDARD

APPROXIMATE AREA OF IMPACTED GROUNDWATER

Legend

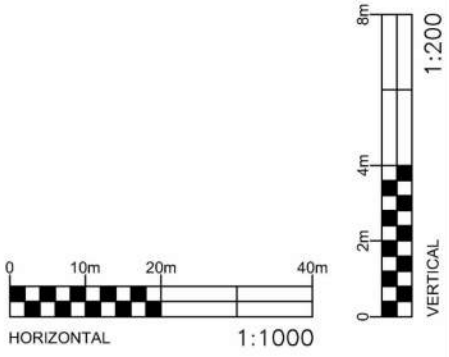
Sample ID	Screen Depth (m bgs)
	Date (dd-mm-yy)
Parameter	Concentration (ug/L)

2011 MECP Table 3 SCS		
Parameter	**Units**	**Conc.**
Sodium	µg/L	2,300,000
Chloride	µg/L	2,300,000

(1) MECP(2011) Table 3 Site Condition Standards for All Types of Property Use (medium-fine)

BOLD Exceeds the applicable range for the Table 3 SCS

~ Indicates duplicate sample



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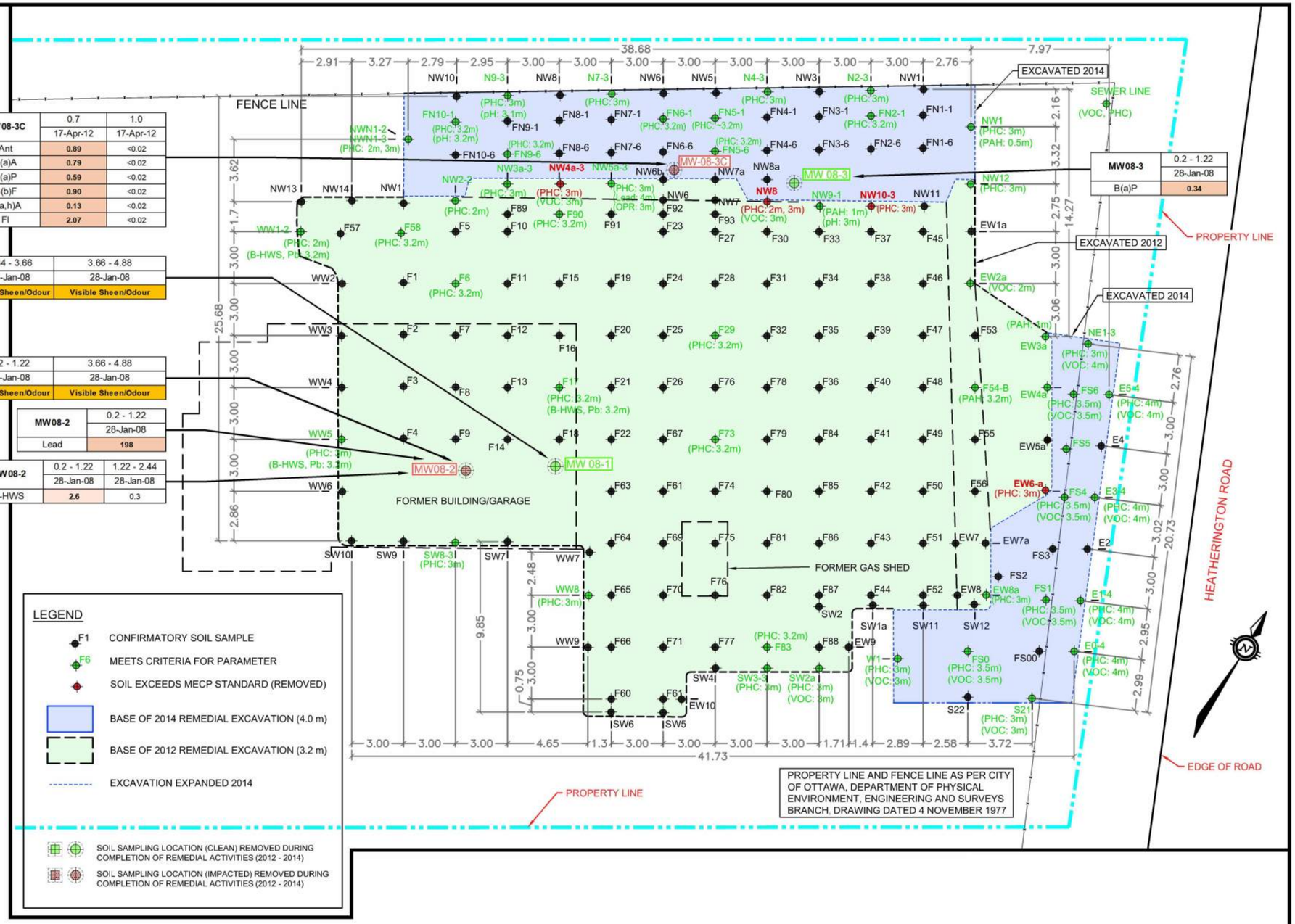
SALT CONCENTRATIONS IN GROUNDWATER
CROSS-SECTION B-B'

SCALE HORIZ. 1:1000
VERT. 1:200

SKETCH NO

FIG 25B

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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0 2m 4m 10m

HORIZONTAL 1:250

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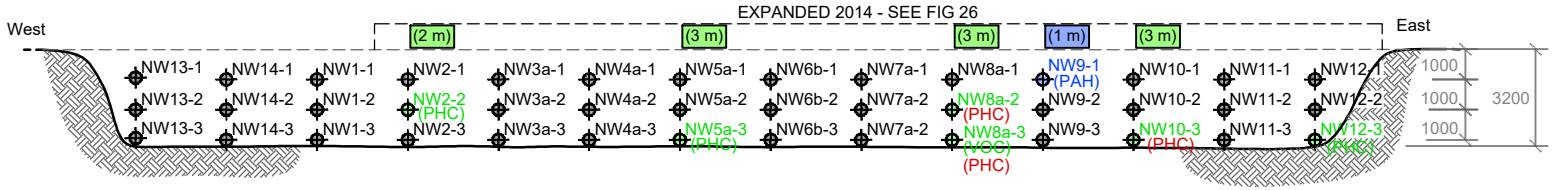
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PHASE TWO ESA POST-REMEDIATION PIT 1
CONFIRMATORY SOIL RESULTS

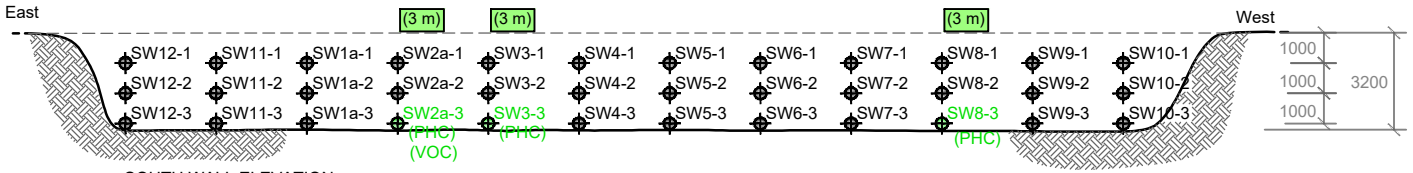
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SKETCH NO FIG 26

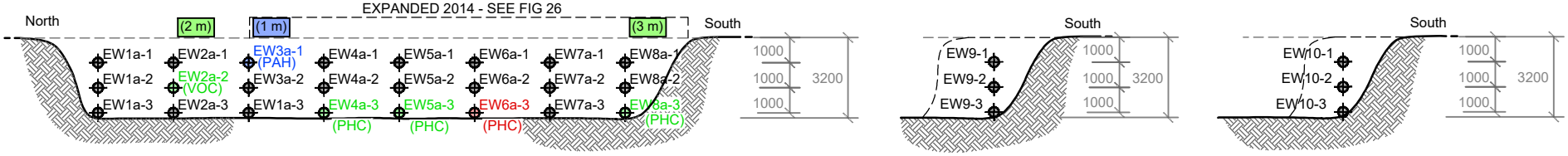
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NORTH WALL ELEVATION



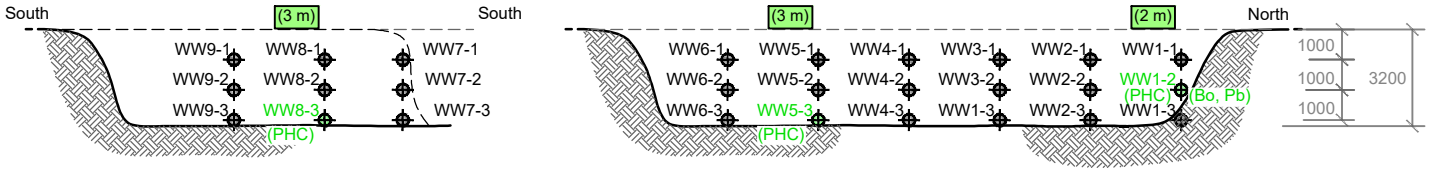
SOUTH WALL ELEVATION



EAST WALL ELEVATION

EAST WALL ELEVATION (BETWEEN SW1a AND SW2a)

EAST WALL ELEVATION (BETWEEN SW4 AND SW5)



WEST WALL ELEVATION (2012) (BETWEEN SW6 AND SW7)

WEST WALL ELEVATION (2012)

LEGEND

NW5a-3 MEETS MECP CRITERIA FOR PHC (f_1 - f_4) / VOC

NW8a-3 EXCEEDS MECP CRITERIA FOR PHC (f_1 - f_4) / VOC

NW9-1 MEETS MECP CRITERIA FOR PAH

0 2m 4m 10m

HORIZONTAL 1:250

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DATE AUGUST 2023

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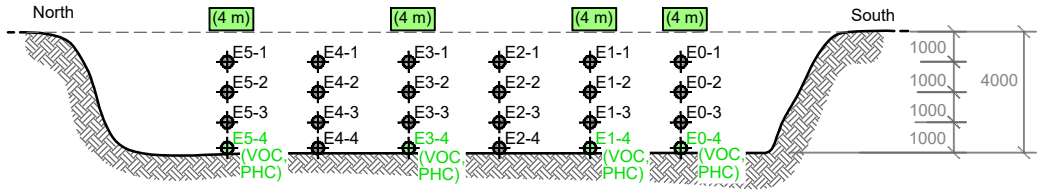
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PHASE TWO ESA POST-REMEDIATION CONFIRMATORY SOIL RESULTS PIT 1 – CROSS-SECTION DETAILS-1

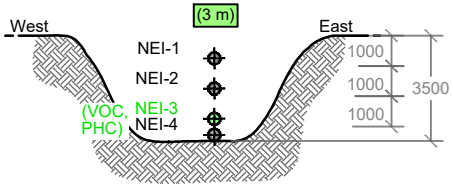
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SKETCH NO FIG 27A

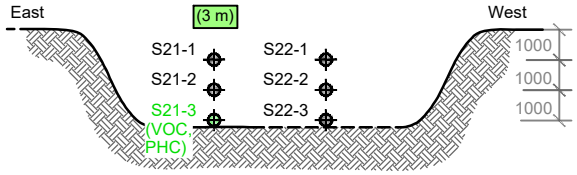
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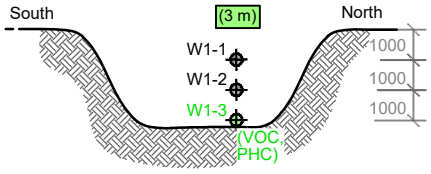
EAST EXCAVATION -
EAST WALL ELEVATION



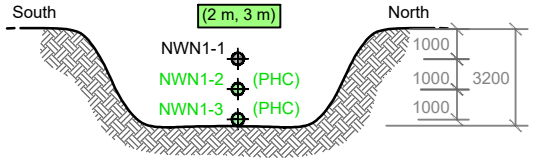
EAST EXCAVATION -
NORTH WALL ELEVATION



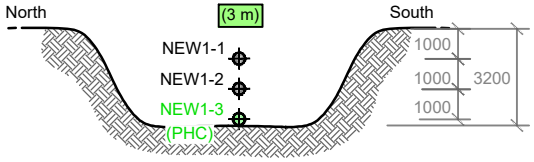
EAST EXCAVATION -
SOUTH WALL ELEVATION



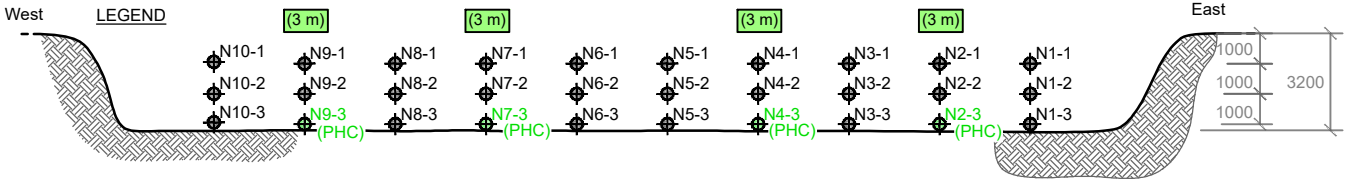
EAST EXCAVATION -
WEST WALL ELEVATION



NORTH EXCAVATION -
WEST WALL ELEVATION



NORTH EXCAVATION -
EAST WALL ELEVATION



NORTH EXCAVATION - NORTH WALL ELEVATION

LEGEND

W1-1 SAMPLE LOCATIONS

W1-3 MEETS CRITERIA FOR PHC (f_1 - f_4) / VOC

W1-5 EXCEEDS CRITERIA FOR PHC (f_1 - f_4) / VOC

0 2m 4m 10m

HORIZONTAL 1:250

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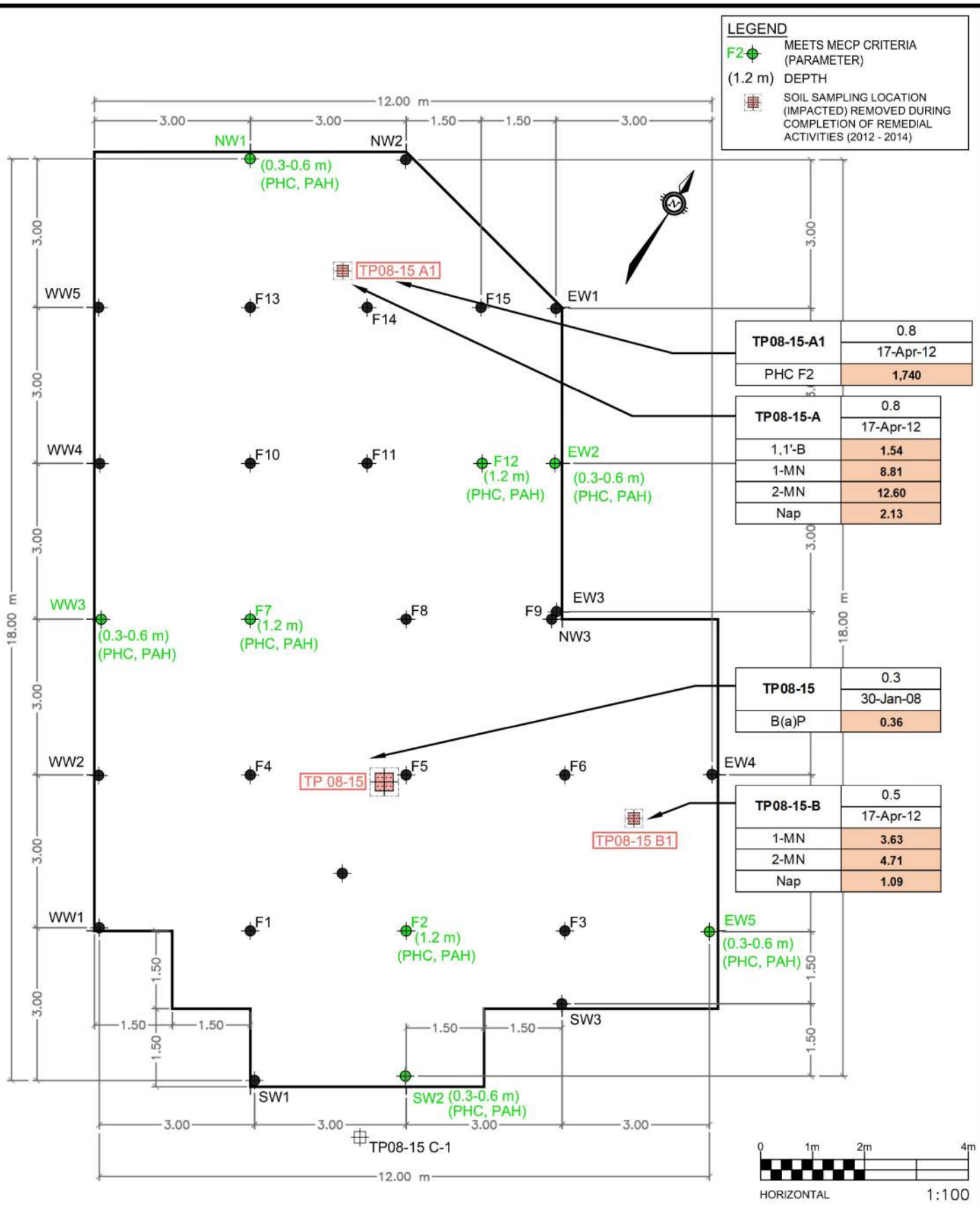
PHASE TWO ESA POST-REMEDIATION
CONFIRMATORY SOIL RESULTS
PIT 1 – CROSS-SECTION DETAILS-2

SCALE 1:250

SKETCH NO

FIG 27B

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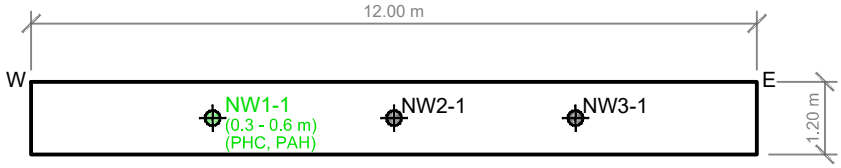
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PHASE TWO ESA POST-REMEDIATION
PIT 2 CONFIRMATORY SOIL RESULTS

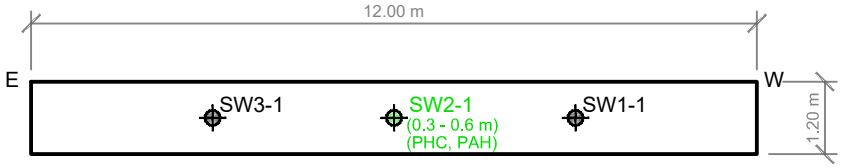
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SKETCH NO

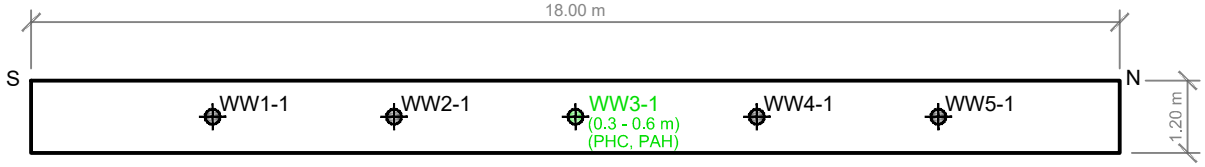
FIG 28



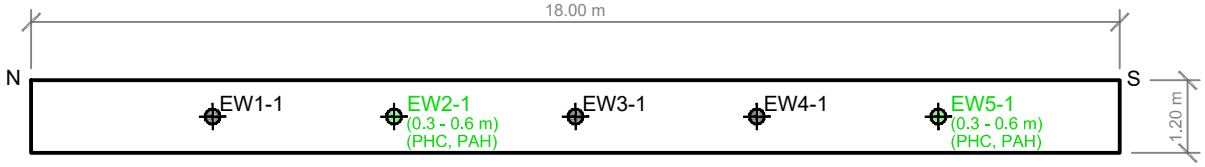
NORTH WALL



SOUTH WALL



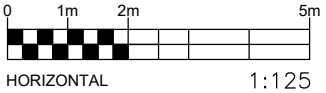
WEST WALL



EAST WALL

LEGEND

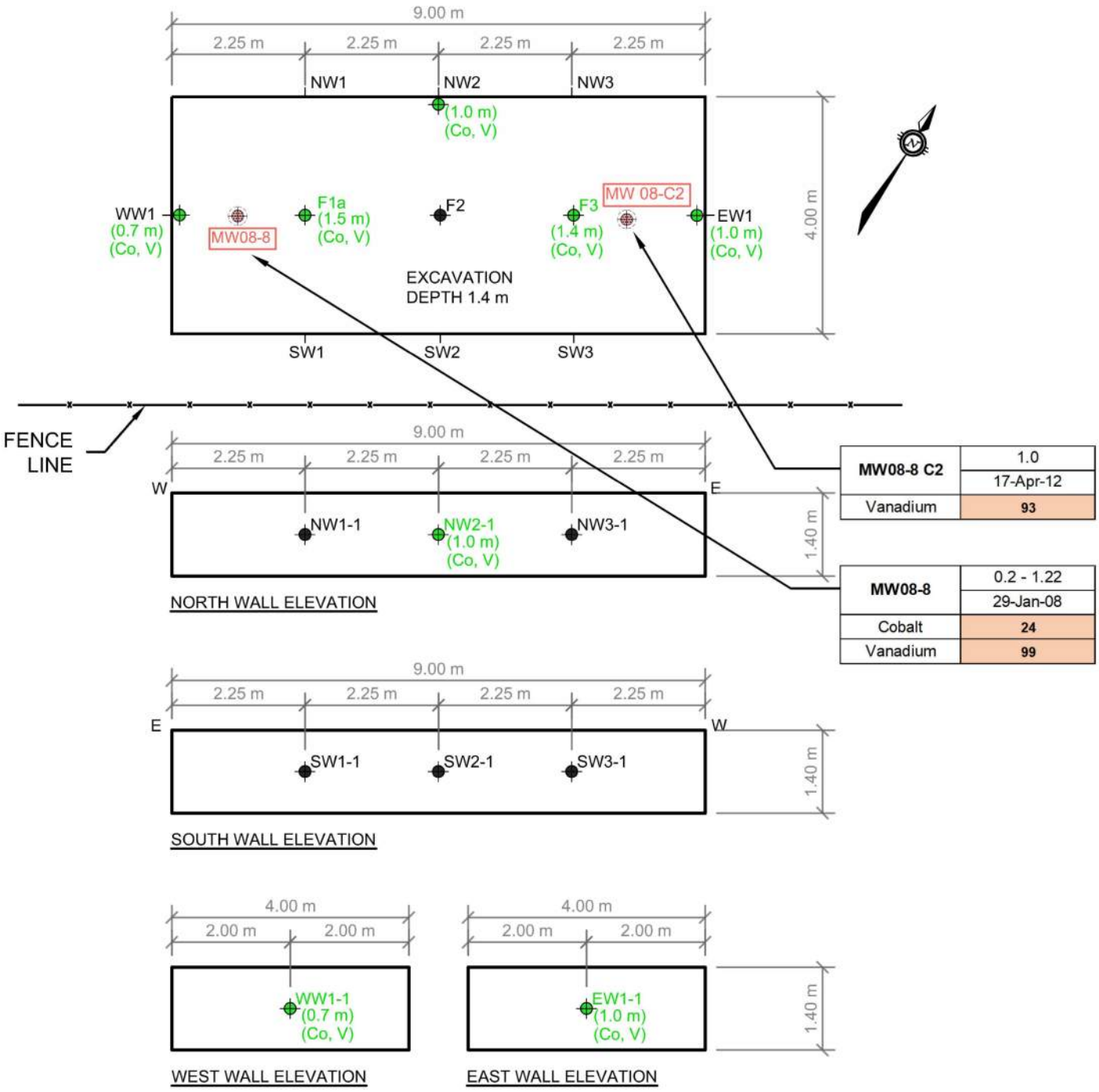
EW2-1 MEETS CRITERIA FOR PHC (f_1 - f_4) AND PAH



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DATE AUGUST 2023	PHASE TWO ESA POST-REMEDIATION PIT 2 CROSS-SECTION PHC & PAH ANALYSIS IN SOIL	FIG 29	
FILE NO OTT-00018293-J5			

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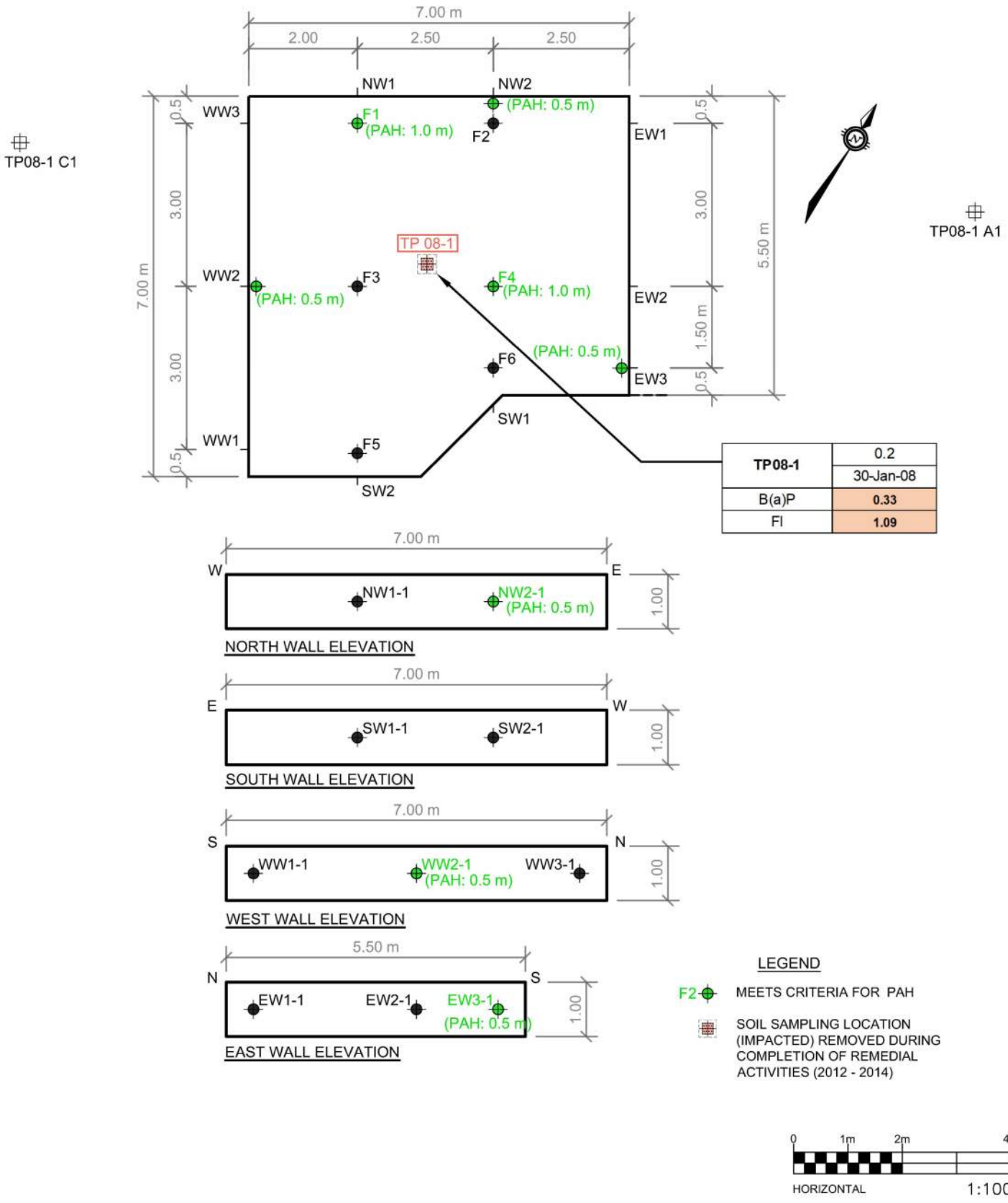
PHASE TWO ESA POST-REMEDIATION
PIT 3 CONFIRMATORY SOIL RESULTS

SCALE 1:100

SKETCH NO

FIG 30

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
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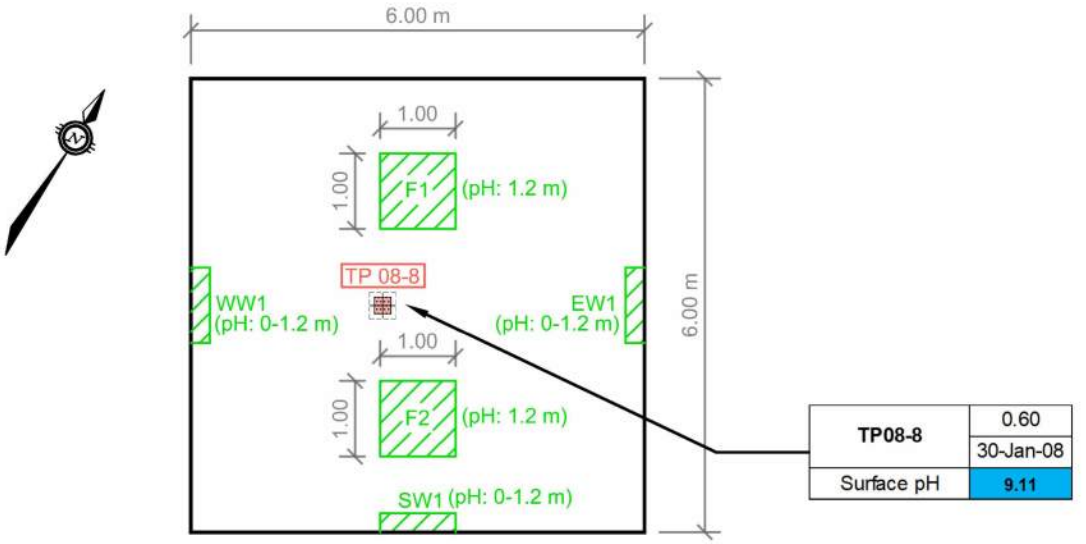
PHASE TWO ESA POST-REMEDIATION
PIT 4 CONFIRMATORY SOIL RESULTS

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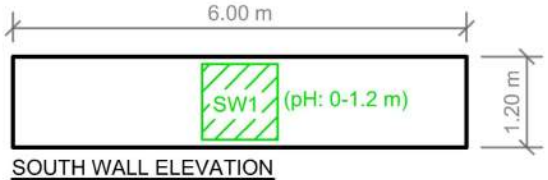
SKETCH NO

FIG 31

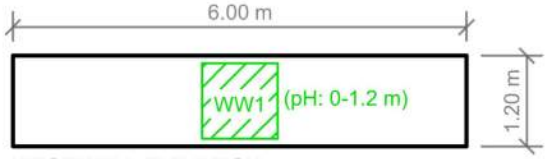
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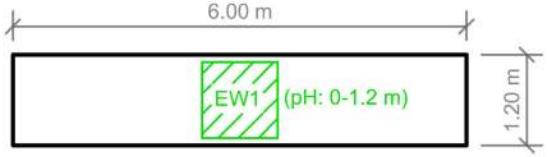
PIT 5 PLAN



SOUTH WALL ELEVATION



WEST WALL ELEVATION



EAST WALL ELEVATION

LEGEND

EW1 — COMPOSITE SAMPLE MEETS CRITERIA FOR pH

SOIL SAMPLING LOCATION (IMPACTED) REMOVED DURING COMPLETION OF REMEDIAL ACTIVITIES (2012 - 2014)

Legend	
Sample ID	Sample Depth (m bgs)
	Date (yy-mm-dd)
Parameter	Concentration (ug/g)

2011 MECP Table 3 SCS		
Parameter	Units	Conc.
Surface Soil pH	pH Units	5 - 9

(1) MECP(2011) Table 3 Site Condition Standards for Residential/Parkland/Institutional Property Use (medium-fine)

BOLD pH exceeds the applicable range for the Table 3 SCS

0 1m 2m 4m

HORIZONTAL 1:100

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100-2650 Queensview Drive
Ottawa, ON K2B 8H6
www.exp.com

DESIGN	C.K. / S.P.
DRAWN	J.R. / A.S.
DATE	AUGUST 2023
FILE NO	OTT-00018293-J5

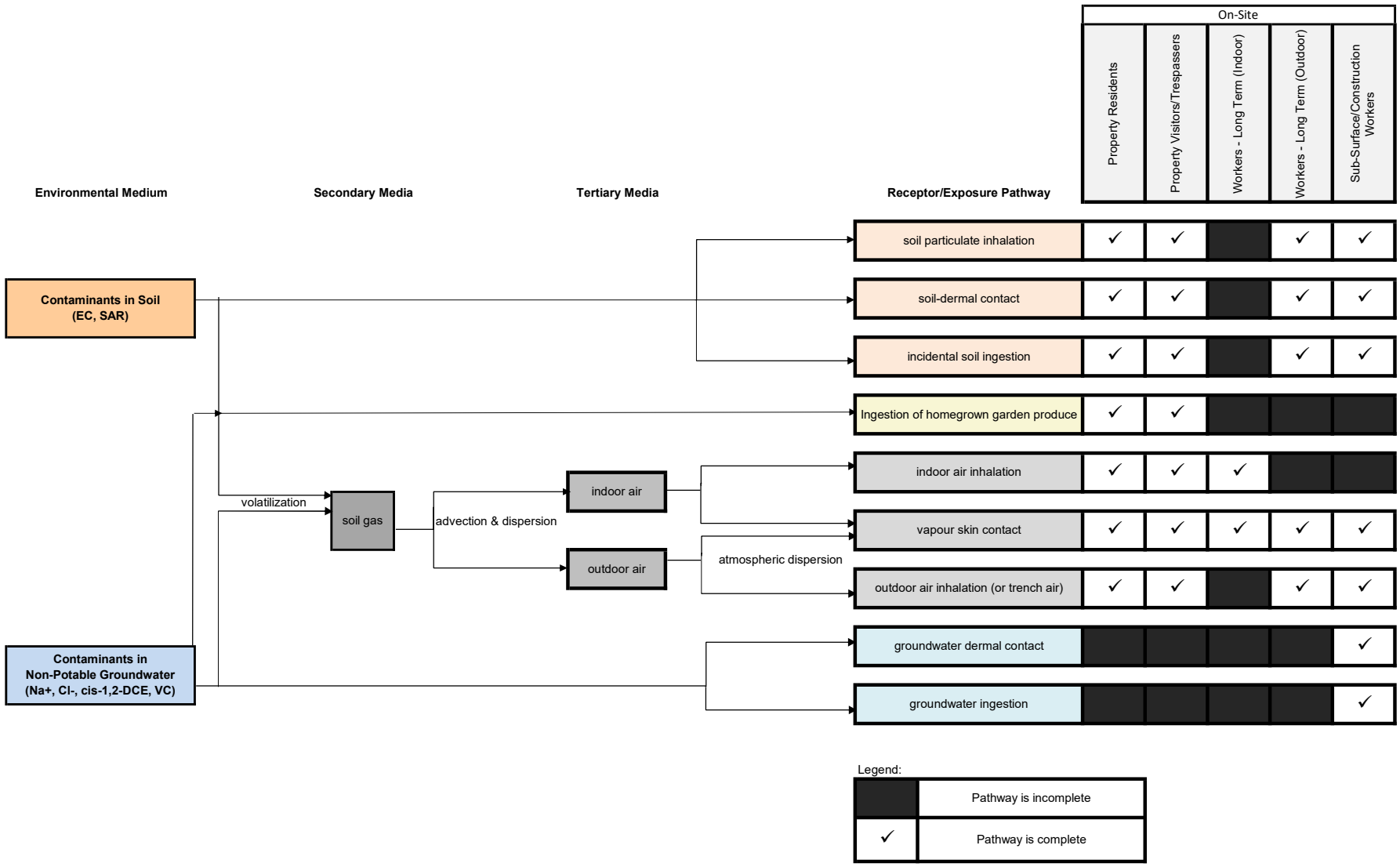
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
1770 Heatherington Road, Ottawa, Ontario

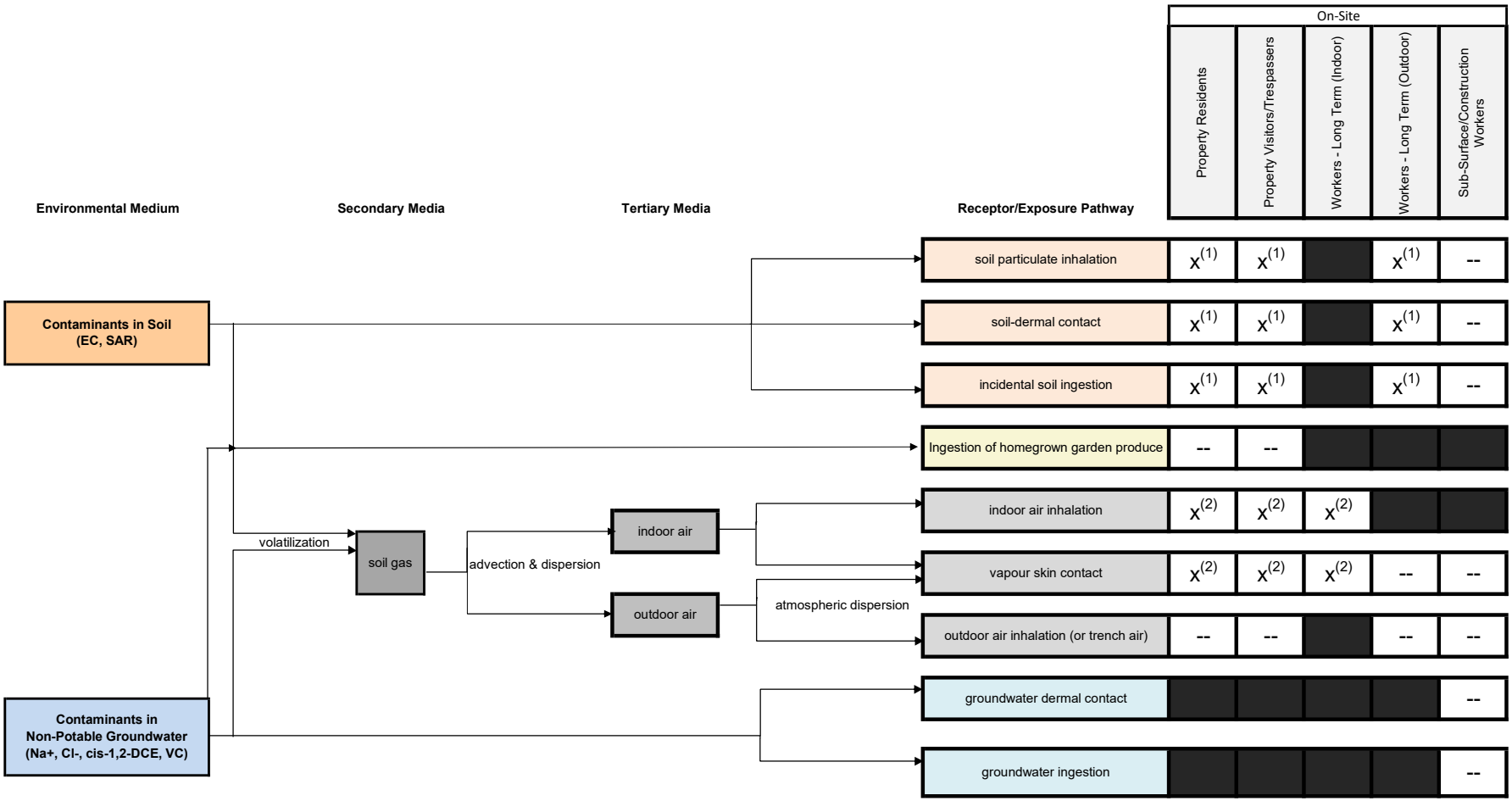
PHASE TWO ESA POST-REMEDIATION
PITS 5 CONFIRMATORY SOIL RESULTS

SCALE 1:100

SKETCH NO FIG 32

Filename: P:\Projects\Environmental\18000\18200\OTEN00018293 Ottawa SOA – Phase I & II\18293-J5 2015 Finalization of RA and RSC Close out\2023 Figures Edits\18293-J5 Enviro Fig 9-31_Plans+Sections.dwg
Last Saved: Aug 29, 2023 10:58 AM Last Plotted: Aug 29, 2023 10:58 AM Plotted by: SeverA


On-Site
Property Residents
Property Visitors/Trespassers
Workers - Long Term (Indoor)
Workers - Long Term (Outdoor)
Sub-Surface/Construction Workers
Environmental Medium
Secondary Media
Tertiary Media
Receptor/Exposure Pathway
Contaminants in Soil (EC, SAR)
Contaminants in Non-Potable Groundwater (Na+, Cl-, cis-1,2-DCE, VC)
volatilization
soil gas
advection & dispersion
indoor air
outdoor air
atmospheric dispersion
soil particulate inhalation
soil-dermal contact
incidental soil ingestion
Ingestion of homegrown garden produce
indoor air inhalation
vapour skin contact
outdoor air inhalation (or trench air)
groundwater dermal contact
groundwater ingestion
Legend:
Pathway is incomplete
Pathway is complete

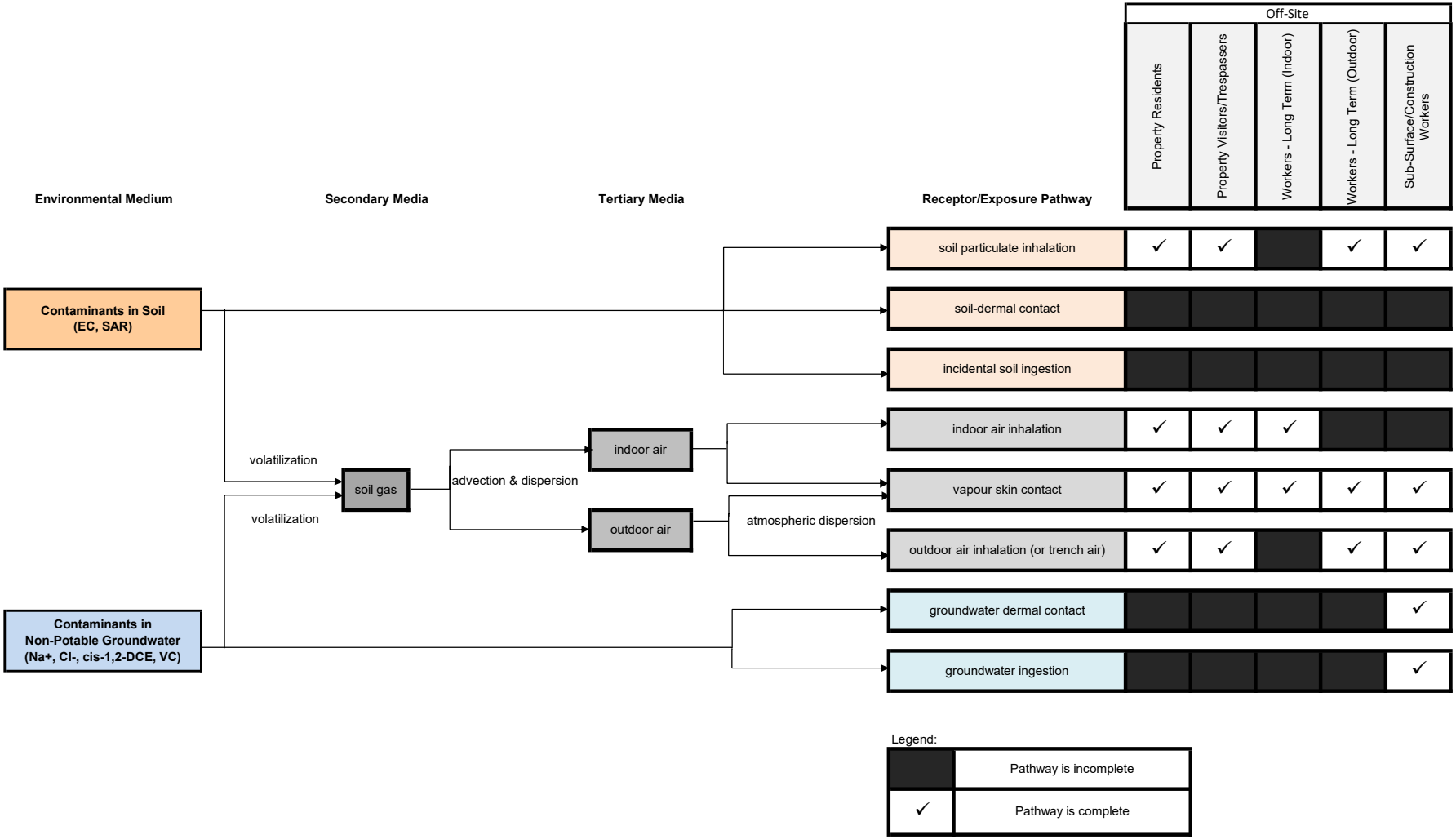


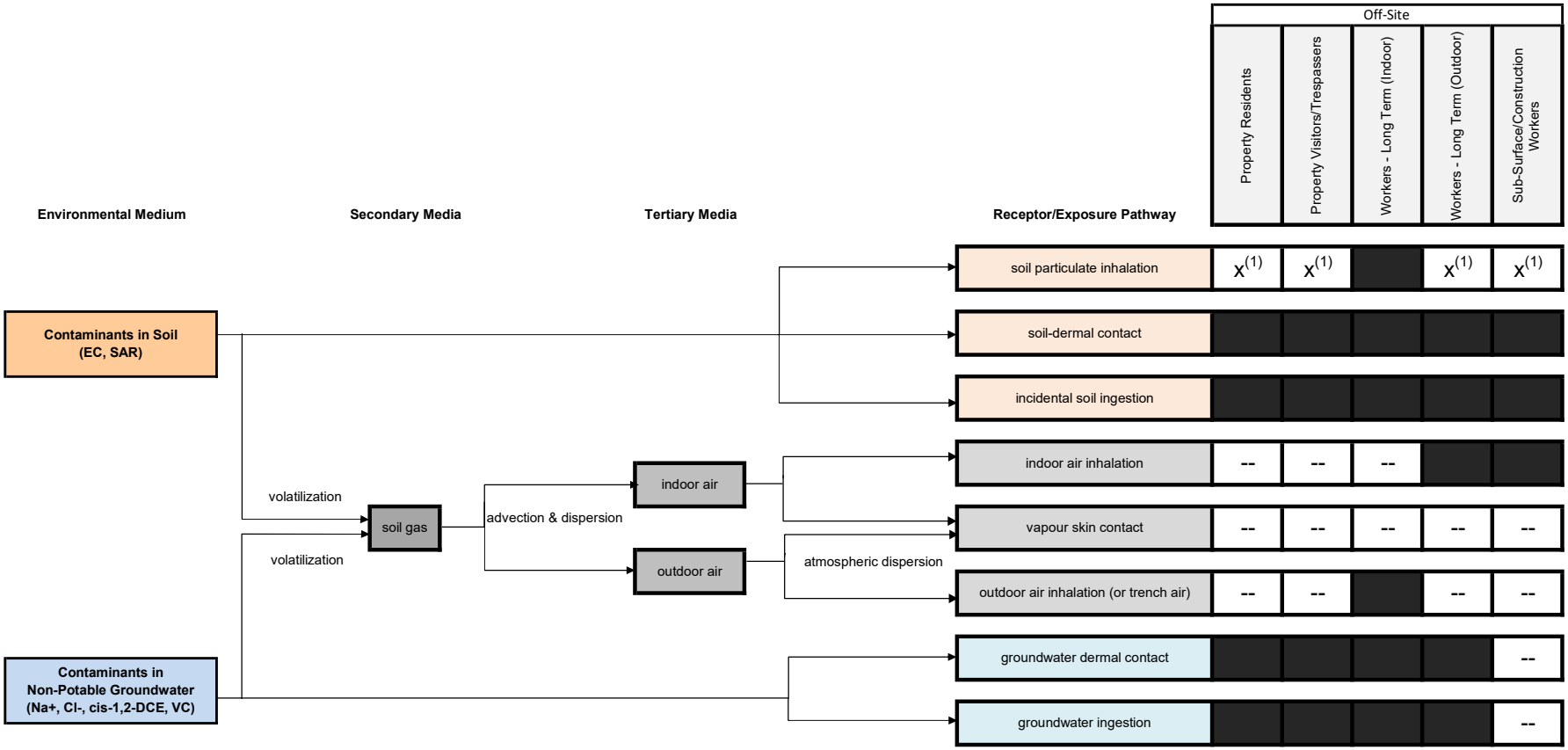
RMM Proposed on-Site:
1) Hard cap or fill cap
2) Slab-on-Grade Building requirment Admin. RMM

A Soil and Groundwater Management Plan is also required for the Site.

Legend:

	Pathway is incomplete
--	Pathway is complete but unacceptable risks are not anticipated
X	Pathway is blocked by RMM


Off-Site
Property Residents
Property Visitors/Trespassers
Workers - Long Term (Indoor)
Workers - Long Term (Outdoor)
Sub-Surface/Construction Workers
Environmental Medium
Secondary Media
Tertiary Media
Receptor/Exposure Pathway
Contaminants in Soil (EC, SAR)
Contaminants in Non-Potable Groundwater (Na+, Cl-, cis-1,2-DCE, VC)
volatilization
volatilization
soil gas
advection & dispersion
indoor air
outdoor air
atmospheric dispersion
soil particulate inhalation
soil-dermal contact
incidental soil ingestion
indoor air inhalation
vapour skin contact
outdoor air inhalation (or trench air)
groundwater dermal contact
groundwater ingestion
Legend:
Pathway is incomplete
Pathway is complete



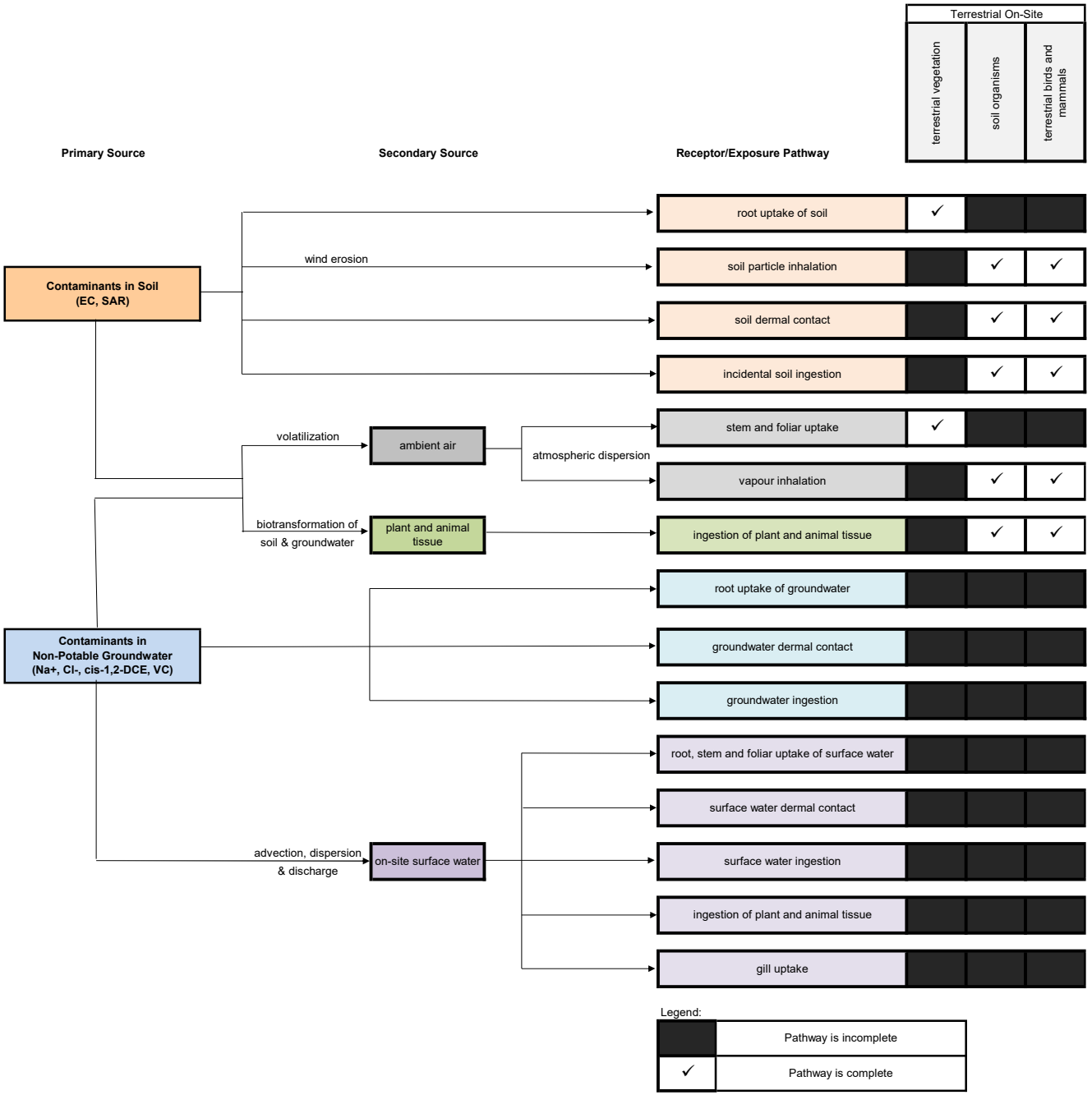
RMM Proposed on-Site:

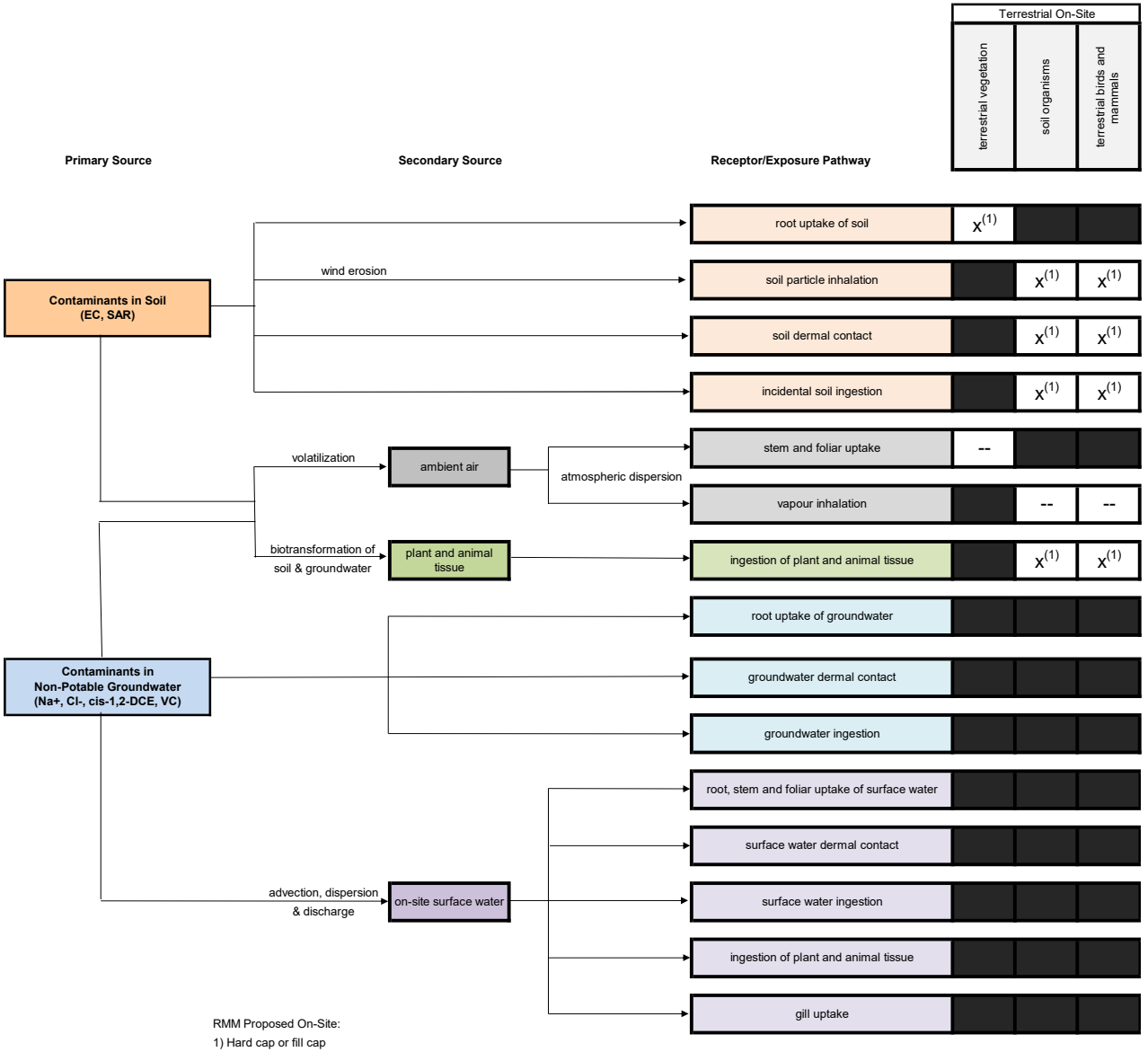
1) Hard cap or fill cap
2) Slab-on-Grade Building requirment Admin. RMM

A Soil and Groundwater Management Plan is also required for the Site.

Legend:

	Pathway is incomplete
--	Pathway is complete but unacceptable risks are not anticipated
X	Pathway is blocked by RMM


Terrestrial On-Site
terrestrial vegetation
soil organisms
terrestrial birds and mammals
Primary Source
Secondary Source
Receptor/Exposure Pathway
Contaminants in Soil (EC, SAR)
wind erosion
volatilization
ambient air
atmospheric dispersion
biotransformation of soil & groundwater
plant and animal tissue
Contaminants in Non-Potable Groundwater (Na+, Cl-, cis-1,2-DCE, VC)
advection, dispersion & discharge
on-site surface water
root uptake of soil
soil particle inhalation
soil dermal contact
incidental soil ingestion
stem and foliar uptake
vapour inhalation
ingestion of plant and animal tissue
root uptake of groundwater
groundwater dermal contact
groundwater ingestion
root, stem and foliar uptake of surface water
surface water dermal contact
surface water ingestion
ingestion of plant and animal tissue
gill uptake
Legend:
Pathway is incomplete
Pathway is complete

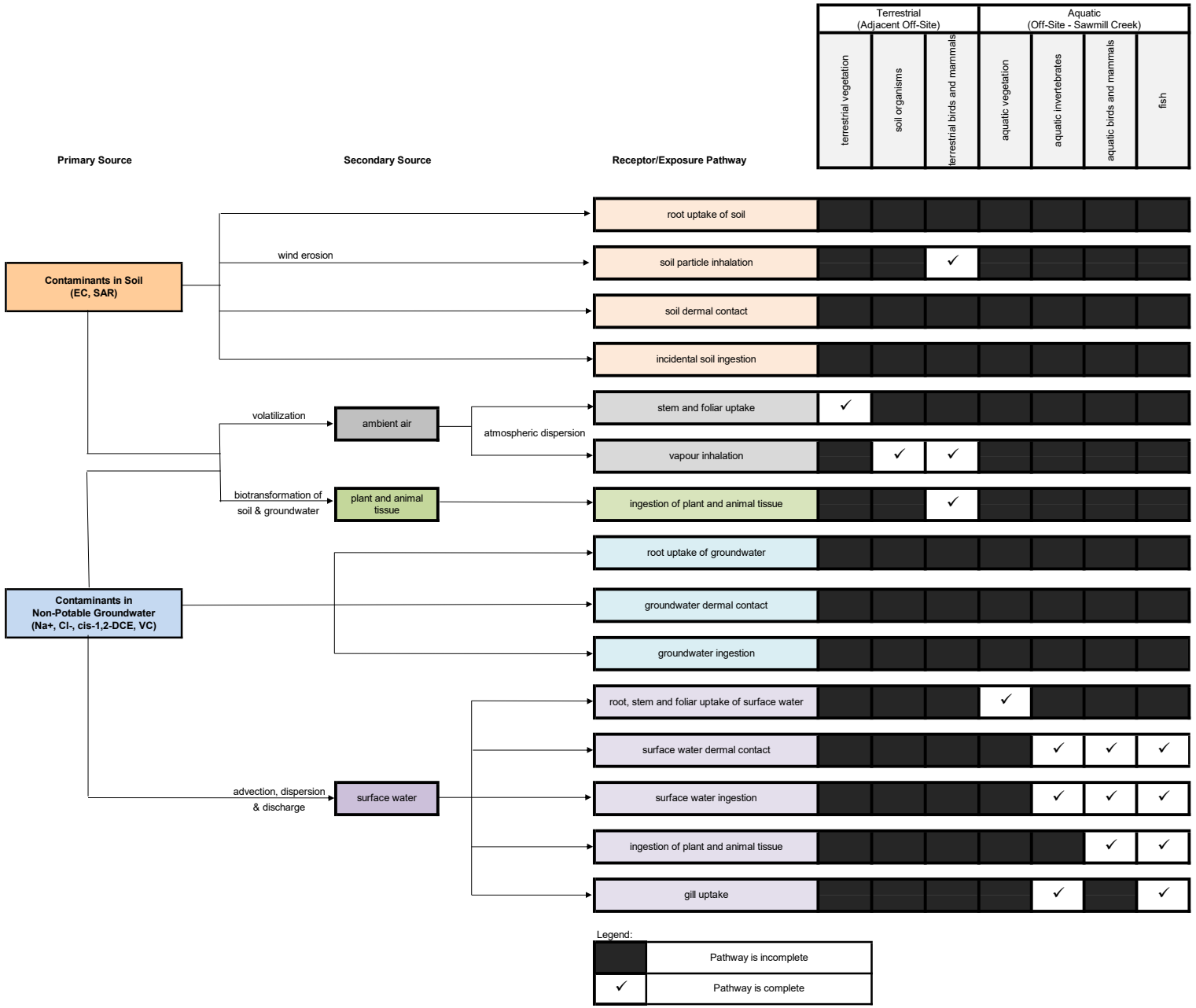


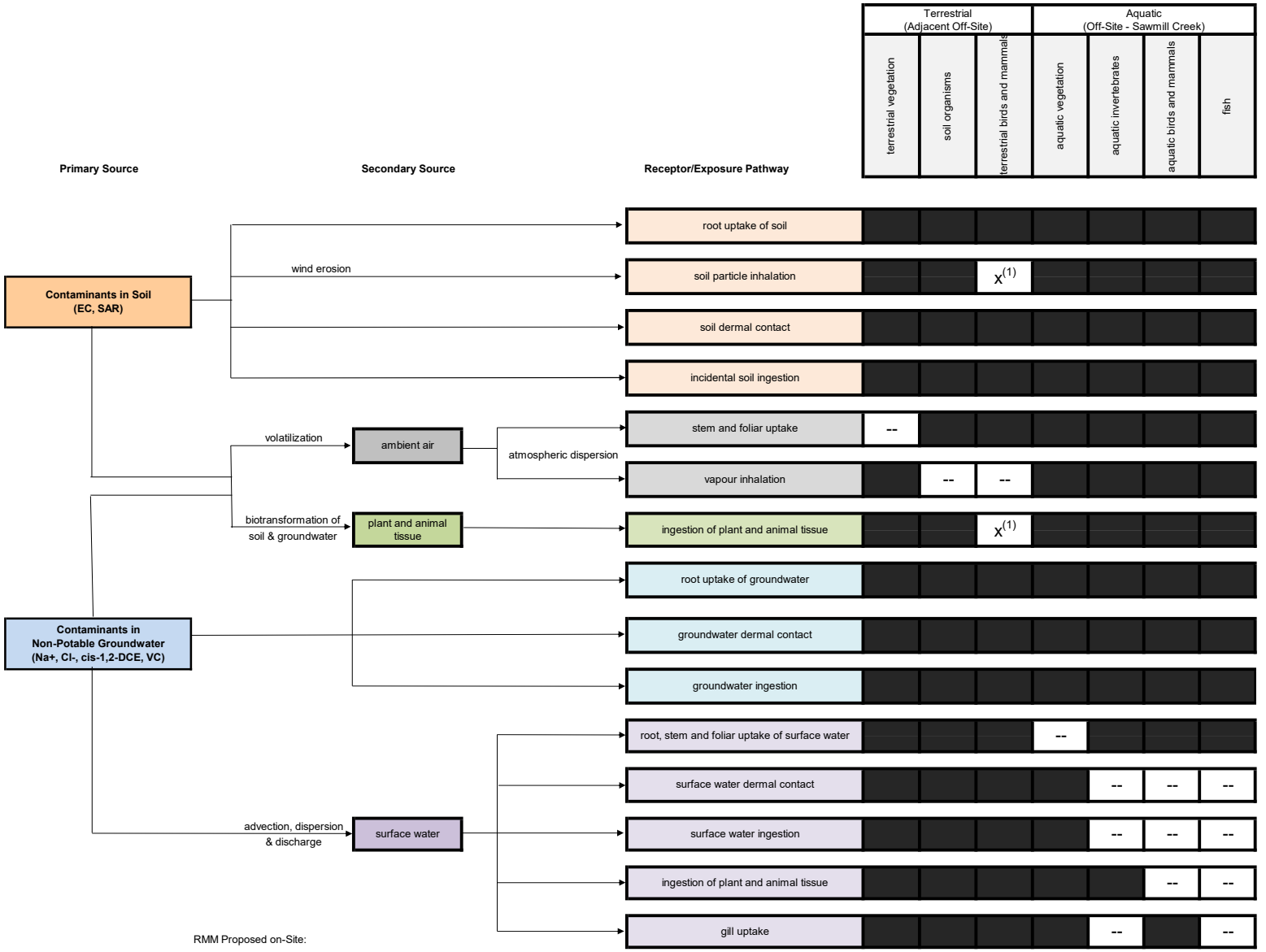
RMM Proposed On-Site:
1) Hard cap or fill cap
2) Slab-on-Grade Building requirment Admin. RMM

A Soil and Groundwater Management Plan is also required for the Site.

Legend:

	Pathway is incomplete
--	Pathway is complete but unacceptable risks are not anticipated
X	Pathway is blocked by RMM


Terrestrial (Adjacent Off-Site)
Aquatic (Off-Site - Sawmill Creek)
terrestrial vegetation
soil organisms
terrestrial birds and mammals
aquatic vegetation
aquatic invertebrates
aquatic birds and mammals
fish
Primary Source
Secondary Source
Receptor/Exposure Pathway
Contaminants in Soil (EC, SAR)
Contaminants in Non-Potable Groundwater (Na+, Cl-, cis-1,2-DCE, VC)
wind erosion
volatilization
ambient air
atmospheric dispersion
biotransformation of soil & groundwater
plant and animal tissue
advection, dispersion & discharge
surface water
root uptake of soil
soil particle inhalation
soil dermal contact
incidental soil ingestion
stem and foliar uptake
vapour inhalation
ingestion of plant and animal tissue
root uptake of groundwater
groundwater dermal contact
groundwater ingestion
root, stem and foliar uptake of surface water
surface water dermal contact
surface water ingestion
ingestion of plant and animal tissue
gill uptake
Legend:
Pathway is incomplete
Pathway is complete


Terrestrial (Adjacent Off-Site)
Aquatic (Off-Site - Sawmill Creek)
terrestrial vegetation
soil organisms
terrestrial birds and mammals
aquatic vegetation
aquatic invertebrates
aquatic birds and mammals
fish
Primary Source
Secondary Source
Receptor/Exposure Pathway
Contaminants in Soil (EC, SAR)
Contaminants in Non-Potable Groundwater (Na+, Cl-, cis-1,2-DCE, VC)
wind erosion
volatilization
biotransformation of soil & groundwater
advection, dispersion & discharge
ambient air
plant and animal tissue
surface water
atmospheric dispersion
root uptake of soil
soil particle inhalation
soil dermal contact
incidental soil ingestion
stem and foliar uptake
vapour inhalation
ingestion of plant and animal tissue
root uptake of groundwater
groundwater dermal contact
groundwater ingestion
root, stem and foliar uptake of surface water
surface water dermal contact
surface water ingestion
ingestion of plant and animal tissue
gill uptake
X(1)
--
RMM Proposed on-Site:
1) Hard cap or fill cap
2) Slab-on-Grade Building requirment Admin. RMM
A Soil and Groundwater Management Plan is also required for the Site.
Legend:
Pathway is incomplete
Pathway is complete but unacceptable risks are not anticipated
X
Pathway is blocked by RMM

Appendix C:
Sampling and Analysis Plan

Memorandum

Date: May XX, 2022

To: TBD

From: Samuel Patterson

CC: Chris Kimmerly; Henry Yee

RE: Phase Two Environmental Site Assessment Update –Confirmatory Soil and Groundwater Sampling Program, 1770 Heatherington Road, Ottawa, ON

Project Number:	**OTT-00018293-J5**
Date(s) of Field Work:	**Groundwater Sampling – Approx. Thursday April 7 to Monday April 11, 2022** **Soil Sampling – Approx. May XX, 2022**
Site Address:	**1770 Heatherington Road, Ottawa, Ontario**
PM Contact:	**Chris Kimmerly, 613-863-1891** **Samuel Patterson, 343-363-7366**
Laboratory:	**Parcel Labs (paracel@paracellabs.com), Mobile: 1-800-749-1947**

PROJECT OBJECTIVES:

The additional field work program will focus on surficial soil sampling using hand-held sampling devices and/or a backhoe and the re-sampling of existing monitoring wells, previously installed at the Site. The objective of the program will be to confirm groundwater quality at the Site in the location of former remedial excavations and to confirm soil quality at the Site.

Site Access:

Access off of Heatherington Road (south of Walkley Road) – see screen clip of site access below:



…/2

220 Commerce Valley Drive West, Suite 110, Markham, Ontario L3T 0A8
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Walkley Rd
Walkley Rd
74
Imam Ali Masjid
Say Cheese Dentistry
Heatherington Rd
Fairlea Crescent
Heatherington Rd
Heatherington Rd
Jenny Private
Angela Private
Angela Private
Fairlea Crescent
Irma Private

SCOPE OF WORK:

Soil Sampling:

- Please refer to the attached figure set for the locations of soil sampling o be conducted at the Site – these are approximate locations and may be moved on as an needed basis. Prior to moving a sampling location please check in with the PM.
- Soil sampling will be conducted using the aid of a City of Ottawa provided Backhoe or Excavator (To be Confirmed Prior to Sampling).
- Please refer to Table 1 below for the soil samples to be collected from the Test Pits advanced at the Site.
- Please record Test Pit logs for each of the sampling locations and please take any photos of elements of interest during the Test Pitting.
- For grain size sampling – please submit these samples to the Ottawa EXP GeoTechncial Laboratory for Grain Size analysis. PAH and M & I Soil samples will be submitted to Paracel Laboratories of Ottawa.
- During grain size sample selection, please visually inspect soil sample to avoid collecting granular surficial material - please collect from native silty clay layer.
- Please ensure that dedicated and pre-cleaned sampling media and instruments are used during the collection of soil samples.

Table 1: Soil Sampling Summary

Task	Location	Parameters	Sample Numbers	Rationale
Soil Sampling for Grain Size Analysis	Across the Site	Grain Size	3x Surface (0 – 1.5 mbg) / 3x Sub-surface (>1.5 mbg)	MECP Comment Number 12 – Need for adequate Soil texture Characterization at the Site
Confirmatory Soil Sampling	Northwestern corner of the Tier III Property	Polycyclic aromatic hydrocarbons (PAHs)	3x Surficial Soil Samples (0.0 – 1.5 mbg)	MECP Comment No. 17 – Need Adequate sampling for PAHs to Assess APEC 3
Confirmatory Soil Sampling	Berm Number 2 (Southern Property Line) – Within 2 m of TP30 and Re-TP30	Metals (Cadmium and Thallium)	2x Confirmatory Soil Samples (0.0 – 0.5)	Assess if impacts detected at **TP30** in the berm soil have leached to the soil remaining on-Site
Total Soil Sample Numbers = 2x Metals and Inorganics / 6x Grain Size / 3x PAHs / 1x Field Duplicate				

Groundwater Sampling

- Locate the six (6) existing monitoring wells at the Site to be re-sampled. Please note the condition of the monitoring wells, and if the monitoring wells are unable to be located please notify the PM.
- Prior to sampling, all groundwater monitors will be purged at least 3 well volumes or until stabilization of field parameters is achieved.
- Once purged, the groundwater monitoring wells will be sampled using **low flow techniques**; record stabilized field parameters for each monitor on sample form. Groundwater samples will be retrieved from the existing wells, using a **peristaltic pump**, as outlined in Table 2, below.
- Groundwater samples will be collected from the groundwater monitoring wells using new clean tubing. Collected groundwater samples will be submitted to Paracel Labs (**See City of Ottawa Pricing Agreement**) for analysis of the parameters indicated in Table 2, below.

- Use proper sampling techniques to avoid introducing contaminants into the groundwater sample. Use proper decontamination techniques between monitors. Please ensure the samples are as clear (little sediment) as possible. If samples contain visible sediment, please take **CLEAR** photographs of the samples showing sample ID for future reference.
- **QA/QC:** Collect one field duplicate sample per ten (10) samples submitted, for a total of one (1) duplicate per event. A trip blank will also be submitted for VOCs alongside the final laboratory submission of collected groundwater samples.
- Ensure all purge and washing water is disposed of in sealed drums or buckets.
- All samples are to be kept on ice and brought back to the office or dropped off at Paracel Laboratories (2319 St. Laurent Blvd, Ottawa, ON K1G 4J8). Please arrange a laboratory pickup from the office if samples are not being dropped off at the lab. Please ensure samples are properly preserved with ice in a storage cooler maintained below 10ºC.

Table 2: Groundwater Sampling Summary

Task	Location	Parameters	Sample Numbers	Rationale
Confirmatory Groundwater Sampling	MW15-9 (Pit No. 4 Remediation)	PHCs	2x Confirmatory Groundwater Samples **(Quarterly Sampling)**	To assess a historical exceedance at MW/BH08-13 (destroyed) and confirm impacts are no longer present
Confirmatory Groundwater Sampling	MW15-1 (Pit No. 1 Remediation)	PHCs	1x Confirmatory Groundwater Samples	To assess a historical exceedance at MW08-15 (destroyed) and confirm impacts are no longer present
Confirmatory Groundwater Sampling	MW14-7 (Pit No. 1 Remediation)	VOCs	2x Confirmatory Groundwater Samples **(Quarterly Sampling)**	To assess a historical exceedance at MW14-7 and confirm impacts are no longer present
Confirmatory Groundwater Sampling	MW14-8 (Pit No. 1 Remediation)	VOCs	1x Confirmatory Groundwater Sample	To assess historical exceedance at MW12-11 (destroyed) via replacement well MW14-8
Confirmatory Groundwater Sampling	MW15-2 (Pit No. 1 Remediation)	VOCs	1x Confirmatory Groundwater Sample	To assess a historical exceedance of benzene at MW15-2
Groundwater Confirmatory Sampling	MW12-3 (Pit No. 1 Remediation)	PAHs	1x Confirmatory Groundwater Sample	To assess a historical exceedance at MW08-2 (destroyed) via replacement well MW12-3
Total Groundwater Sample Numbers = 6x Original Samples / 1x Field Duplicate / 1x Trip Blank				

Note: Based on the sampling frequency described in the Table above, one (1) soil sample duplicate, one (1) groundwater duplicate sample, and one (1) Trip Blank (for the analysis of VOCs / PHCs) are recommended to supplement the above-described field sampling program.

Notes:

- Sampling location MW15-9 and MW14-7 require a second set of confirmatory groundwater samples to be collected in the following quarter.

- Please include one field duplicate per 10 samples for each parameter group (VOCs). It is anticipated that one (1) field duplicates will be required per sampling event.
- Please include trip blank and submit for VOCs for the final laboratory submission of collected groundwater samples.
- Following completion of the sampling program please ensure that the PM is notified of the total number of drums that remain on-Site and the amount of purge water for disposal purposes.
- Please ensure that any damaged or broken monitoring well locations are noted and that adequate photographs are taken of each location.

Reminders

- Please ensure that the HASP paperwork is completed prior to any field activities.
- Complete FLRA either within the HASP or online (QR code provide below)
- Always wear hard hat, visi-vest and use pylons as needed. Discuss scope of work with any other relevant on-site personnel prior to the commencement of field work.
- Take photographs of the site during the investigation.
- Document any near miss incidents.

Chain of Custody Information

- Project number OTT-00018293-J5, Table 3 RPI Standards (soil texture = med-fine).
- Groundwater Analyses: see Table 2.
- Soil Analyses: See Table 1.
- Groundwater QA/QC: 1 x Field Duplicate / 1 x TB per Event.
- Soil QA/QC: 1 x Field Duplicate for PAHs or M & I.
- Ensure samples are submitted for **regular TAT.**

Soil and groundwater samples will be submitted on a regular (4-5 day) turn-around time.

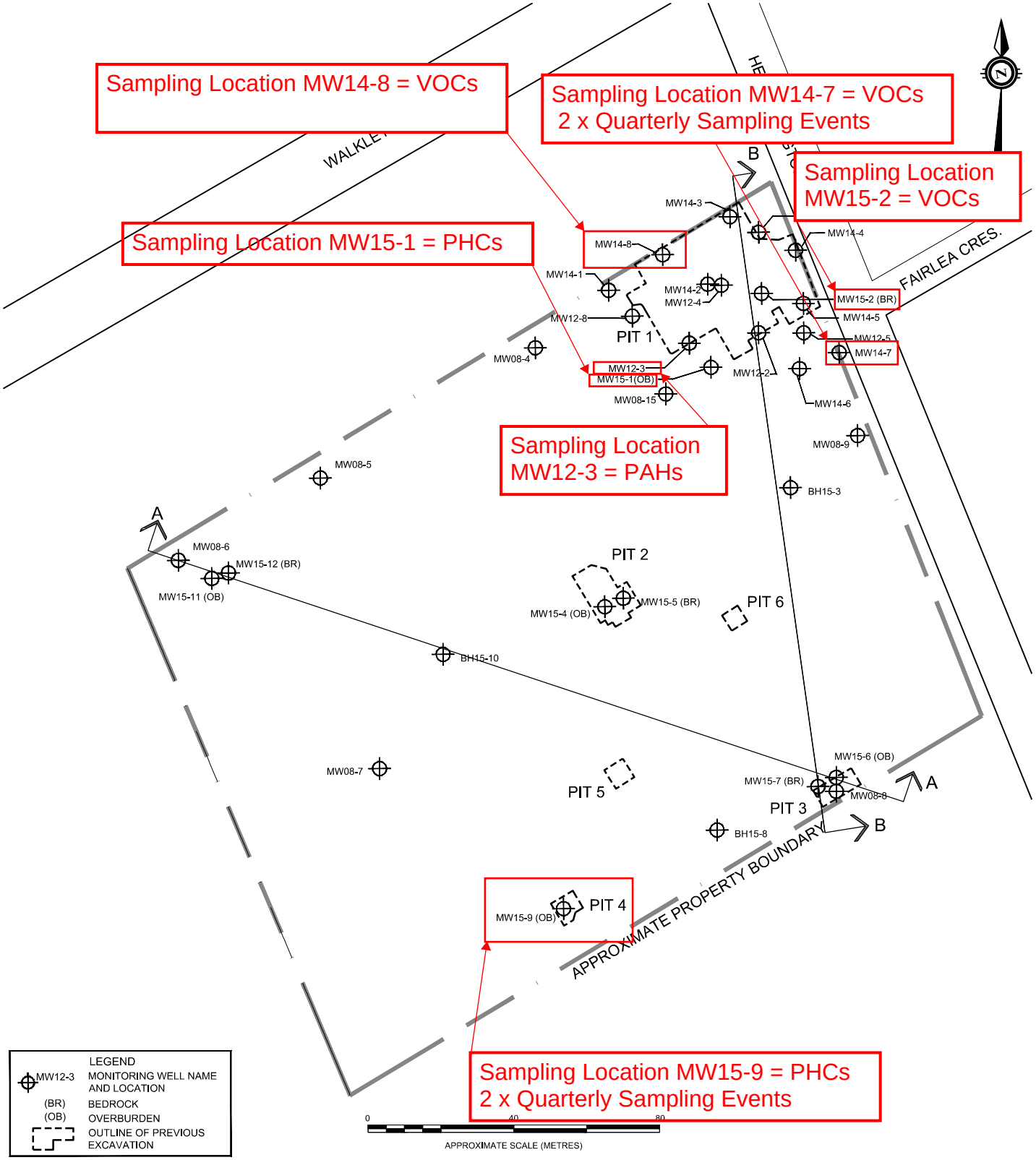
Submit results to samuel.patterson@exp.com & Chris.Kimmerly@exp.com

Attachments

- Monitoring Well Locations
- Health and Safety Plan
- Form 1000
- Groundwater Monitoring Forms

References

EXP SOP, *Decontamination, Version 2.0*, rev. 2017
EXP SOP, *Field QA/QC Programs, Version 2.0*, rev. 2012
EXP SOP, *Monitor and Groundwater Sampling, Version 2.0*, rev. 2017



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scale: AS NOTED	CLIENT: Ottawa	project no.: OTT-00018293-J5
date: DEC 2016	TITLE: PHASE TWO ESA MONITORING WELL LOCATION PLAN 1770 HEATHERINGTON ROAD, OTTAWA, ON	FIG 27
drawn by: J.REVELL		

Filename: r:\18000\18200\18293\18293 j5\- revised final set\18293-j5 - csm- 2016 final set.dwg
Last Saved: 12/16/2016 11:15:43 AM
Last Plotted:12/16/2016 11:53:39 AMPlotted by: REVELLJ Pen Table:: trow standard, july 01, 2004.ctb

Note: For GS Sampling please visually inspect soil sample to avoid collecting granular surfical material - please collect from native silty clay layer

MW-08-3 C1 (0-0.7 m)	2012-04-17	
PARAMETER	CONCENTRATION (µg/g)	MOECC TABLE 3
ANTHRACENE	0.89	0.67
BENZO(a)ANTHRACENE	0.79	0.5
BENZO(a)PYRENE	0.59	0.3
BENZO(b)FLUOROTHENE	0.9	0.78
DIBENZ(a,h)ANTHRACENE	0.13	0.1
FLUORANTHENE	2.07	0.69
NAPTHALENE	0.73	0.6

MW08-3 (0.0 m - 1.2 m)	08-01-28	
PARAMETER	CONCENTRATION (µg/g)	MOECC TABLE 3
BENZO(a)PYRENE	0.34	0.3

TP08-15 A1 (0.3 m)	2012-04-17	
PARAMETER	CONCENTRATION (µg/g)	MOECC TABLE 3
BIPHENYL	1.54	0.39
1,2 METHYLNAPTHALENE	21.4	0.99
NAPTHALENE	2.13	0.6

TP08-15 B1 (0.3 m)	2012-04-17	
PARAMETER	CONCENTRATION (µg/g)	MOECC TABLE 3
BIPHENYL	0.43	0.39
1,2 METHYLNAPTHALENE	8.35	0.99
NAPTHALENE	1.09	0.6

TP08-15 (0 - 0.46 m)	2008-01-30	
PARAMETER	CONCENTRATION (µg/g)	MOECC TABLE 3
BENZO(a)PYRENE	0.36	0.3

TP08-1 (0 - 0.46 m)	2008-01-30	
PARAMETER	CONCENTRATION (µg/g)	MOECC TABLE 3
BENZ(a)ANTHRACENE	0.6	0.5
BENZO(a)PYRENE	0.33	0.3
DIBENZ(a,h)ANTHRACENE	1.09	0.69

= PAH and Grain Size Surfical Sampling Location (0.0 - 1.5 m bgs)

= Grain Size Sub-Surface Sampling Location (>1.5 m bgs)

LEGEND

- BH BOREHOLE
- MW MONITORING WELL
- SS SURFACE SAMPLE
- TP TEST PIT
- SOIL CONCENTRATION EXCEEDS MOECC TABLE 3 STANDARD
- SOIL CONCENTRATION MEETS MOECC TABLE 3 STANDARD
- NO DATA COLLECTED
- 08-01-29 SAMPLING DATE (YEAR/ MONTH/ DAY)
- APPROXIATE AREA OF IMPACTED SOIL

0 40 80

APPROXIMATE SCALE (METRES)

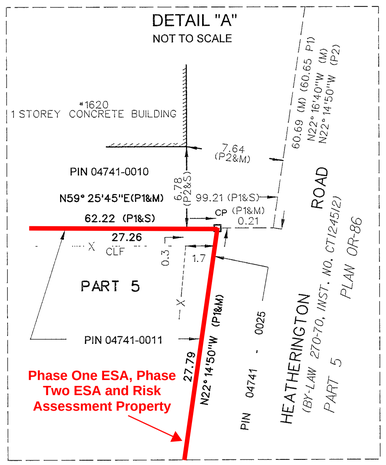
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scale: AS NOTED	CLIENT: Ottawa	project no.: OTT-00018293-J5
date: DEC 2016	TITLE: PHASE TWO ESA PRE-REMEDIATION PAH CONCENTRATION IN SOIL 1770 HEATHERINGTON ROAD, OTTAWA, ON	FIG 10
drawn by: J.REVELL		

Filename: r:\18000\18200\18293\18293 j5\revised final set\18293-j5 - 2017.03.dwg
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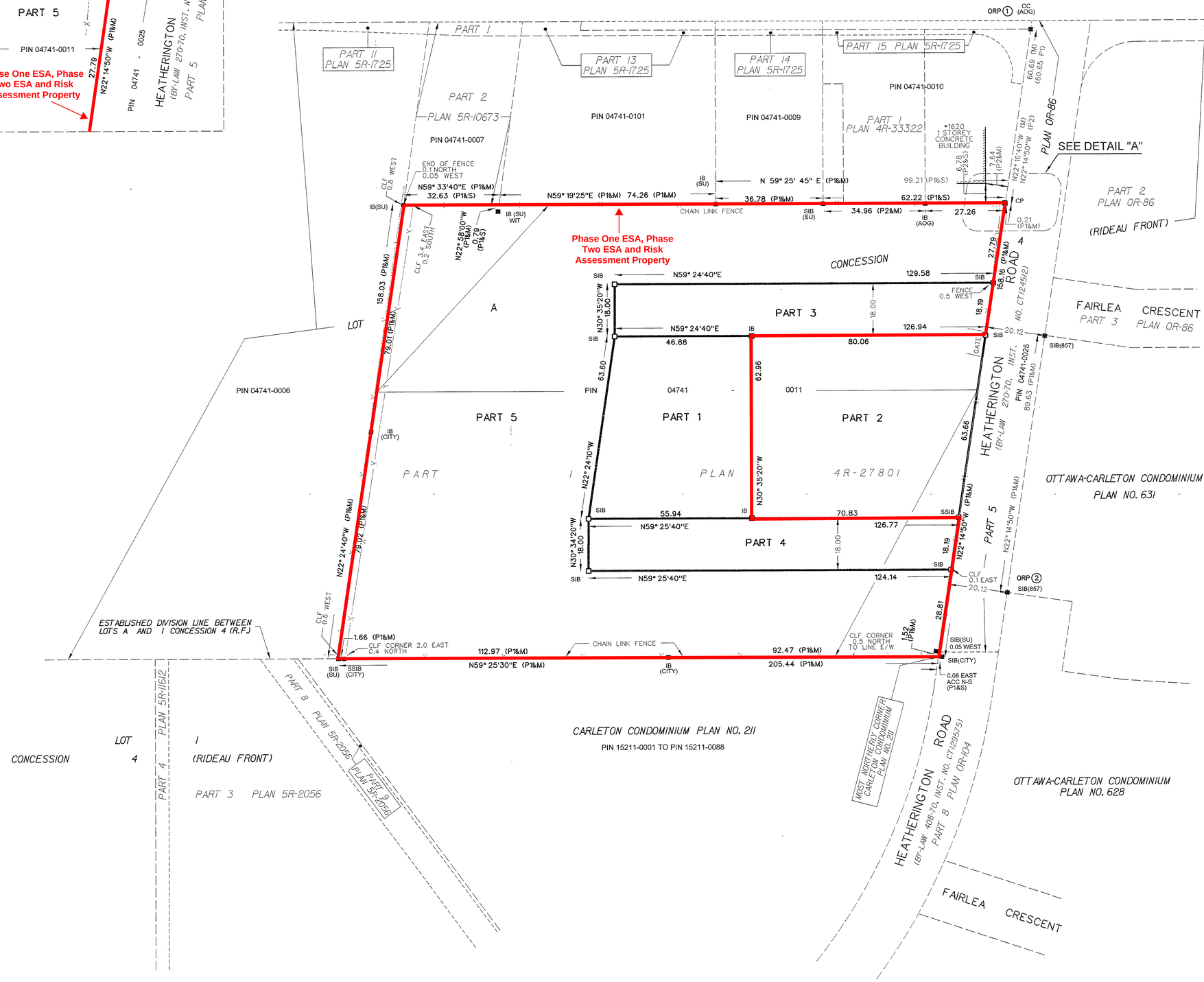
Appendix D:
Survey Plan





WALKLEY ROAD

ROAD ALLOWANCE BETWEEN RIDEAU AND JUNCTION GORE



SCHEDULE

PART	LOT	CONCESSION	PIN	AREA(SQ. M.)
1	PART OF A	4 (RIDEAU FRONT)	ALL OF PIN 04741-0011	3236.2
2				4751.7
3				2308.4
4				2257.9
5				19621.8

I REQUIRE THIS PLAN TO BE DEPOSITED UNDER THE LAND TITLES ACT.

DATE April 22, 2021

Seadaghat
SAEID SEDAGHAT
ONTARIO LAND SURVEYOR

PLAN 4R- 33717
RECEIVED AND DEPOSITED

DATE April 23, 2021

LAND REGISTRAR FOR THE LAND TITLES DIVISION OF OTTAWA-CARLETON No. 4

PLAN OF SURVEY OF

PART OF LOT A
CONCESSION 4 (RIDEAU FRONT)

GEOGRAPHIC TOWNSHIP OF GLOUCESTER
CITY OF OTTAWA

SCALE - 1 : 750

15 0 15 30
(METRES)

METRIC

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

INTEGRATION DATA

COORDINATES WERE DERIVED FROM GPS OBSERVATIONS USING THE CAN-NET 2016 REAL TIME NETWORK AND ARE REFERENCED TO SPECIFIED CONTROL POINTS 19680128 AND 19680105, MTM ZONE 9 (76°30' WEST LONGITUDE) NAD-83 (ORIGINAL)

COORDINATE VALUES ARE TO URBAN ACCURACY IN ACCORDANCE WITH O.REG. 216/10.

ID#	NORTHING	EASTING
SCP 19680128	5028498.550	379046.944
SCP 19680105	5024915.159	373971.649
ORP 1	5026775.71	371767.38
ORP 2	5026604.08	371859.14

CAUTION

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

NOTES AND LEGEND

BEARINGS ARE GRID, DERIVED FROM GPS OBSERVATIONS USING THE CAN-NET 2016 REAL TIME NETWORK, ON OBSERVED REFERENCE POINTS 1 AND 2, SHOWN HEREON, AND ARE REFERENCED TO SPECIFIED CONTROL POINTS 19680128 AND19680105, MTM ZONE 9 (76°30' WEST LONGITUDE) NAD-83 (ORIGINAL).

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999955

■	DENOTES SURVEY MONUMENT FOUND
□	DENOTES SURVEY MONUMENT PLANTED
SIB	DENOTES STANDARD IRON BAR
SSIB	DENOTES SHORT STANDARD IRON BAR
IB	DENOTES IRON BAR
CC	DENOTES CUT CROSS
CP	DENOTES CONCRETE PIN
WIT	DENOTES WITNESS
M	DENOTES MEASURED
S	DENOTES SET
ORP ID#	DENOTES OBSERVED REFERENCE POINT IDENTIFICATION NUMBER
P1	DENOTES PLAN 4R-27801
P2	DENOTES PLAN 4R-33322
(CITY)	DENOTES CITY OF OTTAWA
(AOG)	DENOTES ANNIS, O'SULLIVAN, VOLLEBEKK LTD. O.L.S.
(857)	DENOTES FAIRHALL, MOFFAT & WOODLAND LIMITED, O.L.S.
(SU)	DENOTES SOURCE UNKNOWN

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.

2. THE SURVEY WAS COMPLETED ON THE 19th DAY OF APRIL , 2021.

April 22, 2021
DATE

Seadaghat
SAEID SEDAGHAT
ONTARIO LAND SURVEYOR

Ottawa

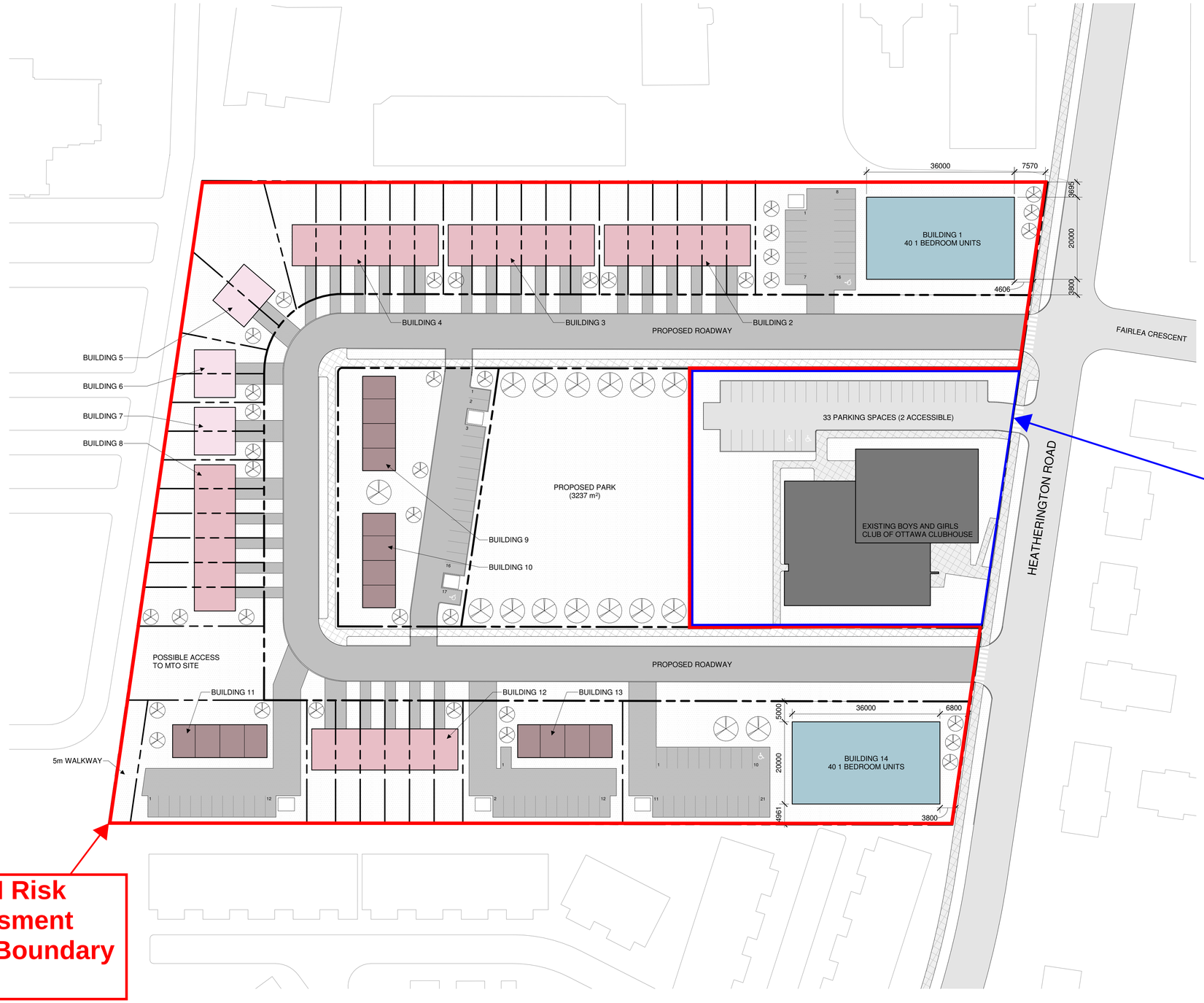
INFRASTRUCTURE SERVICES DEPARTMENT
SURVEYS & MAPPING UNIT

PROJECT : 1770 HEATHERINGTON ROAD	FIELD WORK BY : G. CHARRON
CALC'D BY : Q.C.	FILE NO. 17527p001
C.A.D. BY : Q.C.	MS NO. 17527P001
CHECKED BY : S.S.	DRAWING NO. 17527p001-Rplan.dgn
PEN TABLE : NONE	DATE : March 8, 2021

Note(s):

1 - Original Drawing Prepared by CSV Architects (9/12/2022) - Annotated by EXP Services Inc. (11/15/2022).

2 - The "Boys and Girls Club" of Ottawa outlined in blue, is not part of the current RA property boundary and has been managed through a separate Tier II RA and RSC filing.



Tier III Risk Assessment Property Boundary

RSC Property "Boys and Girls Club of Ottawa"

[RSC No. 230500]

Filed 2021-12-16

1 SITE PLAN
A.100 1 : 500

LEGAL DESCRIPTION:

PART OF LOT A CONCESSION 4 (RIDEAU FRONT), GEOGRAPHIC TOWNSHIP OF GLOUCESTER, CITY OF OTTAWA.

REFERENCE SURVEY:

BASED ON INFORMATION FROM A SURVEY PREPARED BY CITY OF OTTAWA INFRASTRUCTURE SERVICES DEPARTMENT, DATED APRIL 19TH, 2021.

MUNICIPAL ADDRESS:

1770 HEATHERINGTON ROAD

DEVELOPMENT INFORMATION:

SCHEDULE 1: AREA C, SUBURBAN

SCHEDULE A: IG1 - INDUSTRIAL ZONE

ZONE:

SITE PLAN LEGEND

- SEMI-DETACHED
- TOWNHOUSE
- STACKED TOWNHOUSE
- 40 UNIT APARTMENT BUILDING
- EXISTING BUILDING
- EXISTING ASPHALT PAVING
- NEW ASPHALT PAVING
- NEW GRASS
- EXISTING CONCRETE SIDEWALK
- NEW CONCRETE SIDEWALK
- BUILDING MAIN ENTRANCE
- OTHER ENTRANCE / EXIT
- PROPERTY LINE
- NEW TREE

CSV ARCHITECTS
sustainable design · conception écologique
613.564.8118 www.csv.ca
190 O'Connor Street, Suite 100 Ottawa, Ontario,K2P 2R3

STAMP

REV	DATE	ISSUE
1	12/09/2022	Issued for Review

NOTES

1. OWNERSHIP OF THE COPYRIGHT OF THE DESIGN AND THE WORKS EXECUTED FROM THE DESIGN REMAINS WITH CSV ARCHITECTS, AND MAY NOT BE REPRODUCED IN ANY FORM WITHOUT THE WRITTEN CONSENT OF CSV ARCHITECTS.
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3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER PROJECT DRAWINGS AND SPECIFICATIONS.
4. DO NOT SCALE DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY DIMENSIONS ON SITE.
5. ALL WORK SHALL BE IN ACCORDANCE WITH THE ONTARIO BUILDING CODE AND ALL SUPPLEMENTS AND APPLICABLE MUNICIPAL REGULATIONS.

CLIENT

CITY OF OTTAWA

OTTAWA
ONTARIO, CANADA

PROJECT

HEATHERINGTON DEVELOPMENT

1770 Heatherington Road, Ottawa, ON

TITLE

SITE PLAN

PROJECT NO:	2022-1150
DRAWN:	EF
APPROVED:	MM
SCALE:	1 : 500
DATE PRINTED:	9/12/2022 11:47:15 AM

REV	DRAWING NO.
1	A.100

Appendix E:
Analytical Results – Soil and Groundwater

SOIL ANALYTICAL RESULTS:
Table E.1a - Petroleum Hydrocarbons (PHCs) in Soil (Pre-Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	MW08-1		MW08-2		MW08-3	MW08-4	MW08-5	MW08-6	MW08-7		MW08-8		TP08-2
Sample ID		MW08-1 SS3	MW08-1 SS4	MW08-2 SS1	MW08-2 SS4	MW08-3 SS3	MW08-4 SS3	MW08-5 SS4	MW08-6 SS4	MW08-7 SS2	MW08-7 SS3	MW08-8 SS2	MW08-8 SS3	TP08-23
Sampling Date		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08	30-Jan-08
Soil Sample Depth (m)		2.44 - 3.66	3.66 - 4.88	0.2 - 1.22	3.66 - 4.88	2.44 - 3.66	2.44 - 3.66	3.66 - 4.88	3.66 - 4.88	1.22 - 2.44	2.44 - 3.66	1.22 - 2.44	2.44-3.66	1.1
Consultant		JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		31-Jan-08 to 4-Feb-08	31-Jan-08 to 4-Feb-08	31-Jan-08 to 4-Feb-08	31-Jan-08 to 4-Feb-08	31-Jan-08 to 4-Feb-08	31-Jan-08 to 4-Feb-08	31-Jan-08 to 4-Feb-08	31-Jan-08 to 4-Feb-08	31-Jan-08 to 4-Feb-08	31-Jan-08 to 4-Feb-08	31-Jan-08 to 4-Feb-08	31-Jan-08 to 4-Feb-08	7-Feb-08
Certificate of Analysis Number		B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03424
Benzene	0.17	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	6	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Xylenes (total)	25	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
PHC F1 (C6-C10)	65	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
PHC F2 (C10-C16)	150	5	23	5	20	6	<5	21	14	<5	<5	<6	<5	<5
PHC F3 (C16-C34)	1300	<10	30	50	20	10	<10	20	20	<10	<10	10	<10	<10
PHC F4 (C34-C50)	5600	<10	<10	70	10	<10	<10	<10	<10	<10	<10	10	<10	<10

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
JWEL = Jacques Whitford Environmental Limited.
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.1a - Petroleum Hydrocarbons (PHCs) in Soil (Pre-Excavation)

Investigative Location		TP08-3	TP08-4	TP08-5	TP08-5	TP08-8	TP08-12		TP08-15			MW08-14	MW08-15	MW08-16		MW08-17	MW08-18	MW08-19
Sample ID		TP08-33	TP08-41	TP08-51	TP08-15*	TP08-83	TP08-122	TP08-123	TP08-15-A1	TP08-15-B1	TP08-15-C1	MW08-14 SS5	MW08-15 SS5	MW08-16 SS5	MW08-16 SS15*	MW08-17 SS8	MW08-18 SS5	MW08-19 SS5
Sampling Date	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	30-Jan-08	30-Jan-08	30-Jan-08		30-Jan-08	30-Jan-08	30-Jan-08	17-Apr-12	17-Apr-12	17-Apr-12	6-Aug-08	6-Aug-08	6-Aug-08		6-Aug-08	10-Nov-08	10-Nov-08
Soil Sample Depth (m)		0.9	0.2	1.1		1.1	0.3	1.1	0.8	0.5	0.9	3.0 - 3.7	3.0 - 3.7	3.0 - 3.7		3.7 - 4.8	4.9 - 5.5	4.9 - 5.5
Consultant		JWEL	JWEL	JWEL		JWEL	JWEL	JWEL	exp	exp	exp	Trow	Trow	Trow	Trow	Trow	Trow	Trow
Laboratory		Caduceon	Caduceon	Caduceon		Caduceon	Caduceon	Caduceon	Parcel	Parcel	Parcel	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		7-Feb-08	7-Feb-08	7-Feb-08		7-Feb-08	7-Feb-08	7-Feb-08	25-Apr-12	25-Apr-12	25-Apr-12	9-Aug-08	9-Aug-08	9-Aug-08	9-Aug-08	9-Aug-08	13-Nov-08	13-Nov-08
Certificate of Analysis Number		B08-03424	B08-03424	B08-03424		B08-03424	B08-03424	B08-03424	1216186	1216186	1216186	B08-25502 (ii)	B08-25502 (ii)	B08-25502 (ii)	B08-25502 (ii)	B08-25502 (ii)	B08-37354	B08-37354
Benzene	0.17	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	6	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Xylenes (total)	25	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002
PHC F1 (C6-C10)	65	<10	<10	<10	<10	<10	<10	<10	-	-	-	<10	<10	40	<10	<10	-	-
PHC F2 (C10-C16)	150	<5	<7	<5	<5	<5	<5	7	**1,740**	61	18	14	5	8	20	23	-	-
PHC F3 (C16-C34)	1300	<10	90	<10	<10	<10	40	<10	668	253	163	49	49	55	51	54	-	-
PHC F4 (C34-C50)	5600	<10	100	20	<10	<10	100	30	1,410	191	353	27	60	78	17	17	-	-

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
JWEL = Jacques Whitford Environmental Limited.
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.1b - Petroleum Hydrocarbons (PHCs) in Soil (Post Excavation)

												Removed	**Removed**	**Removed**	**Removed**	**Removed**	**Removed**	**Removed**								
Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	MW12-5		MW12-8		MW12-10		MW12-11		Pit 1 (North Wall)																
Sample ID		MW12-5 SS4	MW12-5 SS5	MW12-8 SS4	MW12-8 SS5	MW12-10 SS2	MW12-10 SS3	MW12-11 SS2	MW12-11 SS3	NW 2-2	NW 4-3	NW 8-2	NW8A-3	NW10-3	NW3a-3	NW5a-3	NW12-3	NEW 1-3	NEW 1-30*	N2-3	N4-3	N7-3	N9-3	N9-30*
Lab ID		1244326-01	1245072-01	1245072-04	1244326-04	1245072-06	1244326-06	1245072-07	1244326-07	1219153-01	1219153-02	1219153-03	1219275-01	1219275-02	1222281-01	1222281-02	1220185-01	1406084-02	1406084-03	1406084-01	1406128-01	1406154-01	1406217-01	1406217-02
Sampling Date		1-Nov-12	1-Nov-12	2-Nov-12	2-Nov-12	2-Nov-12	2-Nov-12	2-Nov-12	2-Nov-12	9-May-12	9-May-12	9-May-12	11-May-12	11-May-12	31-May-12	31-May-12	16-May-12	4-Feb-14		4-Feb-14	4-Feb-14	5-Feb-14	6-Feb-14	
Soil Sample Depth (m)		2.3-2.8	3.1-3.6	2.3-2.9	3.1-3.6	1.6-2.2	2.3-2.9	1.6-2.2	2.3-2.9	2.0	3.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Consultant		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp		exp	exp	exp	exp	
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel		Paracel	Paracel	Paracel	Paracel	
Date of Analysis		7-Nov-12	8-Nov-12	8-Nov-12	7-Nov-12	8-Nov-12	7-Nov-12	8-Nov-12	7-Nov-12	10-May-12	10-May-12	10-May-12	14-May-12	14-May-12	1-Jun-12	1-Jun-12	17-May-12	4/5-Feb-14		4/5-Feb-14	5-Feb-14	6-Feb-14	6-Feb-14	
Certificate of Analysis Number		1244326	1245072	1245072	1244326	1245072	1244326	1245072	1244326	1219153	1219153	1219153	1219275	1219275	1222281	1222281	1220185	1406084		1406084	1406128	1406154	1406217	
Benzene	0.17	-	-	-	-	-	-	-	-	-	<0.02	<0.02	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	6	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	15	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes (total)	25	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
PHC F1 (C6-C10)	65	<7	<7	<7	<7	<7	<7	<7	<7	<7	**107**	**99**	19	12	51	<7	<7	<7	<7	<7	<7	<7	<7	<7
PHC F2 (C10-C16)	150	<4	<4	<4	<4	<4	<4	5	<4	53	**1090**	**1530**	**1120**	**266**	54	<4	<4	<4	<4	<4	<4	<4	<4	<4
PHC F3 (C16-C34)	1300	<8	<8	<8	<8	<8	326	382	452	38	709	941	487	132	28	76	<8	<8	<8	<8	<8	<8	<8	<8
PHC F4 (C34-C50)	5600	<6	<6	<6	<6	<8	735	95	188	<6	<6	<6	<6	<6	<6	<6	<8	<6	<8	<6	<6	<6	<6	<6

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Indicates end of excavation stage
Indicates soil sampling location removed by expansion of remedial Pit No. 1 during 2014.
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.1b - Petroleum Hydrocarbons (PHCs) in Soil (Post Excavation)

Investigative Location		Pit 1 (South Wall)						Pit 1 (East Wall)										Pit 1 (West Wall)							Pit 1 (Floor)					
		Removed						Removed	Removed	Removed	Removed	Removed						Removed												
Sample ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	SW2-3	SW3-3	SW8-3	S2-3	S21-3	S21-30*	EW2-2	EW4-3	EW6-3	EW6-30*	EW8-3	NE1-3	E1-4	E1-40*	E3-4	E5-4	E0-4	W1-2	W1-3	WW1-2	WW-5-3	WW8-3	NWN1-2	NWN1-3	F6	F17	F29	F54-B	F58	F73
Lab ID		1219275-04	1222199-01	1220185-03	1404062-03	1405095-03	1405095-04	1219275-03	1220243-01	1220243-02	1220243-03	1220309-01	1404154-03	1404061-01	1404061-02	1404151-01	1404154-01	1405095-05	1403189-01	1405095-01	1221236-07	1220185-02	1222199-02	1406217-04	1406217-05	1220185-04	1220185-05	1220309-02	1220309-03	1221236-08	1222199-03
Sampling Date		11-May-12	30-May-12	16-May-12	20-Jan-14	28-Jan-14		11-May-12	17-May-12	17-May-12		18-May-12	22-Jan-14	20-Jan-14		23-Jan-14	22-Jan-14	28-Jan-14	15-Jan-14	28-Jan-14	25-May-12	16-May-12	30-May-12	6-Feb-14	6-Feb-14	16-May-12	16-May-12	18-May-12	18-May-12	25-May-12	30-May-12
Soil Sample Depth (m)		3.0	3.0	3.0	3.0	3.0		2.0	3.0	3.0		3.0	3.0	4.0		4.0	4.0	4.0	2.0	3.0	2.0	3.0	3.0	2.0	3.0	3.2	3.2	3.2	3.2	3.2	3.2
Consultant		exp	exp	exp	exp	exp		exp	exp	exp		exp	exp	exp		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel		Paracel	Paracel	Paracel		Paracel	Paracel	Paracel		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		14-May-12	31-May-12	17-May-12	21-Jan-14	29-Jan-14		14-May-12	18-May-12	18-May-12		22-May-12	23-Jan-14	21-Jan-14		23-Jan-14	23-Jan-14	29-Jan-14	20-Jan-14	29-Jan-14	27/28-May-12	17-May-12	31-May-12	7-Feb-14	7-Feb-14	17-May-12	17-May-12	22-May-12	22-May-12	27/28-May-12	31-May-12
Certificate of Analysis Number		1219275	1222199	1220185	1404061	1405095		1219275	1220243	1220243		1220309	1404154	1404061		1404151	1404154	1405095	1403189	1405095	1221236	1220185	1222199	1406217	1406217	1220185	1220185	1220309	1220309	1221236	1222199
Benzene	0.17	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	6	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	15	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes (total)	25	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PHC F1 (C6-C10)	65	<7	<7	<7	43	<7	<7	<7	<7	34	34	<7	<7	47	14	<7	<7	<7	<7	<7	<7	<7	9	<7	<7	<7	<7	<7	26	<7	<7
PHC F2 (C10-C16)	150	<4	<4	<4	**156**	<4	<4	**671**	123	**502**	**177**	<4	<4	**337**	115	<4	22	<4	29	<4	<4	<4	103	<4	<4	<4	<4	19	20	28	<4
PHC F3 (C16-C34)	1300	<8	<8	<8	104	<8	<8	418	63	233	67	<8	<8	218	82	<8	22	<8	**2610**	<8	<8	<8	126	<8	<8	<8	<8	33	20	<8	<8
PHC F4 (C34-C50)	5600	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<7	<8	<6	<6	<6	368	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit. as indicated
'NV'= No value
* Field duplicate
Indicates end of excavation stage
Indicates soil sampling location removed by expansion
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.1b - Petroleum Hydrocarbons (PHCs) in Soil (Post Excavation)

Investigative Location		Pit 1 (Floor)															Pit 2 (North Wall)	Pit 2 (South Wall)	Pit 2 (East Wall)		P2 (West Wall)	Pit 2 (Floor)			Water Main	S3
Sample ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	F83	F90	FS1	FS-4	FS-40*	FS-6	FS-0	FN-2	FN-5	FN-50*	FN6	FN-10	FN5-6	FN9-6	FN9-60*	NW1-1	SW2-1	EW2-1	EW5-1	WW3-1	F2	F7	F12	Water Main Soil	S3
Lab ID		1222199-04	1222281-03	1404075-01	1404151-02	1404151-03	1404154-02	1405095-01	1406084-02	1406128-01	1406128-02	1406154-02	1406217-03	1407032-01	1407103-01	1407103-02	1221043-02	1221043-01	1221043-04	1221043-05	1221043-03	1220309-04	1221043-06	1221043-07	1222334-01	2126255-01
Sampling Date		30-May-12	31-May-12	21-Jan-14	22-Jan-14		22-Jan-14	28-Jan-14	4-Feb-14	4-Feb-14		5-Feb-14	6-Feb-14	9-Feb-14	11-Feb-14		22-May-12	22-May-12	22-May-12	22-May-12	22-May-12	18-May-12	22-May-12	22-May-12	1-Jun-12	22-Jun-21
Soil Sample Depth (m)		3.2	3.2	3.5	3.5		3.5	3.5	3.2	3.2		3.2	3.2	3.2	3.2		1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2	2.0	0.0 - 0.5
Consultant		exp	exp	exp	exp		exp	exp	exp	exp		exp	exp	exp	exp		exp	exp	exp	exp	exp	exp	exp	exp	exp	EXP
Laboratory		Paracel	Paracel	Paracel	Paracel		Paracel	Paracel	Paracel	Paracel		Paracel	Paracel	Paracel	Paracel		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		31-May-12	1-Jun-12	22-Jan-14	1/23/2014		23-Jan-14	29-Jan-14	4/5-Feb-14	5-Feb-14		6-Feb-14	6-Feb-14	11-Feb-14	12-Feb-14		23-May-12	23-May-12	23-May-12	23-May-12	23-May-12	22-May-12	23-May-12	23-May-12	5/7-Jun-12	44370
Certificate of Analysis Number		1222199	1222281	1404075	1404151		1404154	1405095	1406084	1406128		1406154	1406217	1407032	1407103		1221043	1221043	1221043	1221043	1221043	1220309	1221043	1221043	1222334	2126255
Benzene	0.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.02
Toluene	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
Ethylbenzene	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
Xylenes (total)	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05
PHC F1 (C6-C10)	65	<7	<7	12	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7
PHC F2 (C10-C16)	150	<4	<4	128	57	52	26	8	16	25	42	<4	31	<4	28	29	15	28	41	5	30	<4	<4	<4	<4	<4
PHC F3 (C16-C34)	1300	<8	389	69	47	49	26	<8	<8	19	34	<8	25	<8	28	27	121	152	256	131	67	<8	<8	<8	<8	59
PHC F4 (C34-C50)	5600	<6	36	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	249	299	665	295	107	<6	<6	<6	<6	64

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit. as indicated
'NV'= No value
* Field duplicate
Indicates end of excavation stage
Indicates soil sampling location removed by expansior
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:

Table E.1c - Petroleum Hydrocarbons (PHCs) in On-Site Soil Berm (Post Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	TP-21-14	TP-21-17	TP-21-19	TP-21-22	TP-21-23		TP-21-26	TP-21-27	TP-21-30	TP-21-33	TP-21-35	TP-21-36	TP-21-37	TP-21-40		TP-21-41	TP-21-42
Sample ID		TP14 S1	TP17 S1	TP19 S1	TP22 S3	TP23 S3	TP51 S2 (DUP)*	TP26 S2	TP27 S1	TP30 S3	TP33 S2	TP35 S2	TP36 S3	TP37 S1	TP40 S1	TP54 S1 (DUP)*	TP41 S2	TP42 S3
Lab ID		1941050-08	1941050-09	1941050-10	1941050-11	1941050-12	1941050-24	1941050-13	1941050-14	1941050-15	1941050-16	1941050-17	1941050-18	1941050-19	1941050-20	1941050-25	1941050-21	1941050-22
Sampling Date		2-Oct-19	2-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19
Soil Sample Depth (m)		0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	1.0 - 2.0	0.0 - 1.0	0.0 - 1.0	1.0 - 2.0	1.0 - 2.0	2.0 - 3.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	1.0 - 2.0	2.0 - 3.0
Consultant		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19
Certificate of Analysis Number		1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050
Benzene	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes (total)	25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
PHC F1 (C6-C10)	65	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7
PHC F2 (C10-C16)	150	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
PHC F3 (C16-C34)	1300	17	21	<8	<8	31	33	20	35	19	60	254	31	<8	25	29	108	14
PHC F4 (C34-C50)	5600	7	11	<6	<6	15	23	22	23	15	83	258	47	<6	26	34	89	10

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.2.a - Volatile Organic Compounds (VOCs) in Soil (Pre-Excavation)

Investigative Location		MW08-1		MW08-2		MW08-3	MW08-4	MW08-5	MW08-6	MW08-7		MW08-8		TP08-2	TP08-3	TP08-4	TP08-5	TP08-5
Sample ID		MW08-1 SS3	MW08-1 SS4	MW08-2 SS1	MW08-2 SS4	MW08-3 SS3	MW08-4 SS3	MW08-5 SS4	MW08-6 SS4	MW08-7 SS2	MW08-7 SS3	MW08-8 SS2	MW08-8 SS3	TP08-23	TP08-33	TP08-41	TP08-51	TP08-15*
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	B08-03004-2	B08-03004-3	B08-03004-4	B08-03004-5	B08-03004-7	B08-03004-9	B08-03004-10	B08-03004-11	B08-03004-13	B08-03004-14	B08-03004-16	B08-03004-17	B08-03424-1	B08-03424-2	B08-03424-3	B08-03424-4	B08-03424-5
Sampling Date		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	
Soil Sample Depth (m)		2.44 - 3.66	3.66 - 4.88	0 - 1.22	3.66 - 4.88	2.44 - 3.66	2.44 - 3.66	3.66 - 4.88	3.66 - 4.88	1.22 - 2.44	2.44 - 3.66	1.22 - 2.44	2.44-3.66	1.1	0.9	0.2	1.1	
Consultant		JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	
Date of Analysis		31-Jan-08	31-Jan-08	31-Jan-08	31-Jan-08	31-Jan-08	31-Jan-08	31-Jan-08	31-Jan-08	31-Jan-08	31-Jan-08	31-Jan-08	31-Jan-08	7-Feb-08	7-Feb-08	7-Feb-08	7-Feb-08	
Certificate of Analysis Number		B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03424	B08-03424	B08-03424	B08-03424	
Bromodichloromethane	13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
Bromoform	0.26	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
Bromomethane	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
Carbon Tetrachloride	0.12	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
Chlorobenzene	2.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
Chloroform	0.18	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
Dibromochloromethane	9.4	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
1,2-Dichlorobenzene	4.3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
1,3-Dichlorobenzene	6	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
1,4-Dichlorobenzene	0.097	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
1,1-Dichloroethane	11	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
1,2-Dichloroethane	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
1,1-Dichloroethylene	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
cis-1,2-Dichloroethylene	30	<0.001	<0.001	<0.001	<0.001	0.014	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
trans-1,2-Dichloroethylene	0.75	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
1,2-Dichloropropane	0.085	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
cis-1,3-Dichloropropene	0.083	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
trans-1,3-Dichloropropene	0.083	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
Ethylene Dibromide (1,2-Dibromoethane)	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
Methylene chloride (Dichloromethane)	0.96	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
Naphthalene	0.75	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
Styrene	2.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1,2-Tetrachloroethane	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
1,1,2,2-Tetrachloroethane	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
Tetrachloroethylene	2.3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
1,2,4-Trichlorobenzene	1.4	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
1,1,1-Trichloroethane	3.4	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
1,1,2-Trichloroethane	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
Trichloroethylene	0.52	<0.001	<0.001	<0.001	<0.001	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-
Vinyl Chloride	0.022	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.2.a - Volatile Organic Compounds (VOCs) in Soil (Pre-Excavation)

Investigative Location		TP08-8	TP08-9	TP08-12		MW08-14	MW08-15	MW08-16		MW08-17	MW08-18	MW08-19
Sample ID		TP08-83	TP08-93	TP08-122	TP08-123	MW08-14 SS5	MW08-15 SS5	MW08-16 SS5	MW08-16 SS15*	MW08-17 SS8	MW-18 SS5	MW-19 SS5
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	B08-03424-6	B08-03424-7	B08-03424-12	B08-03424-13	B08-25502-3	B08-25502-2	B08-25502-1	B08-25502-7	B08-25502-6	B08-37354-1	B08-37354-2
Sampling Date		30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	6-Aug-08	6-Aug-08	6-Aug-08		6-Aug-08	10-Nov-08	10-Nov-08
Soil Sample Depth (m)		1.1	1.1	0.3	1.1	3.0 - 3.7	4.9 - 5.5	3.0 - 3.7		3.7 - 4.8	4.9 - 5.5	4.9 - 5.5
Consultant		JWEL	JWEL	JWEL	JWEL	Trow	Trow	Trow	Trow	Trow	Trow	Trow
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		7-Feb-08	7-Feb-08	7-Feb-08	7-Feb-08	9-Aug-08	9-Aug-08	9-Aug-08	9-Aug-08	9-Aug-08	13-Nov-08	13-Nov-08
Certificate of Analysis Number		B08-03424	B08-03424	B08-03424	B08-03424	B08-25502 (ii)	B08-25502 (ii)	B08-25502 (ii)	B08-25502 (ii)	B08-25502 (ii)	B08-37354	B08-37354
Bromodichloromethane	13	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromoform	0.26	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Bromomethane	0.05	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride	0.12	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene	2.7	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroform	0.18	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dibromochloromethane	9.4	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichlorobenzene	4.3	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	6	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,4-Dichlorobenzene	0.097	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane	11	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane	0.05	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethylene	0.05	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,2-Dichloroethylene	30	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethylene	0.75	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloropropane	0.085	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,3-Dichloropropene	0.083	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,3-Dichloropropene	0.083	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylene Dibromide (1,2-Dibromoethane)	0.05	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Methylene chloride (Dichloromethane)	0.96	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Naphthalene	0.75	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Styrene	2.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1,2-Tetrachloroethane	0.05	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	0.05	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloroethylene	2.3	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2,4-Trichlorobenzene	1.4	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	3.4	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.05	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethylene	0.52	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride	0.022	-	-	-	-	<0.003	<0.003	<0.003	<0.003	<0.003	<0.001	<0.001

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:

Table E.2b - Volatile Organic Compounds (VOCs) in Soil (Post Excavation)

		Removed	Removed		Removed			Removed						Removed	
Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	Pit 1 (North Wall)		Pit 1 (South Wall)				Pit 1 (East Wall)							Pit 1 (West Wall)
Sample ID		NW 4-3	NW 8-2	SW2-3	S2-3	S21-3	S21-30*	EW2-2	E1-4	E1-40*	E3-4	E5-4	E0-4	NE1-3	W1-3
Lab ID		1219153-02	1219153-03	1219275-04	1404061-03	1405095-03	1405095-04	1219275-03	1404061-01	1404061-02	1404151-01	1404154-01	1405095-05	1404154-03	1405095-02
Sampling Date		9-May-12	9-May-12	11-May-12	20-Jan-14	28-Jan-14		11-May-12	20-Jan-14		23-Jan-14	22-Jan-14	28-Jan-14	22-Jan-14	28-Jan-14
Soil Sample Depth (m)		3.0	2.0	3.0	3.0	3.0		2.0	4.0		4.0	4.0	4.0	3.0	3.0
Consultant		exp	exp	exp	exp	exp		exp	exp		exp	exp	exp	exp	exp
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel		Paracel	Paracel		Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		10-May-12	10-May-12	14-May-12	21-Jan-14	29-Jan-14		14-May-12	1/21/2014		22-Jan-14	23-Jan-14	29-Jan-14	23-Jan-14	29-Jan-14
Certificate of Analysis Number		1219153	1219153	1219275	1404061	1405095		1219275	1404061		1404151	1404154	1405095	1404154	1405095
Acetone	28	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	0.26	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	2.7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroethane	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	0.18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloromethane	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	9.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	4.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	0.097	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	11	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethane	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethylene	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethylene	30	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.33	<0.05	<0.05	<0.05
trans-1,2-Dichloroethylene	0.75	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethylene, total	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.33	<0.05	<0.05	<0.05
1,2-Dichloropropane	0.085	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,3-Dichloropropene	0.083	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
trans-1,3-Dichloropropene	0.083	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis- & trans-1,3-Dichloropropene	0.083	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide (1,2-Dibromoethane)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexane (n)	34	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene chloride (Dichloromethane)	0.96	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl ethyl ketone (2-Butanone)	44	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Butyl Ketone (2-Hexanone)	NV	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Methyl Isobutyl Ketone	4.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl t-butyl ether (MTBE)	1.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	2.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	2.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2,4-Trichlorobenzene	1.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	S	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.52	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.46	<0.05	<0.05	<0.05
Trichlorofluoromethane	5.8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3,5-Trimethylbenzene	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	0.022	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
m-Xylene + p-Xylene	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes (total)	25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Indicates end of excavation stage
Indicates soil sampling location removed by expansion of remedial Pit No. 1 during 2014.
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:

Table E.2b - Volatile Organic Compounds (VOCs) in Soil (Post Excavation)

Investigative Location		Pit 1 (Floor)					MW12-5		MW12-8		MW12-10		MW12-11	
Sample ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	FS1	FS-4	FS-40*	FS-6	FS-0	MW12-5 SS4	MW12-5 SS5	MW12-8 SS4	MW12-8 SS5	MW12-10 SS2	MW12-10 SS3	MW12-11 SS2	MW12-11 SS3
Lab ID		1404075-01	1404151-02	1404151-03	1404154-02	1405095-01	1244326-01	1245072-01	1245072-04	1244326-04	1245072-06	1244326-06	1245072-07	1244326-07
Sampling Date		21-Jan-14	23-Jan-14		22-Jan-14	28-Jan-14	1-Nov-12	1-Nov-12	2-Nov-12	2-Nov-12	2-Nov-12	2-Nov-12	2-Nov-12	2-Nov-12
Soil Sample Depth (m)		3.5	3.5		3.5	3.5	2.3-2.8	3.1-3.6	2.3-2.9	3.1-3.6	1.6-2.2	2.3-2.9	1.6-2.2	2.3-2.9
Consultant		exp	exp		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp
Laboratory		Paracel	Paracel		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		22-Jan-14	1/22/2014		23-Jan-14	29-Jan-14	7-Nov-12	8-Nov-12	8-Nov-12	7-Nov-12	8-Nov-12	7-Nov-12	8-Nov-12	7-Nov-12
Certificate of Analysis Number		1404075	1404151		1404154	1405095	1244326	1245072	1245072	1244326	1245072	1244326	1245072	1244326
Acetone	28	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	0.26	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	2.7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroethane	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	0.18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloromethane	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	9.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	4.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	0.097	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	11	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethane	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethylene	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethylene	30	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
trans-1,2-Dichloroethylene	0.75	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethylene, total	NV	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	0.085	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,3-Dichloropropene	0.083	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
trans-1,3-Dichloropropene	0.083	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis- & trans-1,3-Dichloropropene	0.083	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide (1,2-Dibromoethane)	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexane (n)	34	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene chloride (Dichloromethane)	0.96	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl ethyl ketone (2-Butanone)	44	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Butyl Ketone (2-Hexanone)	NV	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Methyl Isobutyl Ketone	4.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl t-butyl ether (MTBE)	1.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	2.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	2.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2,4-Trichlorobenzene	1.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	S	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.52	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	5.8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3,5-Trimethylbenzene	NV	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	0.022	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
m-Xylene + p-Xylene	NV	0.14	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes (total)	25	0.16	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Indicates end of excavation stage
Indicates soil sampling location removed by expansion of remed
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.3a - Polycyclic Aromatic Hydrocarbons (PAHs) in Soil (Pre-Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	MW08-1	MW08-2	MW08-3	MW08-3						
Sample ID		MW08-1 SS2	MW08-2 SS1	MW08-3 SS1	MW08-3-A1	MW08-3-A2	MW08-3-B1	MW08-3-B2	MW08-3-C1	MW08-3-C2	MW08-3-D2
Lab ID		B08-03004-1	B08-03004-4	B08-03004-6	1216186-01	1216263-01	1216263-02	1216186-02	1216186-03	1216263-03	1216263-04
Sampling Date		28-Jan-08	28-Jan-08	28-Jan-08	17-Apr-12	17-Apr-12	17-Apr-12	17-Apr-12	17-Apr-12	17-Apr-12	17-Apr-12
Soil Sample Depth (m)		1.22 - 2.44	0.2 - 1.22	0.2 - 1.22	0.7	1.0	0.8	1.1	0.7	1.0	1.1
Consultant		JWEL	JWEL	JWEL	exp	exp	exp	exp	exp	exp	exp
Laboratory		Caduceon	Caduceon	Caduceon	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		4-Feb-08	4-Feb-08	4-Feb-08	27-Apr-12	25-Apr-12	25-Apr-12	27-Apr-12	27-Apr-12	25-Apr-12	25-Apr-12
Certificate of Analysis Number		B08-03004	B08-03004	B08-03004	1216186	1216263	1216263	1216186	1216186	1216263	1216263
Acenaphthene	58	<0.005	0.012	<0.02	<0.02	<0.02	<0.02	<0.02	0.31	<0.02	<0.02
Acenaphthylene	0.17	<0.005	<0.005	<0.02	0.03	<0.02	<0.02	<0.02	0.04	<0.02	<0.02
Anthracene	0.74	<0.005	<0.005	0.08	0.04	<0.02	<0.02	<0.02	**0.89**	<0.02	<0.02
Benzo(a)anthracene	0.63	<0.005	0.026	0.28	0.08	<0.02	0.04	<0.02	**0.79**	<0.02	<0.02
Benzo(a)pyrene	0.3	<0.005	0.027	**0.34**	0.07	<0.02	0.03	<0.02	**0.59**	<0.02	<0.02
Benzo(b)fluoranthene	0.78	<0.005	0.044	0.31	0.1	<0.02	0.05	<0.02	**0.9**	<0.02	<0.02
Benzo(b+k)fluoranthene	NV	<0.005	0.063	0.56	-	-	-	-	-	-	-
Benzo(ghi)perylene	7.8	<0.005	0.02	0.19	0.05	<0.02	<0.02	<0.02	0.34	<0.02	<0.02
Benzo(k)fluoranthene	0.78	<0.005	0.019	0.25	0.08	<0.02	0.03	<0.02	0.6	<0.02	<0.02
1,1'-Biphenyl	1.1	-	-	-	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.02
Chrysene	7.8	<0.005	0.033	0.29	0.09	<0.02	0.04	<0.02	0.77	<0.02	<0.02
Dibenz(a,h)anthracene	0.1	<0.005	<0.005	0.02	<0.02	<0.02	<0.02	<0.02	**0.13**	<0.02	<0.02
Fluoranthene	0.69	<0.005	0.028	0.39	0.17	<0.02	0.08	<0.02	**2.07**	<0.02	<0.02
Fluorene	69	<0.005	0.01	0.03	<0.02	<0.02	<0.02	<0.02	0.57	<0.02	<0.02
Indeno(1,2,3-cd)pyrene	0.48	<0.005	0.027	0.19	0.05	<0.02	<0.02	<0.02	0.33	<0.02	<0.02
1-Methylnaphthalene	3.4	<0.005	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.17	<0.02	<0.02
2-Methylnaphthalene	3.4	<0.005	0.015	<0.02	<0.02	<0.02	<0.02	<0.02	0.27	<0.02	<0.02
Naphthalene	0.75	<0.005	0.079	<0.02	<0.01	<0.01	<0.01	<0.01	0.73	<0.01	<0.01
Phenanthrene	7.8	<0.005	0.046	0.28	0.09	<0.02	0.04	<0.02	2.6	<0.02	<0.02
Pyrene	78	<0.005	0.035	0.32	0.15	<0.02	0.07	<0.02	1.6	<0.02	<0.02

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.3a - Polycyclic Aromatic Hydrocarbons (PAHs) in Soil (Pre-Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	MW08-4	MW08-7	MW08-8	TP08-1	TP08-2	TP08-3	TP08-7	TP08-8	TP08-12	TP08-13		TP08-15				TP08-16
Sample ID		MW08-4 SS1	MW08-7 SS1	MW08-8 SS1	TP08-11	TP08-23	TP08-32	TP08-72	TP08-82	TP08-121	TP08-132	TP08-231*	TP08-151	TP08-15-A1	TP08-15-B1	TP08-15-C1	TP08-161
Lab ID		B08-03004-8	B08-03004-12	B08-03004-15	B08-03424-14	B08-03424-1	B08-03424-15	B08-03424-16	B08-03424-17	B08-03424-11	B08-03424-22	B08-03424-23	B08-03424-20	1216186-13	1216186-14	1216186-15	B08-03424-21
Sampling Date		28-Jan-08	29-Jan-08	29-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08		30-Jan-08	17-Apr-12	17-Apr-12	17-Apr-12	30-Jan-08
Soil Sample Depth (m)		0.2 - 1.22	0.2 - 1.22	0.2 - 1.22	0.2	1.1	0.5	0.5	0.6	0.3	0.9		0.3	0.8	0.5	0.9	0.3
Consultant		JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL		JWEL	exp	exp	exp	JWEL
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon		Caduceon	Paracel	Paracel	Paracel	Caduceon
Date of Analysis		4-Feb-08	4-Feb-08	4-Feb-08	11-Feb-08	11-Feb-08	11-Feb-08	11-Feb-08	11-Feb-08	11-Feb-08	11-Feb-08		11-Feb-08	27-Apr-12	27-Apr-12	27-Apr-12	11-Feb-08
Certificate of Analysis Number		B08-03004	B08-03004	B08-03004	B08-03424	B08-03424	B08-03424	B08-03424	B08-03424	B08-03424	B08-03424		B08-03424	1216186	1216186	1216186	B08-03424
Acenaphthene	58	<0.005	<0.01	<0.005	<0.04	<0.005	<0.02	<0.05	<0.005	<0.1	<0.005	<0.005	<0.03	<0.04	<0.04	0.02	<0.02
Acenaphthylene	0.17	<0.005	<0.01	<0.005	<0.04	<0.005	<0.02	<0.05	<0.005	<0.1	<0.005	<0.005	<0.03	<0.04	<0.04	0.09	<0.02
Anthracene	0.74	<0.005	<0.01	<0.005	0.18	<0.005	0.02	<0.05	<0.005	<0.1	<0.005	<0.005	0.03	<0.04	<0.04	0.09	<0.02
Benzo(a)anthracene	0.63	0.007	0.03	<0.005	0.603	<0.005	0.09	<0.05	<0.005	<0.1	<0.005	0.006	0.34	<0.04	<0.04	0.11	0.02
Benzo(a)pyrene	0.3	0.008	0.01	<0.005	**0.33**	<0.005	0.074	<0.05	<0.005	<0.1	<0.005	<0.005	**0.36**	<0.04	<0.04	0.14	<0.02
Benzo(b)fluoranthene	0.78	0.012	0.01	<0.005	0.691	<0.005	0.12	<0.05	<0.005	<0.1	<0.005	0.008	0.564	<0.04	<0.04	0.22	<0.02
Benzo(b+k)fluoranthene	NV	0.017	0.03	<0.005	1.13	<0.005	0.2	<0.05	<0.005	<0.1	0.007	0.012	0.903	-	-	-	<0.02
Benzo(ghi)perylene	7.8	0.007	<0.01	<0.005	<0.04	<0.005	0.02	<0.05	<0.005	<0.1	<0.005	<0.005	0.15	<0.04	<0.04	0.08	<0.02
Benzo(k)fluoranthene	0.78	<0.005	0.01	<0.005	0.434	<0.005	0.074	<0.05	<0.005	<0.1	<0.005	<0.005	0.34	<0.04	<0.04	0.13	<0.02
1,1'-Biphenyl	1.1	-	-	-	-	-	-	-	-	-	-	-	-	**1.54**	0.43	<0.02	
Chrysene	7.8	0.01	0.03	<0.005	0.64	<0.005	0.12	<0.05	<0.005	<0.1	<0.005	0.006	0.473	<0.04	<0.04	0.15	0.02
Dibenz(a,h)anthracene	0.1	<0.005	<0.01	<0.005	<0.04	<0.005	<0.02	<0.05	<0.005	<0.1	<0.005	<0.005	<0.03	<0.04	<0.04	0.02	<0.02
Fluoranthene	0.69	0.01	0.04	<0.005	**1.09**	<0.005	0.16	0.08	<0.005	<0.1	<0.005	<0.005	0.503	0.04	0.07	0.28	0.02
Fluorene	69	<0.005	<0.01	<0.005	<0.04	<0.005	<0.02	<0.05	<0.005	<0.1	<0.005	<0.005	<0.03	1.17	0.4	0.04	<0.02
Indeno(1,2,3-cd)pyrene	0.48	0.006	<0.01	<0.005	0.044	<0.005	0.03	<0.05	<0.005	<0.1	<0.005	<0.005	0.2	<0.04	<0.04	0.07	<0.02
1-Methylnaphthalene	3.4	<0.005	<0.01	<0.005	<0.04	<0.005	<0.02	<0.05	<0.005	<0.1	<0.005	<0.005	<0.03	**8.81**	**3.63**	0.02	<0.02
2-Methylnaphthalene	3.4	<0.005	<0.01	<0.005	<0.04	<0.005	<0.02	<0.05	<0.005	<0.1	<0.005	<0.005	<0.03	**12.6**	**4.71**	0.03	<0.02
Naphthalene	0.75	<0.005	<0.01	<0.005	0.16	<0.005	<0.02	<0.05	<0.005	<0.1	<0.005	<0.005	<0.03	**2.13**	**1.09**	0.04	<0.02
Phenanthrene	7.8	0.006	0.03	<0.005	1.15	<0.005	0.13	0.07	<0.005	<0.1	<0.005	<0.005	0.416	0.64	0.42	0.17	0.03
Pyrene	78	0.008	0.03	<0.005	0.75	<0.005	0.12	0.05	<0.005	<0.1	<0.005	<0.005	0.3	0.06	0.09	0.25	0.02

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.3b - Polycyclic Aromatic Hydrocarbons (PAHs) in Soil (Post Excavation)

Investigative Location		TP08-1					Removed Pit 1	
Sample ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	TP08-1-A1	TP08-1-B1	TP08-1-C1	TP08-1-D2	TP08-1-D20*	NW9-1	EW3-1
Lab ID		1216186-09	1216186-10	1216186-11	1216186-12	1216186-16	1222281-04	1222281-05
Sampling Date		17-Apr-12	17-Apr-12	17-Apr-12	17-Apr-12	17-Apr-12	31-May-12	31-May-12
Soil Sample Depth (m)		0.6	0.5	0.5	0.7	0.7	1.0	1.0
Consultant		exp	exp	exp	exp	exp	exp	exp
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		27-Apr-12	27-Apr-12	27-Apr-12	27-Apr-12	27-Apr-12	1-Jun-12	1-Jun-12
Certificate of Analysis Number		1216186	1216186	1216186	1216186	1216186	1222281	1222281
Acenaphthene	58	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Anthracene	0.74	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(a)anthracene	0.63	<0.02	<0.02	<0.02	0.07	<0.02	<0.02	<0.02
Benzo(a)pyrene	0.3	<0.02	<0.02	<0.02	0.05	<0.02	<0.02	<0.02
Benzo(b)fluoranthene	0.78	<0.02	<0.02	<0.02	0.08	<0.02	<0.02	<0.02
Benzo(b+k)fluoranthene	NV	-	-	-	-	-	<0.02	<0.02
Benzo(ghi)perylene	7.8	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02
Benzo(k)fluoranthene	0.78	<0.02	<0.02	<0.02	0.05	<0.02	<0.02	<0.02
1,1'-Biphenyl	1.1	<0.02	<0.02	<0.02	<0.02	<0.02	-	-
Chrysene	7.8	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	<0.02
Dibenz(a,h)anthracene	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.69	<0.02	<0.02	<0.02	0.12	<0.02	<0.02	<0.02
Fluorene	69	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Indeno(1,2,3-cd)pyrene	0.48	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02
1-Methylnaphthalene	3.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	3.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1&2-Methylnaphthalene	3.4	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.75	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	7.8	<0.02	<0.02	<0.02	0.02	<0.02	0.06	<0.02
Pyrene	78	<0.02	<0.02	<0.02	0.1	<0.02	0.05	<0.02

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.3b - Polycyclic Aromatic Hydrocarbons (PAHs) in Soil (Post Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	Pit 2 (North Wall)	Pit 2 (South Wall)	Pit 2 (East Wall)		Pit 2 (West Wall)	Pit 2 (Floor)			Pit 4				
Sample ID		NW1-1	SW2-1	EW2-1	EW5-1	WW3-1	F2	F7	F12	NW2-1	EW3-1	WW2-1	F1	F4
Lab ID		1221043-02	1221043-01	1221043-04	1221043-05	1221043-03	1220309-04	1221043-06	1221043-07	1221236-02	1221236-03	1221236-04	1221236-05	1221236-06
Sampling Date		22-May-12	22-May-12	22-May-12	22-May-12	22-May-12	18-May-12	22-May-12	22-May-12	25-May-12	25-May-12	25-May-12	25-May-12	25-May-12
Soil Sample Depth (m)		0.5	0.5	0.5	0.5	0.5	1.2	1.2	1.2	0.5	0.5	0.5	1	1
Consultant		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		23-May-12	23-May-12	23-May-12	23-May-12	23-May-12	22-May-12	23-May-12	23-May-12	28-May-12	28-May-12	28-May-12	28-May-12	28-May-12
Certificate of Analysis Number		1221043	1221043	1221043	1221043	1221043	1220309	1221043	1221043	1221236	1221236	1221236	1221236	1221236
Acenaphthene	58	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.17	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Anthracene	0.74	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(a)anthracene	0.63	<0.02	0.07	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(a)pyrene	0.3	<0.02	0.07	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo(b)fluoranthene	0.78	<0.02	0.13	0.05	0.05	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	<0.02
Benzo(b+k)fluoranthene	NV	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	7.8	<0.02	0.05	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02
Benzo(k)fluoranthene	0.78	<0.02	0.06	0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,1'-Biphenyl	1.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chrysene	7.8	<0.02	0.08	0.05	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Dibenz(a,h)anthracene	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.69	<0.02	0.14	0.05	0.05	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02
Fluorene	69	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Indeno(1,2,3-cd)pyrene	0.48	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1-Methylnaphthalene	3.4	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	3.4	<0.02	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1&2-Methylnaphthalene	3.4	<0.04	<0.04	0.08	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.75	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	7.8	<0.02	0.07	0.03	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Pyrene	78	<0.02	0.12	0.06	0.07	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.3b - Polycyclic Aromatic Hydrocarbons (PAHs) in Soil (Post Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	S3	SS22-1	SS22-2	SS22-3	
Sample ID		S3	BH22-1-G2	BH22-2-G1	BH22-3-G2	BH22-4-G1 (DUP)*
Lab ID		2126255-01	2228358-04	2228358-05	2228358-06	2228358-07
Sampling Date		22-Jun-21	20-May-22	20-May-22	20-May-22	20-May-22
Soil Sample Depth (m)		0.0 - 0.5	0.5 - 1.25	0.5 - 0.9	0.7 - 0.9	0.7 - 0.9
Consultant		EXP	exp	exp	exp	exp
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		23-Jun-21	19-Jul-22	19-Jul-22	19-Jul-22	19-Jul-22
Certificate of Analysis Number		2126255	2228358	2228358	2228358	2228358
Acenaphthene	58	<0.02	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.17	<0.02	<0.02	0.03	0.03	<0.02
Anthracene	0.74	0.02	<0.02	0.03	0.03	<0.02
Benzo(a)anthracene	0.63	0.04	<0.02	0.04	0.05	0.03
Benzo(a)pyrene	0.3	0.04	<0.02	0.05	0.07	0.04
Benzo(b)fluoranthene	0.78	0.05	<0.02	0.05	0.05	0.04
Benzo(b+k)fluoranthene	NV	-	-			
Benzo(ghi)perylene	7.8	0.04	<0.02	0.03	0.04	0.03
Benzo(k)fluoranthene	0.78	0.03	<0.02	0.03	0.02	0.02
1,1'-Biphenyl	1.1	-	-	-	-	-
Chrysene	7.8	0.04	<0.02	0.06	0.08	0.04
Dibenz(a,h)anthracene	0.1	<0.02	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.69	0.09	<0.02	0.1	0.12	0.06
Fluorene	69	<0.02	<0.02	<0.02	<0.02	<0.02
Indeno(1,2,3-cd)pyrene	0.48	0.03	<0.02	0.03	0.04	0.02
1-Methylnaphthalene	3.4	<0.02	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	3.4	<0.02	<0.02	<0.02	<0.02	<0.02
1&2-Methylnaphthalene	3.4	<0.04	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.75	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	7.8	0.08	<0.02	0.03	0.04	0.03
Pyrene	78	0.08	<0.02	0.08	0.1	0.05

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:

Table E.3c - Polycyclic Aromatic Hydrocarbons (PAHs) in On-Site Soil Berm (Post Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	TP-21-14	TP-21-17	TP-21-19	TP-21-22	TP-21-23		TP-21-26	TP-21-27	TP-21-30	TP-21-33	TP-21-35	
Sample ID		TP14 S1	TP17 S1	TP19 S1	TP22 S3	TP23 S3	TP51 S2 (DUP)*	TP26 S2	TP27 S1	TP30 S3	TP33 S2	TP35 S2	RE-TP35 S2
Lab ID		1941050-08	1941050-09	1941050-10	1941050-11	1941050-12	1941050-24	1941050-13	1941050-14	1941050-15	1941050-16	1941050-17	1951584-02
Sampling Date		2-Oct-19	2-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	20-Dec-19
Soil Sample Depth (m)		0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	1.0 - 2.0	0.0 - 1.0	0.0 - 1.0	1.0 - 2.0	1.0 - 2.0	1.0 - 2.0
Consultant		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	31-Dec-19
Certificate of Analysis Number		1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1951584
Acenaphthene	58	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02
Acenaphthylene	0.17	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	0.05	0.04	0.07	<0.02	<0.04	<0.02
Anthracene	0.74	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.05	0.06	<0.02	0.06	<0.02
Benzo(a)anthracene	0.63	0.04	0.04	0.04	0.06	0.03	0.03	0.22	0.23	0.21	0.06	0.41	0.04
Benzo(a)pyrene	0.3	0.05	0.06	0.05	0.07	0.03	0.04	0.19	0.23	0.21	0.06	~~0.42~~	0.04
Benzo(b)fluoranthene	0.78	0.1	0.09	0.09	0.1	0.05	0.07	0.45	0.33	0.38	0.1	~~0.81~~	0.09
Benzo(b+k)fluoranthene	NV	0.04	0.04	0.04	0.05	0.02	<0.02	0.24	0.16	0.19	0.04	0.42	-
Benzo(ghi)perylene	7.8	0.05	0.07	0.04	0.06	0.04	0.04	0.17	0.22	0.18	0.07	0.41	0.06
Benzo(k)fluoranthene	0.78	0.04	0.04	0.04	0.05	0.02	<0.02	0.24	0.16	0.19	0.04	0.42	0.03
1,1'-Biphenyl	1.1	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	7.8	0.07	0.07	0.06	0.07	0.04	0.04	0.25	0.35	0.27	0.06	0.65	0.05
Dibenz(a,h)anthracene	0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.05	0.04	<0.02	0.09	<0.02
Fluoranthene	0.69	0.09	0.1	0.1	0.11	0.07	0.06	0.41	0.49	0.42	0.11	~~1.03~~	0.09
Fluorene	69	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02
Indeno(1,2,3-cd)pyrene	0.48	0.04	0.06	0.03	0.05	0.03	0.03	0.14	0.19	0.16	0.05	0.36	0.04
1-Methylnaphthalene	3.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02
2-Methylnaphthalene	3.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.02
1&2-Methylnaphthalene	3.4	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.08	<0.04
Naphthalene	0.75	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.02	<0.01
Phenanthrene	7.8	0.04	0.05	0.08	0.05	0.03	0.03	0.14	0.22	0.17	0.05	0.51	0.04
Pyrene	78	0.08	0.09	0.08	0.1	0.06	0.05	0.33	0.41	0.39	0.09	0.84	0.08

[1] Combined Arithmetic Average of Soil Samples Following Re-Sampling

All soil concentrations reported in µg/g.

'<' = Parameter below detection limit, as indicated

'NV'= No value

* Field duplicate

Bold Concentration exceeds MECP (2011) SCS.

~~**Bold**~~ Concentration no longer considered due to re-sampling event, with concentration below SCS.

Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:

Table E.3c - Polycyclic Aromatic Hydrocarbons (PAHs) in On-Site Soil Berm (Post Excavation)

Investigative Location		TP-21-35	TP-21-36	TP-21-37	TP-21-40		TP-21-41	TP-21-42
Sample ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	Re-Sample Average[1]	TP36 S3	TP37 S1	TP40 S1	TP54 S1 (DUP)*	TP41 S2	TP42 S3
Lab ID			1941050-18	1941050-19	1941050-20	1941050-25	1941050-21	1941050-22
Sampling Date			3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19
Soil Sample Depth (m)			2.0 - 3.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	1.0 - 2.0	2.0 - 3.0
Consultant			exp	exp	exp	exp	exp	exp
Laboratory			Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis			15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19
Certificate of Analysis Number			1941050	1941050	1941050	1941050	1941050	1941050
Acenaphthene	58	0.03	<0.02	<0.02	<0.02	0.02	<0.02	<0.02
Acenaphthylene	0.17	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Anthracene	0.74	0.04	<0.02	<0.02	<0.02	0.04	0.02	<0.02
Benzo(a)anthracene	0.63	0.225	0.06	<0.02	0.08	0.15	0.15	<0.02
Benzo(a)pyrene	0.3	0.23	0.07	<0.02	0.1	0.13	0.15	0.02
Benzo(b)fluoranthene	0.78	0.45	0.14	<0.02	0.16	0.23	0.35	0.03
Benzo(b+k)fluoranthene	NV	0.42	0.07	<0.02	0.07	0.17	0.15	<0.02
Benzo(ghi)perylene	7.8	0.235	0.07	<0.02	0.1	0.13	0.18	0.02
Benzo(k)fluoranthene	0.78	0.225	0.07	<0.02	0.07	0.17	0.15	<0.02
1,1'-Biphenyl	1.1	-	-	-	-	-	-	-
Chrysene	7.8	0.35	0.08	<0.02	0.14	0.23	0.22	0.03
Dibenz(a,h)anthracene	0.1	0.055	<0.02	<0.02	<0.02	0.02	0.04	<0.02
Fluoranthene	0.69	0.56	0.12	<0.02	0.24	0.37	0.42	0.04
Fluorene	69	0.03	<0.02	<0.02	<0.02	0.02	<0.02	<0.02
Indeno(1,2,3-cd)pyrene	0.48	0.2	0.06	<0.02	0.08	0.1	0.15	<0.02
1-Methylnaphthalene	3.4	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	3.4	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1&2-Methylnaphthalene	3.4	0.06	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.75	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	7.8	0.275	0.06	<0.02	0.08	0.23	0.16	<0.02
Pyrene	78	0.46	0.11	<0.02	0.19	0.3	0.34	0.03

[1] Combined Arithmetic Average of Soil Samples Following Re-Sampling

All soil concentrations reported in µg/g.

'<' = Parameter below detection limit, as indicated

'NV'= No value

* Field duplicate

Bold Concentration exceeds MECP (2011) SCS.

~~**Bold**~~ Concentration no longer considered due to re-samp

Reported detection limit exceeds MECP (2011) SC

SOIL ANALYTICAL RESULTS:
Table E.4 - Polychlorinated Biphenyls (PCBs) in Soil (Pre Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	MW08-1	MW08-2	MW08-3	MW08-4	MW08-7	MW08-8	TP08-2	TP08-3	TP08-4	TP08-5		TP08-8	TP08-93	TP08-12	
Sample ID		MW08-1 SS3	MW08-2 SS1	MW08-3 SS3	MW08-4 SS3	MW08-7 SS2	MW08-8 SS2	TP08-23	TP08-33	TP08-41	TP08-51	TP08-15*	TP08-83	TP08-93	TP08-122	TP08-123
Lab ID		B08-03004-2	B08-03004-4	B08-03004-7	B08-03004-9	B08-03004-13	B08-03004-16	B08-03242-1	B08-03242-2	B08-03242-3	B08-03242-4	B08-03242-5	B08-03242-6	B08-03242-7	B08-03242-12	B08-03242-13
Sampling Date		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	29-Jan-08	29-Jan-08	30-Jan-08	30-Jan-08	29-Jan-08	30-Jan-08		30-Jan-08	30-Jan-08	30-Jan-08	29-Jan-08
Soil Sample Depth (m)		2.44 - 3.66	0.2 - 1.22	2.44 - 3.66	2.44 - 3.66	1.22 - 2.44	1.22 - 2.44	1.1	0.17 - 1.07	0 - 0.30	1.1		1.1	1.1	0.6	1.1
Consultant		JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL		JWEL	JWEL	JWEL	JWEL
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon		Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		11-Feb-08	11-Feb-08	11-Feb-08	11-Feb-08	11-Feb-08	11-Feb-08	11-Feb-08	11-Feb-08	11-Feb-08	13-Feb-08		13-Feb-08	13-Feb-08	13-Feb-08	13-Feb-08
Certificate of Analysis Number		B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03004	B08-03242	B08-03242	B08-03242	B08-03242		B08-03242	B08-03242	B08-03242	B08-03242
Total Polychlorinated Biphenyls	0.35	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.5a - Metals & Inorganics in Soil (Pre-Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	MW08-1	MW08-2		MW08-3		MW08-4	MW08-5	MW08-7				MW08-8		
Sample ID		MW08-1 SS2	MW08-2 SS1	MW08-2 SS2	MW08-3 SS1	MW08-3 SS3	MW08-4 SS1	MW08-5 SS4	MW08-7 SS1	MW08-7 SS2		MW08-7 SS3	MW08-8 SS1	MW08-8 SS2	MW08-8 SS3
Lab ID		B08-03004-1	B08-03004-4	B08-05413-5	B08-03004-6	B08-05413-10	B08-03004-8	B08-03004-10	B08-03004-12	B08-03004-13	B08-05413-6	B08-05413-7	B08-03004-15	B08-05413-8	B08-05413-9
Sampling Date		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	29-Jan-08	29-Jan-08		29-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08
Soil Sample Depth (m)		1.22 - 2.44	0.2 - 1.22	1.22 - 2.44	0.2 - 1.22	2.44 - 3.66	0.2 - 1.22	3.66 - 4.88	0.2 - 1.22	1.22 - 2.44		2.44 -3.66	0.2 - 1.22	1.22 - 2.44	3.66 - 4.88
Consultant		JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL		JWEL	JWEL	JWEL	JWEL
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon		Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		31-Jan-08 to 6-Feb-08	31-Jan-08 to 6-Feb-08	26-Feb-08	31-Jan-08 to 6-Feb-08	26-Feb-08	31-Jan-08 to 6-Feb-08	31-Jan-08	31-Jan-08 to 6-Feb-08	31-Jan-08	26-Feb-08	26-Feb-08	31-Jan-08 to 6-Feb-08	26-Feb-08	26-Feb-08
Certificate of Analysis Number		B08-03004	B08-03004	B08-05413	B08-03004	B08-05413	B08-03004	B08-03004	B08-03004	B08-03004	B08-05413	B08-05413	B08-03004	B08-05413	B08-05413
Antimony	7.5	0.1	0.3	-	0.2	-	0.1	-	0.1	-	-	-	<0.1	-	-
Arsenic	18	<1	1	-	<1	-	<1	-	1	-	-	-	<1	-	-
Barium	390	364	54	-	98	-	239	-	134	-	-	-	372	-	-
Beryllium	5	0.7	0.2	-	0.3	-	0.5	-	0.4	-	-	-	0.8	-	-
Boron (Total)	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (Hot water soluble)	1.5	0.3	**2.6**	0.3	0.6	0.2	0.4	-	0.6	-	0.5	0.3	0.1	0.1	0.2
Cadmium	1.2	<0.5	0.5	-	<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	-
Chromium (total)	160	60	9	-	29	-	58	-	32	-	-	-	101	-	-
Chromium VI	10	<0.5	<0.5	-	<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	-	-
Cobalt	22	19	4	-	7	-	13	-	10	-	-	-	**24**	-	-
Copper	180	40	16	-	14	-	22	-	15	-	-	-	27	-	-
Lead	120	10	**198**	-	13	-	8	14	14	-	-	-	12	-	-
Mercury	1.8	0.007	0.027	-	0.06	-	0.03	-	0.023	-	-	-	0.023	-	-
Molybdenum	6.9	2	1	-	<1	-	<1	-	<1	-	-	-	<1	-	-
Nickel	130	34	7	-	14	-	30	-	17	-	-	-	49	-	-
Selenium	2.4	0.3	0.2	-	0.3	-	0.3	-	<0.1	-	-	-	0.4	-	-
Silver	25	<0.2	<0.2	-	<0.2	-	<0.2	-	<0.2	-	-	-	<0.2	-	-
Thallium	1	0.3	<0.2	-	<0.2	-	<0.2	-	<0.2	-	-	-	0.3	-	-
Uranium	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	86	81	16	-	33	-	54	-	47	-	-	-	**99**	-	-
Zinc	340	112	86	-	63	-	79	-	65	-	-	-	134	-	-
Free Cyanide	0.051	<0.005	<0.005	-	<0.005	-	<0.005	-	<0.005	-	-	-	<0.005	-	-
pH (pH units)	5-9 (surface soil); 5-11 (subsurface soil)	7.45	7.15	-	8.26	-	7.92	-	8	8.02	-	-	7.05	-	-
Sulphate	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Bold Concentration exceeds MECP (2011) SCS.
Parameter detected, but SCS available
Reported detection limit exceeds MECP (2011) SCS.
pH level outside of the acceptable MECP range

SOIL ANALYTICAL RESULTS:
Table E.5a - Metals & Inorganics in Soil (Pre-Excavation)

Investigative Location		MW08-8				TP08-1	TP08-3	TP08-4		TP08-5	TP08-6	TP08-7	TP08-8	TP08-12	TP08-13	
Sample ID		MW08-8-A2	MW08-8-B1	MW08-8-C2	MW08-8-D1	TP08-11	TP08-32	TP08-41	TP08-42	TP08-51	TP08-61	TP08-72	TP08-82	TP08-121	TP08-132	TP08-231*
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	1216186-05	1216186-06	1216186-07	1216186-08	B08-03424-14	B08-03424-15	B08-03424-3	B08-05413-3	B08-05413-1	B08-05413-2	B08-03424-16	B08-03424-17	B08-03424-11	B08-03424-22	B08-03424-23
Sampling Date		17-Apr-12	17-Apr-12	17-Apr-12	17-Apr-12	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	
Soil Sample Depth (m)		1.0	0.5	1.0	0.2	0.2	0.5	0.2	0.5	1.1	1.2	0.5	0.6	0.3	0.9	
Consultant		exp	exp	exp	exp	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	
Laboratory		Paracel	Paracel	Paracel	Paracel	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	
Date of Analysis		1-May-12	1-May-12	1-May-12	1-May-12	4/6-Feb-08	4/6-Feb-08	4/6-Feb-08	26-Feb-08	26-Feb-08	26-Feb-08	4/6-Feb-08	4/6-Feb-08	4/6-Feb-08	4/6-Feb-08	
Certificate of Analysis Number		1216186	1216186	1216186	1216186	B08-03424	B08-03424	B08-03424	B08-05413	B08-05413	B08-05413	B08-03424	B08-03424	B08-03424	B08-03424	
Antimony	7.5	-	-	-	-	<0.1	<0.1	0.1	-	-	-	<0.1	0.2	<0.1	0.2	<0.1
Arsenic	18	-	-	-	-	1	2	4	-	-	-	2	5	-	<1	1
Barium	390	-	-	-	-	58	129	53	-	-	-	166	178	17	43	52
Beryllium	5	-	-	-	-	<0.2	0.3	0.3	-	-	-	0.4	0.5	<0.2	<0.2	0.2
Boron (Total)	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (Hot water soluble)	1.5	-	-	-	-	0.4	0.5	1.2	0.9	0.2	0.2	0.7	0.2	0.3	0.3	0.4
Cadmium	1.2	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium (total)	160	-	-	-	-	16	35	18	-	-	-	49	19	5	20	22
Chromium VI	10	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt	22	14	6	20	9	4	9	7	-	-	-	12	17	4	5	5
Copper	180	-	-	-	-	12	22	18	-	-	-	24	34	9	11	12
Lead	120	-	-	-	-	22	26	24	-	-	-	25	16	13	5	6
Mercury	1.8	-	-	-	-	0.028	0.063	0.038	-	-	-	0.022	0.032	0.012	0.011	0.018
Molybdenum	6.9	-	-	-	-	<1	<1	1	-	-	-	1	2	3	<1	<1
Nickel	130	-	-	-	-	10	17	13	-	-	-	26	32	7	11	12
Selenium	2.4	-	-	-	-	<0.1	<0.1	<0.1	-	-	-	0.1	<0.1	<0.1	<0.1	<0.1
Silver	25	-	-	-	-	<0.2	<0.2	<0.2	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	1	-	-	-	-	<0.2	<0.2	<0.2	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	86	70	36	**93**	21	21	38	26	-	-	-	48	25	20	25	27
Zinc	340	-	-	-	-	53	93	67	-	-	-	69	60	22	24	29
Free Cyanide	0.051	-	-	-	-	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05
pH (pH units)	5-9 (surface soil); 5-11 (subsurface soil)	-	-	-	-	8.55	8.32	7.85	-	-	-	8.5	9.11	8.8	7.51	7.48
Sulphate	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Bold Concentration exceeds MECP (2011) SCS.
Parameter detected, but SCS available
Reported detection limit exceeds MECP (2011) SCS.
pH level outside of the acceptable MECP range

SOIL ANALYTICAL RESULTS:
Table E.5a - Metals & Inorganics in Soil (Pre-Excavation)

Investigative Location		TP08-15		TP08-16	TP19	TP20	TP23	TP27		BH08-12					BH08-13	
Sample ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	TP08-151	TP08-153	TP08-161	TP19B	TP20B	TP23B	TP27B	TP270B*	BH08-12 SS3	BH08-12 SS33*	BH08-12 SS4	BH08-12 SS5	BH08-12 SS6	BH08-13 SS2	BH08-13 SS3
Lab ID		B08-03424-20	B08-05413-4	B08-03424-21	B08-24568-53	B08-24568-56	B08-24568-65	B08-24568-77	B08-24568-86	B08-25506-3	B08-25506-7	B08-25506-4	B08-25506-5	B08-25506-6	B08-25506-1	B08-25506-2
Sampling Date		30-Jan-08	30-Jan-08	30-Jan-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08		5-Aug-08		5-Aug-08	5-Aug-08	5-Aug-08	5-Aug-08	5-Aug-08
Soil Sample Depth (m)		0.3	1.1	0.3	0.3	0.3	0.3	0.3		1.52 - 2.13		2.29 - 2.9	3.0 - 3.67	3.0 - 3.7	0.76 - 1.37	2.29 - 2.9
Consultant		JWEL	JWEL	JWEL	Trow	Trow	Trow	Trow		Trow	Trow	Trow	Trow	Trow	Trow	Trow
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		4/6-Feb-08	26-Feb-08	4/6-Feb-08	5-Aug-08	5-Aug-08	5-Aug-08	5-Aug-08		11-Aug-08	11-Aug-08	11-Aug-08	11-Aug-08	11-Aug-08	11-Aug-08	11-Aug-08
Certificate of Analysis Number		B08-03424	B08-05413	B08-03424	B08-24568	B08-24568	B08-24568	B08-24568		B08-25506	B08-25506	B08-25506	B08-25506	B08-25506	B08-25506	B08-25506
Antimony	7.5	0.8	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	18	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Barium	390	49	-	87	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	5	<0.2	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-
Boron (Total)	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (Hot water soluble)	1.5	0.7	0.4	0.3	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	1.2	<0.5	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (total)	160	20	-	22	-	-	-	-	-	-	-	-	-	-	-	-
Chromium VI	10	<0.5	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	22	4	-	7	-	-	-	-	-	-	-	-	-	-	-	-
Copper	180	24	-	16	-	-	-	-	-	-	-	-	-	-	-	-
Lead	120	20	-	25	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	1.8	0.022	-	0.029	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	6.9	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	130	7	-	14	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	2.4	<0.1	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
Silver	25	<0.2	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	1	<0.2	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	86	14	-	30	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	340	74	-	51	-	-	-	-	-	-	-	-	-	-	-	-
Free Cyanide	0.051	<0.05	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)	5-9 (surface soil); 5-11 (subsurface soil)	8.02	-	8.55	7.15	7.32	8.8	8.35	8.24	-	-	-	-	-	-	-
Sulphate	NV	-	-	-	-	-	-	-	-	350	250	150	240	170	250	230

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Bold Concentration exceeds MECP (2011) SCS.
Parameter detected, but SCS available
Reported detection limit exceeds MECP (2011) SCS.
pH level outside of the acceptable MECP range

SOIL ANALYTICAL RESULTS:
Table E.5a - Metals & Inorganics in Soil (Pre-Excavation)

Investigative Location		MW08-14			MW08-15		MW08-16			MW08-17					MW08-18	MW08-19
Sample ID		MW08-14 SS1	MW08-14 SS2	MW08-14 SS5	MW08-15 SS1	MW08-15 SS5	MW08-16 SS1	MW08-16 SS2	MW08-16 SS5	MW08-17 SS1	MW08-17 SS2	MW08-17 SS3	MW08-17 SS6	MW08-17 SS16*	MW-18 SS5	MW-19 SS5
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	B08-27461-5	B08-27461-6	B08-25502-3	B08-27461-4	B08-25502-2	B08-27461-7	B08-27461-8	B08-25502-1	B08-27461-1	B08-27461-2	B08-27461-3	B08-25502-4	B08-25502-5	B08-37354-1	B08-37354-2
Sampling Date		6-Aug-08	6-Aug-08	6-Aug-08	6-Aug-08	6-Aug-08	6-Aug-08	6-Aug-08	6-Aug-08	6-Aug-08	6-Aug-08	6-Aug-08	6-Aug-08		10-Nov-08	10-Nov-08
Soil Sample Depth (m)		0-0.76	0.76 - 1.37	3.0 - 3.7	0-0.76	3.0 - 3.7	0-0.76	0.76 - 1.37	3.0 - 3.7	0-0.76	0.76 - 1.37	1.52 - 2.13	2.44 - 3.0		4.9 - 5.5	4.9 - 5.5
Consultant		Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		25-Aug-08	25-Aug-08	14-Aug-08	25-Aug-08	14-Aug-08	25-Aug-08	25-Aug-08	14-Aug-08	25-Aug-08	25-Aug-08	25-Aug-08	14-Aug-08	14-Aug-08	14-Nov-08	14-Nov-08
Certificate of Analysis Number		B08-27461	B08-27461	B08-25502(i)	B08-27461	B08-25502(i)	B08-27461	B08-27461	B08-25502(i)	B08-27461	B08-27461	B08-27461	B08-25502(i)	B08-25502(i)	B08-37354	B08-37354
Antimony	7.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	390	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (Total)	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (Hot water soluble)	1.5	0.7	0.6	0.2	0.4	0.8	0.4	0.4	0.4	0.5	0.4	0.3	0.2	0.2	-	-
Cadmium	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (total)	160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium VI	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	6.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	2.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free Cyanide	0.051	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)	5-9 (surface soil); 5-11 (subsurface soil)	-	-	-	-	-	-	-	-	-	-	-	-	-	9.38	9.41
Sulphate	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Bold Concentration exceeds MECP (2011) SCS.
Parameter detected, but SCS available
Reported detection limit exceeds MECP (2011) SCS.
pH level outside of the acceptable MECP range

SOIL ANALYTICAL RESULTS:
Table E.5a - Metals & Inorganics in Soil (Pre-Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	TP20A		TP20B			TP20C		TP20D		TP20E	TP20F
Sample ID		TP20A	TP20A S3	TP20B	TP20B S3	TP220B S3*	TP20C	TP20C S3	TP20D	TP20D S3	TP20E S3	TP20F S3
Lab ID		B08-35405-1	B08-34579-1	B08-35405-2	B08-34579-2	B08-34579-13	B08-35405-3	B08-34579-3	B08-35405-4	B08-34579-4	B08-34579-5	B08-34579-6
Sampling Date		16-Oct-08	16-Oct-08	16-Oct-08	16-Oct-08		16-Oct-08	16-Oct-08	16-Oct-08	16-Oct-08	16-Oct-08	16-Oct-08
Soil Sample Depth (m)		0.3 - 0.4	1.0 - 1.1	0.3 - 0.4	1.0 - 1.1		0.3 - 0.4	1.0 - 1.1	0.3 - 0.4	1.0 - 1.1	1.0 - 1.1	1.0 - 1.1
Consultant		Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		29-Oct-08	16-Oct-08	29-Oct-08	16-Oct-08	16-Oct-08	29-Oct-08	16-Oct-08	29-Oct-08	16-Oct-08	16-Oct-08	16-Oct-08
Certificate of Analysis Number		B08-35405	B08-34579	B08-35405	B08-34579	B08-34579	B08-35405	B08-34579	B08-35405	B08-34579	B08-34579	B08-34579
Antimony	7.5	-	-	-	-	-	-	-	-	-	-	-
Arsenic	18	-	-	-	-	-	-	-	-	-	-	-
Barium	390	-	-	-	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-	-	-	-
Boron (Total)	120	-	-	-	-	-	-	-	-	-	-	-
Boron (Hot water soluble)	1.5	-	-	-	-	-	-	-	-	-	-	-
Cadmium	1.2	-	-	-	-	-	-	-	-	-	-	-
Chromium (total)	160	-	-	-	-	-	-	-	-	-	-	-
Chromium VI	10	-	-	-	-	-	-	-	-	-	-	-
Cobalt	22	-	-	-	-	-	-	-	-	-	-	-
Copper	180	-	-	-	-	-	-	-	-	-	-	-
Lead	120	-	-	-	-	-	-	-	-	-	-	-
Mercury	1.8	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	6.9	-	-	-	-	-	-	-	-	-	-	-
Nickel	130	-	-	-	-	-	-	-	-	-	-	-
Selenium	2.4	-	-	-	-	-	-	-	-	-	-	-
Silver	25	-	-	-	-	-	-	-	-	-	-	-
Thallium	1	-	-	-	-	-	-	-	-	-	-	-
Uranium	23	-	-	-	-	-	-	-	-	-	-	-
Vanadium	86	-	-	-	-	-	-	-	-	-	-	-
Zinc	340	-	-	-	-	-	-	-	-	-	-	-
Free Cyanide	0.051	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)	5-9 (surface soil); 5-11 (subsurface soil)	8.17	6.55	8.98	7.38	8.35	8.88	6.91	8.7	7.04	6.94	7.35
Sulphate	NV	-	-	-	-	-	-	-	-	-	-	-

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
Bold Concentration exceeds MECP (2011) SCS.
Parameter detected, but SCS available
Reported detection limit exceeds MECP (2011) SCS.
pH level outside of the acceptable MECP range

SOIL ANALYTICAL RESULTS:
Table E.5b - Metals & Inorganics in Soil (Post Excavation)

Investigative Location		Pit 1						Pit 3					Pit 5					BH15-10	S3
Sample ID		F17	WW1-2	NW5a-3	N9-3	N9-30*	FN-10	WW1-1	EW1-1	NW2-1	F3	Fla	WW1	EW1	SW1	F1	F2	BH15-10 SS7	S3
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	1220185-05	1221236-07	1222281-02	1406217-01	1406217-02	1406217-03	1221068-01	1221068-02	1221068-03	1221068-05	1222199-05	1222281-06	1222281-07	1222281-08	1222281-09	1222281-10	1532168-04	2126255-01
Sampling Date		16-May-12	25-May-12	31-May-12	6-Feb-14		6-Feb-14	23-May-12	23-May-12	23-May-12	23-May-12	30-May-12	31-May-12	31-May-12	31-May-12	31-May-12	31-May-12	4-Aug-15	22-Jun-21
Soil Sample Depth (m)		3.2	2.0	3.0	3.1		3.2	0.7	1.0	1.0	1.4	1.5	0-1.2	0-1.2	0-1.2	1.2	1.2	4.5 - 6.1	0.0 - 0.5
Consultant		exp	exp	exp	exp		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	EXP
Laboratory		Paracel	Paracel	Paracel	Paracel		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		27-Jun-12	27-Jun-12	27/29-Jun-12	6-Feb-14		6-Feb-14	24-May-12	24-May-12	24-May-12	24-May-12	31-May-12	1-Jun-12	1-Jun-12	1-Jun-12	1-Jun-12	1-Jun-12	18-Aug-15	23-Jun-21
Certificate of Analysis Number		1220185	1221236	1222281	1406217		1406217	1221068	1221068	1221068	1221068	1222199	1222281	1222281	1222281	1222281	1222281	1532168	2126255
Antimony	7.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0
Arsenic	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.1
Barium	390	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65.1
Beryllium	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
Boron (Total)	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.6
Boron (Hot water soluble)	1.5	0.6	<0.5	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
Cadmium	1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
Chromium (total)	160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.7
Chromium VI	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
Cobalt	22	-	-	-	-	-	-	18	8	10	22	14	-	-	-	-	-	-	5.5
Copper	180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.7
Lead	120	11	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.5
Mercury	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1
Molybdenum	6.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8
Nickel	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.7
Selenium	2.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0
Silver	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.3
Thallium	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0
Uranium	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0
Vanadium	86	-	-	-	-	-	-	82	44	50	80	67	-	-	-	-	-	-	18.5
Zinc	340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44.4
pH (pH units)	5-9 (surface soil); 5-11 (subsurface soil)	-	-	-	7.55	7.51	7.79	-	-	-	-	-	7.52	7.18	7.38	7.64	7.54	7.91	7.59

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Indicates end of excavation stage
Bold Concentration exceeds MECP (2011) SCS.
Parameter detected, but SCS available
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.5c - Metals & Inorganics in Soil in On-Site Soil Berm
(Post Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	TP-21-14	TP-21-17	TP-21-19	TP-21-22	TP-21-23		TP-21-26	TP-21-27	TP-21-30	TP-21-30
Sample ID		TP14 S1	TP17 S1	TP19 S1	TP22 S3	TP23 S3	TP51 S2 (DUP)*	TP26 S2	TP27 S1	TP30 S3	RE-TP30 S3
Lab ID		1941050-08	1941050-09	1941050-10	1941050-11	1941050-12	1941050-24	1941050-13	1941050-14	1941050-15	1951584-03
Sampling Date		2-Oct-19	2-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	20-Dec-19
Soil Sample Depth (m)		0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	2.0 - 3.0	2.3 - 3.3	2.3 - 3.3	1.0 - 2.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0
Consultant		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	31-Dec-19
Certificate of Analysis Number		1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050	1951584
Antimony	7.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.1	<1.0
Arsenic	18	2.8	2.6	3.5	2.5	2.6	2.1	3.8	3.8	4.6	<1.0
Barium	390	64.1	49.4	67.6	45	47.6	42.2	77.3	62.6	42.2	<1.0
Beryllium	5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (Total)	120	5.8	<5.0	6	<5.0	<5.0	<5.0	6.8	6.3	5.3	<5.0
Boron (Hot water soluble)	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	~~2.6~~	<0.5
Chromium (total)	160	17.7	14.7	17.9	15.2	14.6	16	20.3	25.2	15.9	<5.0
Chromium VI	10	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cobalt	22	4.7	3.9	4.9	4.6	3.6	4.3	5.8	5.4	6	<1.0
Copper	180	13.7	11.1	11.4	11.9	11.6	10.7	16.4	22.5	13.4	<5.0
Lead	120	16.7	10.9	15.5	12.9	11.9	6.7	22.1	20.4	14.6	<1.0
Mercury	1.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	6.9	<1.0	<1.0	1.4	<1.0	<1.0	<1.0	1.3	1.6	3.1	<1.0
Nickel	130	11.2	9.1	12.1	9.4	8.3	8.9	13.5	12.7	10.2	<5.0
Selenium	2.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver	25	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	2.7	<0.3
Thallium	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	~~2.8~~	<1.0
Uranium	23	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.1	<1.0
Vanadium	86	24.1	21.7	23.2	20.7	20.2	21.2	26.8	23.1	20.6	<10.0
Zinc	340	70.8	40	40.2	34.7	36	24.7	63.2	71.3	39	<20.0

1 Combined arithmetic average of soil samples following resampling, using an assumed concentration of 50% of the laboratory RDL for non-detect samples.
All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.
~~**Bold**~~ Concentration no longer considered due to re-sampling event, with concentration below SCS.
Bold Concentration within the background range for soils in Ottawa, not considered as an exceedance (Sterling et al., 2017). Refer to the Phase two CSM for additional information (Appendix L).
~~**Bold**~~
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.5c - Metals & Inorganics in Soil in On-Site Soil Berm
(Post Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	SS22-4	SS22-4	SS24-5	TP-21-30	TP-21-33	TP-21-35	TP-21-36	TP-21-37	TP-21-40		TP-21-41	TP-21-42
Sample ID		TP30-A-G1	TP30-C-G1 (DUP)*	TP30-B-G1	Re-Sample Average[1]	TP33 S2	TP35 S2	TP36 S3	TP37 S1	TP40 S1	TP54 S1 (DUP)*	TP41 S2	TP42 S3
Lab ID		2228358-01	2228358-02	2228358-02		1941050-16	1941050-17	1941050-18	1941050-19	1941050-20	1941050-25	1941050-21	1941050-22
Sampling Date		20-May-22	20-May-22	20-May-22		3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19	3-Oct-19
Soil Sample Depth (m)		0.7 - 0.8	0.7 - 0.8	0.5 - 0.8		1.0 - 2.0	1.0 - 2.0	2.0 - 3.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	1.0 - 2.0	2.0 - 3.0
Consultant		exp	exp	exp		exp	exp	exp	exp	exp	exp	exp	exp
Laboratory		Paracel	Paracel	Paracel		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		19-Jul-22	19-Jul-22	19-Jul-22		15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19	15-Oct-19
Certificate of Analysis Number		2228358	2228358	2228358		1941050	1941050	1941050	1941050	1941050	1941050	1941050	1941050
Antimony	7.5	<1.0	<1.0	<1.0	1.02	<1.0	1.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic	18	2.5	2.5	2.8	2.58	3.8	3.1	3.5	4.5	2.5	3.1	2.4	2.7
Barium	390	290	332	271	187.14	76	47.2	60.9	56.1	54.8	52.8	53.7	53.3
Beryllium	5	0.9	1	0.9	0.71	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (Total)	120	<5.0	<5.0	<5.0	3.06	8.4	7.4	6.6	7.2	5.3	6.4	<5.0	<5.0
Boron (Hot water soluble)	1.5	-	-	-	0.375	<0.5	1.1	0.7	<0.5	<0.5	<0.5	0.6	<0.5
Cadmium	1.2	<0.5	<0.5	<0.5	0.72	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium (total)	160	102	94.9	87.5	60.56	16.9	47.5	18.5	13.6	20.6	23.3	18.7	16.6
Chromium VI	10	-	-	-	0.15	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2
Cobalt	22	16.4	18.4	18	11.86	5.5	5.9	5.2	4.8	5.1	4.8	5.1	4.1
Copper	180	29.6	31.6	28.7	21.16	14.5	29.8	12.7	8.1	17.4	17.3	17.3	13.2
Lead	120	6.6	6.7	10.3	7.74	19.8	27.8	16.1	10.3	12.1	19.7	9.6	13.4
Mercury	1.8	-	-	-	0.075	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	6.9	<1.0	<1.0	<1.0	1.02	1.7	2.8	1.5	1.9	<1.0	1.6	<1.0	<1.0
Nickel	130	44.6	47.5	46.4	30.24	12.5	13	11.8	9.5	10.4	10.5	10.4	8.6
Selenium	2.4	<1.0	<1.0	<1.0	0.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver	25	<0.3	<0.3	<0.3	0.66	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Thallium	1	<1.0	<1.0	<1.0	0.96	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Uranium	23	1.5	1.1	<1.0	1.34	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium	86	~~86.4~~	~~87~~	81.2	55.98	21.4	18.9	21.3	16	23.7	22.1	21.4	22
Zinc	340	117	121	98.7	77.14	59.2	112	47.8	40.8	45	65.7	39.5	40.8

1 Combined arithmetic average of soil samples following resampling, using an assumed concentration of 50% of the laboratory RDL for non-detect samples.
All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.
~~**Bold**~~ Concentration no longer considered due to re-sampling event, with concentration below SCS.
Concentration within the background range for soils in Ottawa, not considered as an exceedance (Sterling et al., 2017). Refer to the Phase two CSM for additional information (Appendix L).
~~**Bold**~~
Reported detection limit exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.6a - Salt Related Parameters in Soil (Pre and Post Excavation)

Investigative Location		MW08-1	MW08-2		MW08-3		MW08-4	MW08-7			MW08-8			TP08-1	TP08-3	TP08-4		TP08-5	TP08-6	TP08-7	TP08-8
Sample ID		MW08-1 SS2	MW08-2 SS1	MW08-2 SS2	MW08-3 SS1	MW08-3 SS3	MW08-4 SS1	MW08-7 SS1	MW08-7 SS2	MW08-7 SS3	MW08-8 SS1	MW08-8 SS2	MW08-8 SS3	TP08-11	TP08-32	TP08-41	TP08-42	TP08-51	TP08-61	TP08-72	TP08-82
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	B08-03004-1	B08-03004-4	B08-05413-5	B08-03004-6	B08-05413-10	B08-03004-8	B08-03004-12	B08-05413-6	B08-05413-7	B08-03004-15	B08-05413-8	B08-05413-9	B08-03424-14	B08-03424-15	B08-03424-3	B08-05413-3	B08-05413-1	B08-05413-2	B08-03424-16	B08-03424-17
Sampling Date		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Soil Sample Depth (m)		1.22 - 2.44	0 - 1.22	1.22 - 2.44	0 - 1.22	2.44 - 3.66	0 - 1.22	0 - 1.22	1.22 - 2.44	2.44 -3.66	0 - 1.22	1.22 - 2.44	3.66 - 4.88	0 - 0.46	0.3 - 0.76	0 - 0.3	0.46 - 0.61	0.91 - 1.37	0.91 - 1.83	0.3 - 0.61	0.3 - 1.07
Consultant		JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		31-Jan-08	31-Jan-08	26-Feb-08	31-Jan-08	26-Feb-08	31-Jan-08	31-Jan-08	26-Feb-08	26-Feb-08	31-Jan-08	26-Feb-08	26-Feb-08	4/6-Feb-08	6-Feb-08	6-Feb-08	39504	39504	39504	6-Feb-08	6-Feb-08
Certificate of Analysis Number		B08-03004	B08-03004	B08-05413	B08-03004	B08-05413	B08-03004	B08-03004	B08-05413	B08-05413	B08-03004	B08-05413	B08-05413	B08-03424	B08-03424	B08-03424	B08-05413	B08-05413	B08-05413	B08-03424	B08-03424
Electrical Conductivity (mS/cm)	0.7	0.479	**8.06**	**1.92**	0.266	0.28	0.591	**4.27**	**1.98**	**6.69**	**5.18**	**4.61**	**4.55**	0.299	**1.24**	**5.63**	**12.7**	**1.03**	**1.5**	**1.84**	0.369
Sodium Adsorption Ratio (unitless)	5	**6.54**	**62**	**21**	**7**	1	**8**	**72**	**11**	**142**	**128**	**42**	**30**	**7**	**20**	**152**	**143**	**11**	**12**	**20**	3

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.6a - Salt Related Parameters in Soil (Pre and Post Excavation)

Investigative Location		TP08-12	TP08-13		TP08-15		TP08-16	TP1			TP2			TP3	TP4			TP5			
Sample ID		TP08-121	TP08-132	TP08-231*	TP08-151	TP08-153	TP08-161	TP1A	TP1B	TP1C	TP2A	TP2B	TP2C	TP3A	TP4A	TP4B	TP4C	TP5A	TP5B	TP50B*	TP5C
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	B08-03424-11	B08-03424-22	B08-03424-23	B08-03424-20	B08-05413-4	B08-03424-21	B08-24568-1	B08-24568-2	B08-24568-3	B08-24568-4	B08-24568-5	B08-24568-6	B08-24568-7	B08-24568-8	B08-24568-9	B08-24568-10	B08-24568-11	B08-24568-12	B08-24568-80	B08-24568-13
Sampling Date		30-Jan-08	30-Jan-08		30-Jan-08	30-Jan-08	30-Jan-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08		29-Jul-08
Soil Sample Depth (m)		0 - 0.46	0.78 - 0.91		0 - 0.46	0.91 - 1.37	0.15 - 0.46	0.0 - 0.1	0.3	1.0	0.0 - 0.1	0.3	1.0	0.0 - 0.1	0.3	0.3	1.0	0.0 - 0.1	0.3		1.0
Consultant		JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		6-Feb-08	6-Feb-08	6-Feb-08	6-Feb-08	39504	6-Feb-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08
Certificate of Analysis Number		B08-03424	B08-03424	B08-03424	B08-03424	B08-05413	B08-03424	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568
Electrical Conductivity (mS/cm)	0.7	**1.41**	**3.02**	**3.49**	0.528	**3.29**	**1.48**	0.7	**1.12**	**3.27**	0.145	**1.1**	**3.33**	0.325	0.067	0.059	**1.29**	0.11	0.078	0.093	0.092
Sodium Adsorption Ratio (unitless)	5	**61**	**47**	**53**	**29**	**22**	**25**	**51**	**41**	**184**	**6.82**	**9**	**89**	**10.6**	1.63	1.33	2	1.86	1.75	1.6	2.54

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.6a - Salt Related Parameters in Soil (Pre and Post Excavation)

Investigative Location		TP8			TP9			TP10			TP11				TP12			TP13		
Sample ID		TP8A	TP8B	TP8C	TP9A	TP9B	TP9C	TP10A	TP10B	TP10C	TP11A	TP11B	TP11C	TP110C*	TP12A	TP12B	TP12C	TP13A	TP13B	TP13C
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	B08-24568-20	B08-24568-21	B08-24568-22	B08-24568-23	B08-24568-24	B08-24568-25	B08-24568-26	B08-24568-27	B08-24568-28	B08-24568-29	B08-24568-30	B08-24568-31	B08-24568-85	B08-24568-32	B08-24568-33	B08-24568-34	B08-24568-35	B08-24568-36	B08-24568-37
Sampling Date		29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08		29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08
Soil Sample Depth (m)		0.0 - 0.1	0.3	1.0	0.0 - 0.1	0.3	1.0	0.0 - 0.1	0.3	1.0	0.0 - 0.1	0.3	1.0		0.0 - 0.1	0.3	1.0	0.0 - 0.1	0.3	1.0
Consultant		Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08
Certificate of Analysis Number		B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568
Electrical Conductivity (mS/cm)	0.7	0.059	0.36	**2.46**	0.308	0.607	**1.11**	0.079	0.162	**1.42**	**0.918**	**1.52**	0.675	**0.986**	**1.3**	**1.37**	**2.34**	**1.68**	**3.36**	**7.59**
Sodium Adsorption Ratio (unitless)	5	**7.41**	**11.8**	**147**	**6.92**	**11.5**	**35**	3.02	**5.76**	**34**	**26.6**	**44**	**5.37**	**32.2**	**45**	**62**	**80**	**52**	**141**	**109**

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.6a - Salt Related Parameters in Soil (Pre and Post Excavation)

Investigative Location		TP14			TP15			TP16			TP17			TP18			TP19			
Sample ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	TP14A	TP14B	TP14C	TP15A	TP15B	TP15C	TP16A	TP16B	TP16C	TP17A	TP17B	TP17C	TP18A	TP18B	TP18C	TP19A	TP19B	TP19C	TP190C
Lab ID		B08-24568-38	B08-24568-39	B08-24568-40	B08-24568-41	B08-24568-42	B08-24568-104	B08-24568-43	B08-24568-44	B08-24568-45	B08-24568-46	B08-24568-47	B08-24568-48	B08-24568-49	B08-24568-50	B08-24568-51	B08-24568-52	B08-24568-53	B08-24568-54	B08-24568-83
Sampling Date		29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	
Soil Sample Depth (m)		0.0 - 0.1	0.3	1.0	0.0 - 0.1	0.3	1.0	0.0 - 0.1	0.3	1.0	0.0 - 0.1	0.3	1.0	0.0 - 0.1	0.3	1.0	0.0 - 0.1 m	0.3 m	1.0 m	
Consultant		Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08
Certificate of Analysis Number		B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568
Electrical Conductivity (mS/cm)	0.7	0.329	0.545	0.527	0.182	0.322	0.589	0.088	0.077	**0.749**	0.64	**0.745**	**3.25**	**3.32**	**2.25**	**5.16**	**1.57**	**2**	**3.25**	**1.5**
Sodium Adsorption Ratio (unitless)	5	**10.6**	**11.4**	**7.23**	4.23	**6.07**	3.97	0.827	1.41	**10**	**13.6**	**18.8**	**75.1**	**47.5**	**12.3**	**15.9**	**24.5**	**37.8**	**34.5**	**35**

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.6a - Salt Related Parameters in Soil (Pre and Post Excavation)

Investigative Location		TP20			TP23				TP26			TP27				SS1	SS2	SS3	SS4	SS5	SS7
Sample ID		TP20A	TP20B	TP20C	TP23A	TP23B	TP23C	TP230C	TP26A	TP26B	TP26C	TP27A	TP27B	TP270B	TP27C	SS1	SS2	SS3	SS4	SS5	SS7
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	B08-24568-55	B08-24568-56	B08-24568-57	B08-24568-64	B08-24568-65	B08-24568-66	B08-24568-87	B08-24568-73	B08-24568-74	B08-24568-75	B08-24568-76	B08-24568-77	B08-24568-86	B08-24568-78	B08-24568-89	B08-24568-90	B08-24568-91	B08-24568-92	B08-24568-93	B08-24568-95
Sampling Date		29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08		29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08		29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08
Soil Sample Depth (m)		0.0 - 0.1 m	0.3 m	1.0 m	0.0 - 0.1 m	0.3 m	1.0 m		0.0 - 0.1 m	0.3 m	1.0 m	0.0 - 0.1 m	0.3 m		1.0 m	0.0 - 0.1 m	0.0 - 0.1 m	0.0 - 0.1	0.0 - 0.1	0.0 - 0.1	0.0 - 0.1
Consultant		Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08
Certificate of Analysis Number		B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568
Electrical Conductivity (mS/cm)	0.7	**1.11**	**0.724**	**1.78**	0.448	**1.01**	**4.79**	**2.57**	0.316	**0.981**	**3.6**	**1.42**	**2.04**	**2.08**	**2.73**	0.317	0.079	0.066	0.076	0.092	0.119
Sodium Adsorption Ratio (unitless)	5	**13.9**	**11.4**	**40.8**	**8.84**	**16.8**	**31.3**	**32.9**	**15.6**	**24.2**	**36.5**	**42.1**	**57**	**62.3**	**45.1**	**5.56**	1.83	1.45	2.71	3.76	**8.23**

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.6a - Salt Related Parameters in Soil (Pre and Post Excavation)

Investigative Location		SS8	SS9	SS10	SS11	SS12	SS13		SS14		SS15		BH15-8	BH15-10	BH15-11	S3
Sample ID		SS8	SS9	SS10	SS11	SS12	SS13	SS130*	SS14	SS140*	SS15	SS150*	BH15-8 SS7	BH15-10 SS7	BH15-11 SS7	S3
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	B08-24568-96	B08-24568-97	B08-24568-98	B08-24568-99	B08-24568-100	B08-24568-101	B08-24568-81	B08-24568-102	B08-24568-79	B08-24568-103	B08-24568-82	1532168-03	1532168-04	1532168-05	2126255-01
Sampling Date		29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08	29-Jul-08		29-Jul-08		29-Jul-08		4-Aug-15	4-Aug-15	4-Aug-15	22-Jun-21
Soil Sample Depth (m)		0.0 - 0.1	0.0 - 0.1	0.0 - 0.1	0.0 - 0.1	0.0 - 0.1	0.0 - 0.1		0.0 - 0.1		0.0 - 0.1		4.5 - 6.1	4.5 - 6.1	4.5 - 6.1	0.0 - 0.5
Consultant		Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	exp	exp	exp	EXP
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Paracel	Paracel	Paracel	Paracel
Date of Analysis		7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	7/8-Aug-08	10/14-Aug-15	10/14-Aug-15	10/14-Aug-15	23-Jun-21
Certificate of Analysis Number		B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	B08-24568	1532168	1532168	1532168	2126255
Electrical Conductivity (mS/cm)	0.7	0.513	0.075	0.1	0.209	0.069	**1.01**	**1.49**	**1.02**	**1.71**	**1.5**	**1.35**	0.568	**1.04**	**1.63**	0.28
Sodium Adsorption Ratio (unitless)	5	**28.7**	2.25	**5.04**	2.44	1.59	**14**	**16.5**	**23.8**	**25.1**	**37.7**	**36.8**	1.61	2.59	**17.3**	0.3

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.

SOIL ANALYTICAL RESULTS:
Table E.6b - Salt Related Parameters in Soil in On-Site Soil Berm (Post Excavation)

Investigative Location		TP-21-11	TP-21-12	TP-21-13	TP-21-14	TP-21-28	TP-21-15	TP-21-16	TP-21-17	TP-21-18	TP-21-19	TP-21-29	TP-21-20	TP-21-21	TP-21-22	TP-21-23	TP-21-24
Sample ID		TP-21-11 SS1	TP-21-12 SS1	TP-21-13 SS1	TP-21-14 SS1	TP-21-28 SS1*	TP-21-15 SS1	TP-21-16 SS1	TP-21-17 SS1	TP-21-18 SS1	TP-21-19 SS1	TP-21-29 SS1*	TP-21-20 SS1	TP-21-21 SS1	TP-21-22 SS1	TP-21-23 SS1	TP-21-24 SS1
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (medium/fine textured soil)	2107251-11	2107251-12	2107251-13	2107251-14	2107251-26	2107251-15	2107251-16	2107251-17	2107251-18	2107251-19	2107251-27	2107251-20	2107251-21	2107251-22	2107251-23	2107251-24
Sampling Date		8-Feb-21	8-Feb-21	8-Feb-21	8-Feb-21	8-Feb-21	8-Feb-21	8-Feb-21	8-Feb-21	8-Feb-21	8-Feb-21	8-Feb-21	8-Feb-21	8-Feb-21	8-Feb-21	8-Feb-21	8-Feb-21
Soil Sample Depth (m)		2.0	1.5	2.0	1.0	1.0	2.0	0.45	1.0	1.8	0.75	0.75	1.75	1.0	1.5	0.3	1.5
Consultant		EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		12-Feb-21	12-Feb-21	12-Feb-21	12-Feb-21	12-Feb-21	12-Feb-21	12-Feb-21	12-Feb-21	12-Feb-21	12-Feb-21	12-Feb-21	12-Feb-21	12-Feb-21	12-Feb-21	12-Feb-21	12-Feb-21
Certificate of Analysis Number		2107251	2107251	2107251	2107251	2107251	2107251	2107251	2107251	2107251	2107251	2107251	2107251	2107251	2107251	2107251	2107251
Electrical Conductivity (mS/cm)	0.7	0.17	0.20	0.28	0.16	0.17	0.20	0.15	**1.10**	**1.12**	**1.95**	**2.04**	0.45	0.19	0.28	0.11	0.08
Sodium Adsorption Ratio (unitless)	5	0.2	0.62	0.1	0.09	0.1	0.09	0.12	1.17	3.01	0.59	0.58	1.27	0.02	0.56	0.06	0.1

All soil concentrations reported in µg/g.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:

Table E.7a - Petroleum Hydrocarbons (PHCs) in Groundwater (Pre-Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW08-1						MW08-2					MW08-3			MW08-4	MW08-5	MW08-6	MW08-7
Screen Depth Interval (m)		1.53-5.49						1.37-5.94					2.13-5.79			1.98-5.94	1.22-5.49	4.27-5.79	1.53-6.1
Sample ID		MW08-1	MW 08-9*	MW 08-1	MW 08-100*	MW08-1	MW08-1	MW08-2	MW 08-2	MW08-2	MW08-2	MW08-2	MW08-3	MW08-3	MW08-3	MW08-4	MW08-5	MW08-6	MW08-7
Lab ID		B08-03599-1	B08-03599-8	B08-25876-2	B08-25876-3	B08-37764-1	1204178-01	B08-03599-2	B08-25876-1	B08-37764-2	1036019-07	1204178-02	B08-03599-3	B08-37764-3	1036019-03	B08-03599-4	B08-03599-5	B08-03599-6	B08-03599-7
Sampling Date		5-Feb-08		11-Aug-08		14-Nov-08	25-Jan-12	4-Feb-08	11-Aug-08	14-Nov-08	30-Aug-10	25-Jan-12	4-Feb-08	14-Nov-08	30-Aug-10	4-Feb-08	4-Feb-08	4-Feb-08	5-Feb-08
Consultant		JWEL	JWEL	Trow	Trow	Trow	exp	JWEL	Trow	Trow	Trow	exp	JWEL	Trow	Trow	JWEL	JWEL	JWEL	JWEL
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Paracel	Caduceon	Caduceon	Caduceon	Paracel	Paracel	Caduceon	Caduceon	Paracel	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		9/11-Feb-08	9/11-Feb-08	13/14-Aug-08	13/14-Aug-08	24-Nov-08	27-Jan-15	9/11-Feb-08	13/14-Aug-08	24-Nov-08	2-Sep-10	27-Jan-15	9/11-Feb-08	24-Nov-08	2-Sep-10	9/11-Feb-08	9/11-Feb-08	9/11-Feb-08	9/11-Feb-08
Certificate of Analysis Number		B08-03599	B08-03599	B08-25876	B08-25876	B08-37764	1204178	B08-03599	B08-25876	B08-37764	1036019	1204178	B08-03599	B08-37764	1036019	B08-03599	B08-03599	B08-03599	B08-03599
Benzene	430	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.6	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	18000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1	<0.5	<0.5	<0.5
Ethylbenzene	2300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes (total)	4200	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.0	<1.0	<1.5	<1.5	<1.0	<1.5	<1.5	<1.5	<1.5
PHC F1 (C6-C10)	750	<50	<50	<50	<50	-	<25	<50	<50	-	<200	<200	<50	-	-	<50	<50	<50	<50
PHC F2 (C10-C16)	150	**160**	90	<50	<50	-	<100	50	<50	-	<100	<100	<50	-	-	<50	90	80	60
PHC F3 (C16-C34)	500	**900**	**1000**	**600**	**700**	-	<100	**4,400**	<500	-	<100	<100	<500	-	-	<500	<500	<500	<500
PHC F4 (C34-C50)	500	<600	<500	<500	<500	-	<100	<500	<500	-	<100	<100	<500	-	-	<500	<500	<500	<500

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:

Table E.7a - Petroleum Hydrocarbons (PHCs) in Groundwater (Pre-Excavation)

Investigative Location		MW08-8	MW08-13		MW08-14				MW08-15				MW08-16	MW08-17					MW18	MW08-18
Screen Depth Interval (m)		1.53-6.1	3.9-6.9		3.72-6.72				3.1-6.1				2.72-5.72	2.82-5.82					2.5-5.5	2.5-5.5
Sample ID		MW08-8	MW 08-13	MW 08-13	MW 08-14	MW08-14	MW08-14	MW08-14	MW 08-15	MW08-15	MW 08-15	MW 08-150	MW 08-16	MW 08-17	MW08-17	MW08-17	MW08-170		MW18	MW08-18
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	B08-03599-8	B08-25876-9	1216187-02	B08-25876-4	B08-34124-1	B08-37764-4	1036019-04	B08-25876-6	1036019-06	1216187-03	1216187-04	B08-25876-8	B08-25876-5	B08-37764-5	1036019-05	1036019-08		B08-37764-6	1036019-02
Sampling Date		8-Feb-08	11-Aug-08	17-Apr-12	11-Aug-08	14-Oct-08	14-Nov-08	30-Aug-10	11-Aug-08	30-Aug-10	17-Apr-12		11-Aug-08	11-Aug-08	14-Nov-08	30-Aug-10			14-Nov-08	30-Aug-10
Consultant		JWEL	Trow	exp	Trow	Trow	Trow	Trow	Trow	Trow	exp		Trow	Trow	Trow	Trow	Trow		Trow	Trow
Laboratory		Caduceon	Caduceon	Paracel	Caduceon	Caduceon	Caduceon	Paracel	Caduceon	Paracel	Paracel		Caduceon	Caduceon	Caduceon	Paracel	Paracel		Caduceon	Paracel
Date of Analysis		9/11-Feb-08	13/14-Aug-08	22/24-Apr-12	13/14-Aug-08	19-Oct-08	24-Nov-08	2-Sep-10	13/14-Aug-08	2-Sep-10	22/24-Apr-12		13/14-Aug-08	13/14-Aug-08	24-Nov-08	2-Sep-10	2-Sep-10		24-Nov-08	2-Sep-10
Certificate of Analysis Number		B08-03599	B08-25876	1216187	B08-25876	B08-34124	B08-37764	1036019	B08-25876	1036019	1216187		B08-25876	B08-25876	B08-37764	1036019	1036019		B08-37764	1036019
Benzene	430	<0.5	<0.5	-	<0.5	0.5	<0.5	<0.5	<0.5	<0.5			<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5
Toluene	18000	1.1	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5
Ethylbenzene	2300	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5
Xylenes (total)	4200	<1.5	<1.5	-	<1.5	<1.5	<1.5	<1.0	<1.5	<1.0			<1.5	<1.5	<1.5	<1.0	<1.0		<1.5	<1.0
PHC F1 (C6-C10)	750	<50	<50	<25	<50	-	-	-	<50	-	<25	<25	<50	<50	-	-	-		-	-
PHC F2 (C10-C16)	150	70	**180**	<100	60	-	-	-	<50	-	<100	<100	<50	<50	-	-	-		-	-
PHC F3 (C16-C34)	500	<500	**1,300**	<100	**900**	-	-	-	**1,000**	-	<100	<100	**2,200**	<500	-	-	-		-	-
PHC F4 (C34-C50)	500	<500	**600**	<100	<500	-	-	-	500	-	<100	<100	**1700**	<500	-	-	-		-	-

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:

Table E.7a - Petroleum Hydrocarbons (PHCs) in Groundwater (Pre-Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW19	MW190	MW08-19				MW12-1			MW12-2			MW12-3			
Screen Depth Interval (m)		2.5-5.5	2.5-5.5	0.97-3.97				3.1-6.1			3.1-6.1			3.1-6.1			
Sample ID		MW19	MW190	MW08-19	MW08-19	MW08-19	MW08-19	MW12-1	MW12-1	MW12-1	MW12-2	MW12-2	MW12-2	MW12-3	MW12-3	MW12-30*	MW12-3
Lab ID		B08-37764-7	B08-37764-8	1036019-01	1228119-05	1248278-12	1315253-08	1228119-01	1248278-01	1315253-04	1228119-02	1248278-02	1315253-02	1228119-03	1248278-03	1248278-14	1315253-07
Sampling Date		14-Nov-08		30-Aug-10	10-Jul-12	29-Nov-12	10-Apr-13	10-Jul-12	30-Nov-12	10-Apr-13	10-Jul-12	29-Nov-12	10-Apr-13	10-Jul-12	30-Nov-12		10-Apr-13
Consultant		Trow	Trow	Trow	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp		exp
Laboratory		Caduceon	Caduceon	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel		Paracel
Date of Analysis		24-Nov-08	24-Nov-08	2-Sep-10	11-Jul-12	4-Dec-12	15-Apr-13	41101	41247	15-Apr-13	11-Jul-12	4-Dec-12	15-Apr-13	11-Jul-12	4-Dec-12		15-Apr-13
Certificate of Analysis Number		B08-37764	B08-37764	1036019	1228119	1248278	1315253	1228119	1248278	1315253	1228119	1248278	1315253	1228119	1248278		1315253
Benzene	430	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	18000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	2300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes (total)	4200	<1.5	<1.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PHC F1 (C6-C10)	750	-	-	-	-	<25	-	-	<25	-	-	<25	-	-	<25	<25	-
PHC F2 (C10-C16)	150	-	-	-	-	<100	-	-	<100	-	-	<100	-	-	<100	<100	-
PHC F3 (C16-C34)	500	-	-	-	-	<100	-	-	<100	-	-	<100	-	-	<100	<100	-
PHC F4 (C34-C50)	500	-	-	-	-	<100	-	-	<100	-	-	<100	-	-	<100	<100	-

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:

Table E.7a - Petroleum Hydrocarbons (PHCs) in Groundwater (Pre-Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW12-4			MW12-5		MW12-8		MW12-10		MW12-11		Trip Blank	Trip Blank
Screen Depth Interval (m)		2.2-5.2			2.4-5.4		1.5-4.5		1.6-4.6		1.6-4.6		NA	NA
Sample ID		MW12-4	MW12-4	MW12-4	MW12-5	MW12-5	MW12-8	MW12-8	MW12-10	MW12-10	MW12-11	MW12-11	Trip Blank	Trip Blank
Lab ID		1228119-04	1248278-04	1315253-05	1248278-05	1315253-01	1248278-08	1315253-11	1248278-10	1315253-12	1248278-11	1315253-13	B08-25876-10	1036019-09
Sampling Date		10-Jul-12	30-Nov-12	10-Apr-13	29-Nov-12	10-Apr-13	29-Nov-12	10-Apr-13	29-Nov-12	10-Apr-13	29-Nov-12	10-Apr-13	11-Aug-08	30-Aug-10
Consultant		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	Trow	Trow
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Caduceon	Paracel
Date of Analysis		11-Jul-12	4-Dec-12	15-Apr-13	4-Dec-12	15-Apr-13	4-Dec-12	15-Apr-13	4-Dec-12	15-Apr-13	4-Dec-12	15-Apr-13	13/14-Aug-08	2-Sep-10
Certificate of Analysis Number		1228119	1248278	1315253	1248278	1315253	1248278	1315253	1248278	1315253	1248278	1315253	B08-25876	1036019
Benzene	430	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	18000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	2300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes (total)	4200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.5	<1.0
PHC F1 (C6-C10)	750	-	<25	-	<25	-	<25	-	<25	-	<25	-	<50	-
PHC F2 (C10-C16)	150	-	<100	-	<100	-	<100	-	<100	-	<100	-	<50	-
PHC F3 (C16-C34)	500	-	<100	-	<100	-	<100	-	<100	-	<100	-	<500	-
PHC F4 (C34-C50)	500	-	<100	-	<100	-	<100	-	<100	-	<100	-	<500	-

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:
Table E.7b - Petroleum Hydrocarbons (PHCs) in Groundwater (Post Excavation)

Investigative Location		MW12-1	MW12-2		MW12-3		MW12-4	MW14-1		MW14-2		MW14-3	
Screen Depth Interval (m)		3.1-6.1	3.1-6.1		3.1-6.1		2.2-5.2	1.5-4.5		1.3-4.3		1.7-3.7	
Sample ID		MW12-1	MW12-2	MW12-2	MW12-3	MW12-3	MW12-4	MW14-1	MW14-1	MW14-2	MW14-2	MW14-3	MW14-3
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	1428132-01	1428132-02	1448177-10	1427217-09	1448177-11	1428132-03	1427217-01	1448177-01	1427217-02	1448177-02	1427217-03	1448177-03
Sampling Date		8-Jul-14	8-Jul-14	26-Nov-14	3-Jul-14	26-Nov-14	8-Jul-14	3-Jul-14	26-Nov-14	3-Jul-14	26-Nov-14	3-Jul-14	26-Nov-14
Consultant		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		10-Jul-14	10-Jul-14	29-Nov-14	5/8-Jul-14	29-Nov-14	10-Jul-14	5-Jul-14	28/29-Nov-14	5/8-Jul-14	28/29-Nov-14	5/8-Jul-14	28/29-Nov-14
Certificate of Analysis Number		1428132	1428132	1448177	1427217	1448177	1428132	1427217	1448177	1427217	1448177	1427217	1448177
Benzene	430	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	18000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	2300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes (total)	4200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PHC F1 (C6-C10)	750	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
PHC F2 (C10-C16)	150	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
PHC F3 (C16-C34)	500	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
PHC F4 (C34-C50)	500	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Sampling results not considered in identification of maximum groundwater concentrations at the site (MW15-2 was re-sampled for VOCs, including BTEX, as presented in Table E.8b).
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:
Table E.7b - Petroleum Hydrocarbons (PHCs) in Groundwater (Post Excavation)

Investigative Location		MW14-4		MW14-5			MW14-6		MW14-7		MW14-8	MW15-1			MW15-2		MW15-4		MW15-9	Trip Blank
Screen Depth Interval (m)		1.7-3.7		1.3-4.3			1.5-4.5		1.3-4.3		1.5-4.5	2.9-5.9			10.6-12.1		3.0-6.0		3.0-6.0	N/A
Sample ID		MW14-4	MW14-4	MW14-5	MW14-50*	MW14-5	MW14-6	MW14-6	MW14-7	MW14-7	MW14-8	MW15-1	MW15-1	MW1*	MW15-2	MW05-10*	MW15-4	MW15-14*	MW15-9 (OB)	Trip Blank
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	1427217-04	1448177-04	1427217-05	1427217-08	1448177-05	1427217-06	1448177-06	1427217-07	1448177-07	1448177-08	1535199-01	2221661-03	2221661-04	1538097-01	1538097-02	1535199-04	1535199-10	2221661-05	2221661-10
Sampling Date		3-Jul-14	26-Nov-14	3-Jul-14		26-Nov-14	3-Jul-14	26-Nov-14	3-Jul-14	26-Nov-14	26-Nov-14	25-Aug-15	19-May-22	19-May-22	15-Sep-15		25-Aug-15		19-May-22	19-May-22
Consultant		exp	exp	exp		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp		exp	exp
Laboratory		Paracel	Paracel	Paracel		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel		Paracel	Paracel
Date of Analysis		5/8-Jul-14	28/29-Nov-14	5-Jul-14		28/29-Nov-14	5-Jul-14	28/29-Nov-14	5-Jul-14	28/29-Nov-14	28/29-Nov-14	29/31-Aug-15	3-Jun-22	3-Jun-22	16/18-Sep-15	16/18-Sep-15	29/31-Aug-15		3-Jun-22	3-Jun-22
Certificate of Analysis Number		1427217	1448177	1427217		1448177	1427217	1448177	1427217	1448177	1448177	1535199	2221661	2221661	1538097	1538097	1535199		2221661	2221661
Benzene	430	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	15.8	15	<0.5	<0.5	-	<0.5
Toluene	18000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	11.6	10.7	<0.5	<0.5	-	<0.5
Ethylbenzene	2300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	0.8	<0.5	<0.5	-	<0.5
Xylenes (total)	4200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.1	2	<0.5	<0.5	-	<0.5
PHC F1 (C6-C10)	750	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	76	-	<25	<25	<25	<25
PHC F2 (C10-C16)	150	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	-	<100	<100	<100	<100
PHC F3 (C16-C34)	500	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	-	<100	<100	<100	<100
PHC F4 (C34-C50)	500	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	-	<100	<100	<100	<100

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Sampling results not considered in identification of maximum groundwater concentrations at the site (MW15-2 was re-sampled for VOCs, including BTEX, as presented in Table E.8b).
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:
Table E.8a - Volatile Organic Compounds (VOCs) in Groundwater (Pre-Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW08-1						MW08-2				MW08-3			MW08-4	MW08-6	MW08-7	MW08-8	BH08-13
Screen Depth Interval (m)		1.53-5.49						1.37-5.94				2.13-5.79			1.98-5.94	4.27-5.79	1.53-6.1	1.53-6.1	3.9-6.9
Sample ID		MW08-1	MW 08-9*	MW 08-1	MW 08-100*	MW08-1	MW08-1	MW08-2	MW 08-2	MW08-2	MW08-2	MW08-3	MW08-3	MW08-3	MW08-4	MW08-6	MW08-7	MW08-8	MW 08-13
Lab ID		B08-03599-1	B08-03599-8	B08-25876-2	B08-25876-3	B08-37764-1	1204178-01	B08-03599-2	B08-25876-1	B08-37764-2	1036019	B08-03599-3	B08-37764-3	1036019-03	B08-03599-4	B08-03599-6	B08-03599-7	B08-04098-1	B08-25876-9
Sampling Date		5-Feb-08		11-Aug-08		14-Nov-08	25-Jan-12	4-Feb-08	11-Aug-08	14-Nov-08	30-Aug-10	4-Feb-08	14-Nov-08	30-Aug-10	4-Feb-08	4-Feb-08	5-Feb-08	8-Feb-08	11-Aug-08
Consultant		JWEL	JWEL	Trow	Trow	Trow	exp	JWEL	Trow	Trow	Trow	JWEL	Trow	Trow	JWEL	JWEL	JWEL	JWEL	Trow
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Paracel	Caduceon	Caduceon	Caduceon	Paracel	Caduceon	Caduceon	Paracel	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		9-Feb-08	9-Feb-08	13-Aug-08	13-Aug-08	24-Nov-08	27-Jan-12	9-Feb-08	13-Aug-08	24-Nov-08	1-Sep-10	9-Feb-08	24-Nov-08	2-Sep-10	9-Feb-08	9-Feb-08	9-Feb-08	9-Feb-08	13-Aug-08
Certificate of Analysis Number		B08-03599	B08-03599	B08-25876	B08-25876	B08-37764	1204178	B08-03599	B08-25876	B08-37764	1036019-07	B08-03599	B08-37764	1036019	B08-03599	B08-03599	B08-03599	B08-04098	B08-25876
Acetone	130,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	430.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	85,000	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.4	<0.1	<0.1	<0.4	<0.1	<0.1	<0.1	<0.1	<0.1
Bromoform	770	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
Bromomethane	56	<2	<2	<0.3	<0.3	<0.3	-	<2	<0.3	<0.3	<0.7	<2	<0.3	<0.7	<2	<2	<2	<2	<0.3
Carbon Tetrachloride	8	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	630	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2
Chloroethane	NV	-	-	-	-	-	-	-	-	-	<1.0	-	-	<1.0	-	-	-	-	-
Chloroform	22	<0.3	<0.3	<0.3	<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.5	<0.3	<0.3	<0.5	<0.3	<0.3	<0.3	<0.3	<0.3
Chloromethane	NV	-	-	-	-	-	-	-	-	-	<3.0	-	-	<3.0	-	-	-	-	-
Dibromochloromethane	82,000	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
1,2-Dichlorobenzene	9,600	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.4	<0.1	<0.1	<0.4	<0.1	<0.1	<0.1	<0.1	<0.1
1,3-Dichlorobenzene	9,600	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.4	<0.1	<0.1	<0.4	<0.1	<0.1	<0.1	<0.1	<0.1
1,4-Dichlorobenzene	67	<0.1	<0.1	<0.2	<0.2	<0.2	-	<0.1	<0.2	<0.2	<0.4	<0.1	<0.2	<0.4	<0.1	<0.1	<0.1	<0.1	<0.2
Dichlorodifluoromethane	4,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	3,100	<0.2	<0.2	<0.1	<0.1	<0.1	-	<0.2	<0.1	<0.1	<0.5	<0.2	<0.1	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1
1,2-Dichloroethane	12	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
1,1-Dichloroethylene	17	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
cis-1,2-Dichloroethylene	17	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.4	<0.1	<0.1	0.7	<0.1	<0.1	<0.1	<0.1	<0.1
trans-1,2-Dichloroethylene	17	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<1.0	0.6	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1
1,2-Dichloroethylene, total	NV	-	-	-	-	-	-	-	-	-	<1.4	-	-	<1.4	-	-	-	-	-
1,2-Dichloropropane	140	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
cis-1,3-Dichloropropene	45	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.4	<0.1	<0.1	<0.4	<0.1	<0.1	<0.1	<0.1	<0.1
trans-1,3-Dichloropropene	45	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
1,3-Dichloropropylene, total	NV	-	-	-	-	-	-	-	-	-	<0.9	-	-	<0.9	-	-	-	-	-
Ethylbenzene	2,300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylene Dibromide (1,2-Dibromoethane)	1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<1.0	<0.1	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1
Hexane (n)	520	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methylene chloride (Dichloromethane)	5,500	<0.3	<0.3	<0.3	<0.3	<0.3	-	<0.3	<0.3	<0.3	<4.0	<0.3	<0.3	<4.0	<0.3	<0.3	<0.3	<0.3	<0.3
Naphthalene	6,400	<0.7	<0.7	<0.7	<0.7	<0.7	-	<0.7	<0.7	<0.7	-	<0.7	<0.7	-	<0.7	<0.7	<0.7	<0.7	<0.7
Methyl ethyl ketone (2-Butanone)	1,500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Butyl Ketone (2-Hexanone)	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Isobutyl Ketone	580,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	1,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	9,100	<0.6	<0.6	<0.6	<0.6	<0.6	-	<0.6	<0.6	<0.6	<0.4	<0.6	<0.6	<0.4	<0.6	<0.6	<0.6	<0.6	<0.6
1,1,1,2-Tetrachloroethane	28	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
1,1,2,2-Tetrachloroethane	15	<0.4	<0.4	<0.4	<0.4	<0.4	-	<0.4	<0.4	<0.4	<0.6	<0.4	<0.4	<0.6	<0.4	<0.4	<0.4	<0.4	<0.4
Tetrachloroethylene	17	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	18,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	850	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2
1,1,1-Trichloroethane	6,700	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.4	<0.1	<0.1	<0.4	<0.1	<0.1	<0.1	<0.1	<0.1
1,1,2-Trichloroethane	30	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.6	<0.1	<0.1	<0.6	<0.1	<0.1	<0.1	<0.1	<0.1
Trichloroethylene	17	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.4	<0.1	<0.1	<0.4	<0.1	<0.1	<0.1	<0.1	<0.1
Trichlorofluoromethane	2,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	NV	-	-	-	-	-	-	-	-	-	<0.5	-	-	<0.5	-	-	-	-	-
Vinyl Chloride	2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.4	0.7	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2
m-Xylene + p-Xylene	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes (total)	4,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

(1) - Sampling location MW08-14 was replaced with MW12-2, and was sampled for VOCs five (5) times between 2012 and 2014 with result below the applicable Table 3 SCS.
(2) - Sampling location MW08-19 was replaced with MW14-5, and was sampled for VOCs four (4) times between 2014 and 2019 with results below the applicable Table 3 SCS.
(3) - Sampling location MW12-5 was replaced with MW14-7, and was sampled for VOCs four (4) times between 2014 and 2022 with result below the applicable Table 3 SCS.
(4) - Sampling location MW12-10 was replaced with MW14-3, and was sampled for VOCs two (2) times in 2014 with results below the applicable Table 3 SCS.
(5) - Sampling location MW12-11 was replaced with MW14-8, and was sampled for VOCs two (2) times between 2014 and 2022 with results below the applicable Table 3 SCS.
All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:
Table E.8a - Volatile Organic Compounds (VOCs) in Groundwater (Pre-Excavation)

Investigative Location		MW08-14 (1)				MW08-15		MW08-16	MW08-17				MW08-18		MW08-19 (2)						MW12-1		
Screen Depth Interval (m)		3.72-6.72				3.1-6.1		2.72-5.72	2.82-5.82				2.5-5.5		0.97-3.97						3.1-6.1		
Sample ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW 08-14	MW08-14	MW08-14	MW08-14	MW 08-15	MW08-15	MW 08-16	MW 08-17	MW08-17	MW08-17	MW08-170	MW08-18	MW08-18	MW08-19	MW08-190	MW08-19	MW08-19	MW08-19	MW08-19	MW12-1	MW12-1	MW12-1
Lab ID		B08-25876-4	B08-34124-1	B08-37764-4	1036019-04	B08-25876-6	1036019	B08-25876-8	B08-25876-5	B08-37764-5	1036019	1036019	B08-37764-6	1036019-02	B08-37764-7	B08-37764-8	1036019-01	1228119-05	1248278-12	1315253-08	1228119-01	1248278-01	1315253-04
Sampling Date		11-Aug-08	14-Oct-08	14-Nov-08	30-Aug-10	11-Aug-08	30-Aug-10	11-Aug-08	11-Aug-08	14-Nov-08	30-Aug-10		14-Nov-08	30-Aug-10	14-Nov-08		30-Aug-10	10-Jul-12	29-Nov-12	10-Apr-13	10-Jul-12	30-Nov-12	10-Apr-13
Consultant		Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow	exp	exp	exp	exp	exp	exp
Laboratory		Caduceon	Caduceon	Caduceon	Paracel	Caduceon	Paracel	Caduceon	Caduceon	Caduceon	Paracel	Paracel	Caduceon	Paracel	Caduceon	Caduceon	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		13-Aug-08	19-Oct-08	24-Nov-08	2-Sep-10	13-Aug-08	1-Sep-10	13-Aug-08	13-Aug-08	24-Nov-08	1-Sep-10	1-Sep-10	24-Nov-08	2-Sep-10	24-Nov-08	24-Nov-08	2-Sep-10	7/11/2012	4-Dec-12	15-Apr-13	11-Jul-12	4-Dec-12	15-Apr-13
Certificate of Analysis Number		B08-25876	B08-34124	B08-37764	1036019	B08-25876	1036019-06	B08-25876	B08-25876	B08-37764	1036019-05	1036019-08	B08-37764	1036019	B08-37764	B08-37764	1036019	1228119	1248278	1315253	1228119	1248278	1315253
Acetone	130,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	5.3	<5	<5	<5
Benzene	430.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	85,000	<0.1	<0.1	<0.1	<0.4	<0.1	<0.4	<0.1	<0.1	<0.1	<0.4	<0.4	<0.1	<0.4	<0.1	<0.1	<0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	770	<0.1	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	56	<0.3	<0.3	<0.3	<0.7	<0.3	<0.7	<0.3	<0.3	<0.3	<0.7	<0.7	<0.3	<0.7	<0.3	<0.3	<0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	8	<0.2	<0.2	<0.2	<0.5	<0.2	<0.5	<0.2	<0.2	<0.2	<0.5	<0.5	<0.2	<0.5	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	630	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<0.2	<0.2	<0.2	<0.4	<0.4	<0.2	<0.4	<0.2	<0.2	<0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	NV	-	-	-	<1.0	-	<1.0	-	-	-	<1.0	<1.0	-	<1.0	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	22	<0.3	<0.3	<0.3	<0.5	<0.3	<0.5	<0.3	<0.3	<0.3	<0.5	<0.5	<0.3	<0.5	<0.3	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloromethane	NV	-	-	-	<3.0		<3.0				<3.0	<3.0		<3.0	-	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Dibromochloromethane	82,000	<0.1	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	9,600	<0.1	<0.1	<0.1	<0.4	<0.1	<0.4	<0.1	<0.1	<0.1	<0.4	<0.4	<0.1	<0.4	<0.1	<0.1	<0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	9,600	<0.1	<0.1	<0.1	<0.4	<0.1	<0.4	<0.1	<0.1	<0.1	<0.4	<0.4	<0.1	<0.4	<0.1	<0.1	<0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	67	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<0.2	<0.2	<0.2	<0.4	<0.4	<0.2	<0.4	<0.2	<0.2	<0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	4,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	3,100	<0.1	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	12	<0.1	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethylene	17	<0.1	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethylene	17	1.2	**23.2**	<0.1	15.8	<0.1	<0.4	<0.1	<0.1	<0.1	<0.4	<0.4	<0.1	<0.4	1.6	<0.1	16.6	**17.2**	**34.7**	**17.8**	<0.5	<0.5	<0.5
trans-1,2-Dichloroethylene	17	<0.1	<0.1	<0.1	<1.0	<0.1	<1.0	<0.1	<0.1	<0.1	<1.0	<1.0	<0.1	<1.0	<0.1	<0.1	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethylene, total	NV	-	-	-	16.3	-	<1.4	-	-	-	<1.4	<1.4	-	<1.4	-	-	16.8	17.5	34.7	17.8	<0.5	<0.5	<0.5
1,2-Dichloropropane	140	<0.1	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	45	<0.1	<0.1	<0.1	<0.4	<0.1	<0.4	<0.1	<0.1	<0.1	<0.4	<0.4	<0.1	<0.4	<0.1	<0.1	<0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	45	<0.1	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropylene, total	NV	-	-	-	<0.9	-	<0.9	-	-	-	<0.9	<0.9	-	<0.9	-	-	<0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	2,300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylene Dibromide (1,2-Dibromoethane)	1	<0.1	<0.1	<0.1	<1.0	<0.1	<1.0	<0.1	<0.1	<0.1	<1.0	<1.0	<0.1	<1.0	<0.1	<0.1	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Hexane (n)	520	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1
Methylene chloride (Dichloromethane)	5,500	<0.3	<0.3	<0.3	<4.0	<0.3	<4.0	<0.3	<0.3	<0.3	<4.0	<4.0	<0.3	<4.0	<0.3	<0.3	<4.0	<5	<5	<5	<5	<5	<5
Naphthalene	6,400	<0.7	<0.7	<0.7	-	<0.7	-	<0.7	<0.7	<0.7	-	-	<0.7	-	<0.7	<0.7	-	-	-	-	-	-	-
Methyl ethyl ketone (2-Butanone)	1,500,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5
Methyl Butyl Ketone (2-Hexanone)	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10	<10	<10	<10	<10
Methyl Isobutyl Ketone	580,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5
Methyl t-butyl ether (MTBE)	1,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2
Styrene	9,100	<0.6	<0.6	<0.6	<0.4	<0.6	<0.4	<0.6	<0.6	<0.6	<0.4	<0.4	<0.6	<0.4	<0.6	<0.6	<0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1,2-Tetrachloroethane	28	<0.1	<0.1	<0.1	<0.5	<0.1	<0.5	<0.1	<0.1	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	15	<0.4	<0.4	<0.4	<0.6	<0.4	<0.6	<0.4	<0.4	<0.4	<0.6	<0.6	<0.4	<0.6	<0.4	<0.4	<0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	17	<0.2	<0.2	<0.2	<0.5	<0.2	<0.5	<0.2	<0.2	<0.2	<0.5	<0.5	<0.2	<0.5	<0.2	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	18,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-Trichlorobenzene	850	<0.2	<0.2	<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	-	<0.2	-	<0.2	<0.2	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	6,700	<0.1	<0.1	<0.1	<0.4	<0.1	<0.4	<0.1	<0.1	<0.1	<0.4	<0.4	<0.1	<0.4	<0.1	<0.1	<0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	30	<0.1	<0.1	<0.1	<0.6	<0.1	<0.6	<0.1	<0.1	<0.1	<0.6	<0.6	<0.1	<0.6	<0.1	<0.1	<0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	17	<0.1	<0.1	<0.1	<0.4	<0.1	<0.4	<0.1	<0.1	<0.1	<0.4	<0.4	<0.1	<0.4	<0.1	<0.1	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	2,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	2.4	1.9	<1	<1	<1
1,3,5-Trimethylbenzene	NV	-	-	-	<0.5	-	<0.5	-	-	-	<0.5	<0.5	-	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride	2	1.5	**16.7**	**6.1**	**3.8**	<0.2	<0.4	<0.2	<0.2	<0.2	<0.4	<0.4	<0.2	<0.4	1.5	<0.2	0.8	**7**	**5.7**	**2.1**	<0.5	<0.5	<0.5
m-Xylene + p-Xylene	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
o-Xylene	NV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes (total)	4,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

(1) - Sampling location MW08-14 was replaced with MW12-2, an
(2) - Sampling location MW08-19 was replaced with MW14-5, an
(3) - Sampling location MW12-5 was replaced with MW14-7, and
(4) - Sampling location MW12-10 was replaced with MW14-3, an
(5) - Sampling location MW12-11 was replaced with MW14-8, an
All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate

Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:
Table E.8a - Volatile Organic Compounds (VOCs) in Groundwater (Pre-Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW12-2			MW12-3				MW12-4		MW12-5 (3)		MW12-8		MW12-10 (4)		MW12-11 (5)		Trip Blank	Trip Blank	Trip Blank
Screen Depth Interval (m)		3.1-6.1			3.1-6.1				2.2-5.2		2.4-5.4		1.5-4.5		1.5-4.6		1.5-4.6		Not applicabl	NA	NA
Sample ID		MW12-2	MW12-2	MW12-2	MW12-3	MW12-3	MW12-30*	MW12-3	MW12-4	MW12-4	MW12-5	MW12-5	MW12-8	MW12-8	MW12-10	MW12-10	MW12-11	MW12-11	Trip Blank	Trip Blank	Trip Blank
Lab ID		1228119-02	1248278-02	1315253-02	1228119-03	1248278-03	1248278-14	1315253-07	1248278-04	1315253-05	1248278-05	1315253-01	1248278-08	1315253-11	1248278-10	1315253-12	1248278-11	1315253-13	1315253-14	B08-25876-10	1036019
Sampling Date		10-Jul-12	29-Nov-12	10-Apr-13	10-Jul-12	30-Nov-12		10-Apr-13	30-Nov-12	10-Apr-13	29-Nov-12	10-Apr-13	29-Nov-12	10-Apr-13	29-Nov-12	10-Apr-13	29-Nov-12	10-Apr-13	NA	11-Aug-08	30-Aug-10
Consultant		exp	exp	exp	exp	exp		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	Trow	Trow
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Caduceon	Paracel
Date of Analysis		11-Jul-12	4-Dec-12	15-Apr-13	11-Jul-12	4-Dec-12		15-Apr-13	4-Dec-12	15-Apr-13	4-Dec-12	15-Apr-13	4-Dec-12	15-Apr-13	4-Dec-12	15-Apr-13	4-Dec-12	15-Apr-13	15-Apr-13	13-Aug-08	1-Sep-10
Certificate of Analysis Number		1228119	1248278	1315253	1228119	1248278		1315253	1248278	1315253	1248278	1315253	1248278	1315253	1248278	1315253	1248278	1315253	1315253	B08-25876	1036019-09
Acetone	130,000	<5	<5	<5	<5	<5	<5	7.3	<5	19.9	<5	<5	<5	7.7	<5	11.2	<5	6	<5	-	-
Benzene	430.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-
Bromodichloromethane	85,000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.4
Bromoform	770	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5
Bromomethane	56	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.3	<0.7
Carbon Tetrachloride	8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5
Chlorobenzene	630	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1	1.2	<0.5	<0.5	<0.5	<0.2	<0.4
Chloroethane	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	-	<1.0
Chloroform	22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.3	<0.5
Chloromethane	NV	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	-	<3.0
Dibromochloromethane	82,000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5
1,2-Dichlorobenzene	9,600	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.4
1,3-Dichlorobenzene	9,600	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.4
1,4-Dichlorobenzene	67	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.2	<0.4
Dichlorodifluoromethane	4,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-
1,1-Dichloroethane	3,100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5
1,2-Dichloroethane	12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5
1,1-Dichloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5
cis-1,2-Dichloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	12.3	5.6	<0.5	<0.5	<0.5	<0.5	8.7	5.5	<0.5	<0.1	<0.4
trans-1,2-Dichloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<1.0
1,2-Dichloroethylene, total	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	12.3	5.6	<0.5	<0.5	<0.5	<0.5	8.7	5.5	<0.5	-	<1.4
1,2-Dichloropropane	140	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5
cis-1,3-Dichloropropene	45	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.4
trans-1,3-Dichloropropene	45	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5
1,3-Dichloropropylene, total	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.9
Ethylbenzene	2,300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-
Ethylene Dibromide (1,2-Dibromoethane)	1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<1.0
Hexane (n)	520	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-
Methylene chloride (Dichloromethane)	5,500	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.3	<4.0
Naphthalene	6,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.7	-
Methyl ethyl ketone (2-Butanone)	1,500,000	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-
Methyl Butyl Ketone (2-Hexanone)	NV	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	-
Methyl Isobutyl Ketone	580,000	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	-	-
Methyl t-butyl ether (MTBE)	1,400	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	-	-
Styrene	9,100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.6	<0.4
1,1,1,2-Tetrachloroethane	28	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5
1,1,2,2-Tetrachloroethane	15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.6
Tetrachloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5
Toluene	18,000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-
1,2,4-Trichlorobenzene	850	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	-
1,1,1-Trichloroethane	6,700	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.4
1,1,2-Trichloroethane	30	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.6
Trichloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.4
Trichlorofluoromethane	2,500	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-
1,3,5-Trimethylbenzene	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5
Vinyl Chloride	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<0.4
m-Xylene + p-Xylene	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-
o-Xylene	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-
Xylenes (total)	4,200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-

Notes:

(1) - Sampling location MW08-14 was replaced with MW12-2, an
(2) - Sampling location MW08-19 was replaced with MW14-5, an
(3) - Sampling location MW12-5 was replaced with MW14-7, and
(4) - Sampling location MW12-10 was replaced with MW14-3, an
(5) - Sampling location MW12-11 was replaced with MW14-8, an
All groundwater concentrations reported in µg/L.

'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:

Table E.8b - Volatile Organic Compounds (VOCs) in Groundwater (Post Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW12-1	MW12-2		MW12-3		MW12-4	MW14-1		MW14-2			MW14-3 (1)	
Screen Depth Interval (m)		3.1-6.1	3.1-6.1		3.1-6.1		2.2-5.2	1.5-4.5		1.3-4.3			1.7-3.7	
Sample ID		MW12-1	MW12-2	MW12-2	MW12-3	MW12-3	MW12-4	MW14-1	MW14-1	MW14-2	MW14-2	MW14-2	MW14-3	MW14-3
Lab ID		1428132-01	1428132-02	1448177-10	1427217-09	1448177-11	1428132-03	1427217-01	1448177-01	1427217-02	1448177-02	1941373-05	1427217-03	1448177-03
Sampling Date		8-Jul-14	8-Jul-14	26-Nov-14	3-Jul-14	26-Nov-14	8-Jul-14	3-Jul-14	26-Nov-14	3-Jul-14	26-Nov-14	8-Oct-19	3-Jul-14	26-Nov-14
Consultant		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		10-Jul-14	10-Jul-14	29-Nov-14	5-Jul-14	29-Nov-14	10-Jul-14	5-Jul-14	29-Nov-14	5-Jul-14	29-Nov-14	16-Oct-19	5-Jul-14	29-Nov-14
Certificate of Analysis Number		1428132	1428132	1448177	1427217	1448177	1428132	1427217	1448177	1427217	1448177	1941373	1427217	1448177
Acetone	130,000	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5.0	<5	<5
Benzene	430.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	85,000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	770	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	56	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	630	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0
Chloroform	22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloromethane	NV	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	-	<3.0	<3.0
Dibromochloromethane	82,000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	9,600	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	9,600	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	67	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	4,400	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<1	<1
1,1-Dichloroethane	3,100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethylene	17.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethylene, total	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
1,2-Dichloropropane	140	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	45	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	45	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropylene, total	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	2,300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylene Dibromide (1,2-Dibromoethane)	1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Hexane (n)	520	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<1	<1
Methylene chloride (Dichloromethane)	5,500	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5.0	<5	<5
Methyl ethyl ketone (2-Butanone)	1,500,000	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5.0	<5	<5
Methyl Butyl Ketone (2-Hexanone)	NV	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	<10
Methyl Isobutyl Ketone	580,000	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5.0	<5	<5
Methyl t-butyl ether (MTBE)	1,400	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<2	<2
Styrene	9,100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1,2-Tetrachloroethane	28	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	18,000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-Trichlorobenzene	850	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
1,1,1-Trichloroethane	6,700	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	30	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	2,500	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0	<1	<1
1,3,5-Trimethylbenzene	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5
Vinyl Chloride	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m-Xylene + p-Xylene	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
o-Xylene	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes (total)	4,200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

(1) - Sampling location MW12-10 was replaced with MW14-3, and was sampled for VOCs two (2) times in 2014 with results below the applicable Table 3 SCS.
(2) - Sampling location MW08-19 was replaced with MW14-5, and was sampled for VOCs four (4) times between 2014 and 2019 with results below the applicable Table 3 SCS.
(3) - Sampling location MW12-5 was replaced with MW14-7, and was sampled for VOCs four (4) times between 2014 and 2022 with result below the applicable Table 3 SCS.
(4) - Sampling location MW12-11 was replaced with MW14-8, and was sampled for VOCs two (2) times between 2014 and 2022 with results below the applicable Table 3 SCS.
All groundwater concentrations reported in µg/L.

'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate

Sampling results not considered in identification of maximum groundwater concentrations at the site as two (2) subsequent more recent rounds of groundwater sampling were completed at the applicable monitoring well location.

Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:

Table E.8b - Volatile Organic Compounds (VOCs) in Groundwater (Post Excavation)

Investigative Location		MW14-4		MW14-5 [2]				MW14-6				MW14-7 [3]					MW14-8 [4]	
Screen Depth Interval (m)		1.7-3.7		1.3-4.3				1.5-4.5				1.3-4.3					1.5-4.5	
Sample ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW14-4	MW14-4	MW14-5	MW14-50*	MW14-5	MW14-5	MW14-6	MW14-6	MW14-6	MW16-2*	MW14-7	MW14-7	MW14-7	MW14-7	MW2*	MW14-8	MW14-8
Lab ID		1427217-04	1448177-04	1427217-05	1427217-08	1448177-05	1941373-02	1427217-06	1448177-06	1941373-03	1941373-04	1427217-07	1448177-07	1941373-01	2221661-06	2221661-07	1448177-08	2221661-01
Sampling Date		3-Jul-14	26-Nov-14	3-Jul-14		26-Nov-14	8-Oct-19	3-Jul-14	26-Nov-14	8-Oct-19	8-Oct-19	3-Jul-14	26-Nov-14	8-Oct-19	19-May-22	19-May-22	26-Nov-14	19-May-22
Consultant		exp	exp	exp		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp	exp
Laboratory		Paracel	Paracel	Paracel		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		5-Jul-14	29-Nov-14	5-Jul-14		29-Nov-14	16-Oct-19	5-Jul-14	29-Nov-14	16-Oct-19	16-Oct-19	5-Jul-14	29-Nov-14	16-Oct-19	3-Jun-22	3-Jun-22	29-Nov-14	3-Jun-22
Certificate of Analysis Number		1427217	1448177	1427217		1448177	1941373	1427217	1448177	1941373	1941373	1427217	1448177	1941373	2221661	2221661	1448177	2221661
Acetone	130,000	<5	<5	<5	<5	<5	<5.0	<5	<5	<5.0	<5.0	<5	<5	<5.0	<5	<5	<5	<5
Benzene	430.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	85,000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	770	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	56	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	630	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	NV	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	-	-	<1.0	<1.0	-	-	-	<1.0	-
Chloroform	22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloromethane	NV	<3.0	<3.0	<3.0	<3.0	<3.0	-	<3.0	<3.0	-	-	<3.0	<3.0	-	-	-	<3.0	<3.0
Dibromochloromethane	82,000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	9,600	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	9,600	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	67	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	4,400	<1	<1	<1	<1	<1	<1.0	<1	<1	<1.0	<1.0	<1	<1	<1.0	<1	<1	<1	<1
1,1-Dichloroethane	3,100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethylene	17.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.8	6.9	5.4	5.3	<0.5	<0.5
trans-1,2-Dichloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethylene, total	NV	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	<0.5	<0.5	-	-	-	<0.5	-
1,2-Dichloropropane	140	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	45	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	45	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropylene, total	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	2,300	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylene Dibromide (1,2-Dibromoethane)	1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Hexane (n)	520	<1	<1	<1	<1	<1	<1.0	<1	<1	<1.0	<1.0	<1	<1	<1.0	<1.0	<1.0	<1	<1
Methylene chloride (Dichloromethane)	5,500	<5	<5	<5	<5	<5	<5.0	<5	<5	<5.0	<5.0	<5	<5	<5.0	<5.0	<5.0	<5	<5
Methyl ethyl ketone (2-Butanone)	1,500,000	<5	<5	<5	<5	<5	<5.0	<5	<5	<5.0	<5.0	<5	<5	<5.0	<5.0	<5.0	<5	<5
Methyl Butyl Ketone (2-Hexanone)	NV	<10	<10	<10	<10	<10	-	<10	<10	-	-	<10	<10	-	-	-	<10	<10
Methyl Isobutyl Ketone	580,000	<5	<5	<5	<5	<5	<5.0	<5	<5	<5.0	<5.0	<5	<5	<5.0	<5.0	<5.0	<5	<5
Methyl t-butyl ether (MTBE)	1,400	<2	<2	<2	<2	<2	<2.0	<2	<2	<2.0	<2.0	<2	<2	<2.0	<2.0	<2.0	<2	<2
Styrene	9,100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1,2-Tetrachloroethane	28	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	18,000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-Trichlorobenzene	850	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	<0.5	<0.5	-	-	-	<0.5	<0.5
1,1,1-Trichloroethane	6,700	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	30	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	2,500	<1	<1	<1	<1	<1	<1.0	<1	<1	<1.0	<1.0	<1	<1	<1.0	<1.0	<1.0	<1	<1
1,3,5-Trimethylbenzene	NV	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	-	<0.5	<0.5	-	-	-	<0.5	-
Vinyl Chloride	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m-Xylene + p-Xylene	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
o-Xylene	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes (total)	4,200	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

(1) - Sampling location MW12-10 was replaced with MW14-3, a
(2) - Sampling location MW08-19 was replaced with MW14-5, a
(3) - Sampling location MW12-5 was replaced with MW14-7, an
(4) - Sampling location MW12-11 was replaced with MW14-8, a
All groundwater concentrations reported in µg/L.

'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate

Sampling results not considered in identification of maximum groundwater concentrations at the site as two (2) subsequent more recent rounds of groundwater sampling were completed at the applicable monitoring well location.

Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:

Table E.8b - Volatile Organic Compounds (VOCs) in Groundwater (Post Excavation)

Investigative Location		MW15-2					Trip Blank				
Screen Depth Interval (m)		10.6-12.1					Not applicable				
Sample ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW15-2	MW05-10*	MW15-2	MW15-2	MW20-2*	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
Lab ID		1538097	1538097	1951573-01	2222451-01	2222451-02	1427217-11	1448177-13	1535199-14	1941373-14	2221661-10
Sampling Date		15-Sep-15		20-Dec-19	27-May-22	27-May-22	NA	NA	20-Aug-15	1-Oct-19	19-May-22
Consultant		exp	exp	exp	exp	exp	exp	exp	exp	exp	exp
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		15-Sep-15	15-Sep-15	30-Dec-19	6-Jun-22	6-Jun-22	5-Jul-14	29-Nov-14	29-Aug-14	16-Oct-19	3-Jun-22
Certificate of Analysis Number		1538097-01	1538097-02	1951573	2222451	2222451	1427217	1448177	1535199	1941373	2221661
Acetone	130,000	143	137	<5.0	<5.0	<5.0	<5	<5	<0.5	<5.0	<5.0
Benzene	430.0	15.8	15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	85,000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromoform	770	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bromomethane	56	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	630	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroethane	NV	-	-	-	-	-	<1.0	<1.0	-	-	-
Chloroform	22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloromethane	NV	-	-	-	-	-	<3.0	<3.0	-	-	-
Dibromochloromethane	82,000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	9,600	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	9,600	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	67	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	4,400	<1	<1	<1.0	<1.0	<1.0	<1	<1	<1	<1.0	<1.0
1,1-Dichloroethane	3,100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	12	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethylene	17.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethylene, total	NV	-	-	-	-	-	<0.5	<0.5	-	-	-
1,2-Dichloropropane	140	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropene	45	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropene	45	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropylene, total	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	2,300	0.7	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylene Dibromide (1,2-Dibromoethane)	1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Hexane (n)	520	<1	<1	<1.0	<1.0	<1.0	<1	<1	<1	<1.0	<1.0
Methylene chloride (Dichloromethane)	5,500	<5	<5	<5.0	<5.0	<5.0	<5	<5	<5	<5.0	<5.0
Methyl ethyl ketone (2-Butanone)	1,500,000	<5	<5	<5.0	<5.0	<5.0	<5	<5	<5	<5.0	<5.0
Methyl Butyl Ketone (2-Hexanone)	NV	-	-	-	-	-	<10	<10	-	-	-
Methyl Isobutyl Ketone	580,000	<5	<5	<5.0	<5.0	<5.0	<5	<5	<5	<5.0	<5.0
Methyl t-butyl ether (MTBE)	1,400	<2	<2	<2.0	<2.0	<2.0	<2	<2	<2	<2.0	<2.0
Styrene	9,100	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,1,2-Tetrachloroethane	28	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	18,000	11.6	10.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-Trichlorobenzene	850	-	-	-	-	-	<0.5	<0.5	-	-	-
1,1,1-Trichloroethane	6,700	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	30	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	2,500	<1	<1	<1.0	<1.0	<1.0	<1	<1	<1	<1.0	<1.0
1,3,5-Trimethylbenzene	NV	-	-	-	-	-	<0.5	<0.5	-	-	-
Vinyl Chloride	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m-Xylene + p-Xylene	NV	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
o-Xylene	NV	2.1	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes (total)	4,200	2.1	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Notes:

(1) - Sampling location MW12-10 was replaced with MW14-3, a
(2) - Sampling location MW08-19 was replaced with MW14-5, a
(3) - Sampling location MW12-5 was replaced with MW14-7, an
(4) - Sampling location MW12-11 was replaced with MW14-8, a
All groundwater concentrations reported in µg/L.

'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate

Sampling results not considered in identification of maximum groundwater concentrations at the site as two (2) subsequent more recent rounds of groundwater sampling were completed at the applicable monitoring well location.

Bold Concentration exceeds MECP (2011) SCS.

Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:
Table E.9a - Polycyclic Aromatic Hydrocarbons (PAHs) in Groundwater (Pre-Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW08-1	MW08-9	MW08-2	MW08-3	MW08-4	MW08-7	MW08-8
Screen Depth Interval (m)		1.53-5.49		1.37-5.94	2.13-5.79	1.98-5.94	1.53-6.1	1.53-6.1
Sample ID		MW08-1	MW08-9*	MW08-2	MW08-3	MW08-4	MW08-7	MW08-8
Lab ID		B08-03599-1	B08-03599-8	B08-03599-2	B08-03599-3	B08-03599-4	B08-03599-7	B08-04098-1
Sampling Date		5-Feb-08		4-Feb-08	4-Feb-08	4-Feb-08	5-Feb-08	5-Feb-08
Consultant		JWEL		JWEL	JWEL	JWEL	JWEL	JWEL
Laboratory		Caduceon		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		15-Feb-08		15-Feb-08	15-Feb-08	15-Feb-08	15-Feb-08	16-Feb-08
Certificate of Analysis Number		B08-03599		B08-03599	B08-03599	B08-03599	B08-03599	B08-04098-1
Acenaphthene	1,700	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	1.8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	2.4	<0.05	<0.05	0.11	<0.05	<0.05	<0.05	<0.05
Benzo(a)anthracene	4.7	0.08	<0.05	0.46	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	0.8	<0.01	<0.01	0.61	<0.01	<0.01	<0.01	0.04
Benzo(b)fluoranthene	0.8	<0.05	<0.05	0.43	<0.05	<0.05	<0.05	<0.05
Benzo(b+k)fluoranthene	NV	<0.05	<0.05	0.58	<0.05	<0.05	<0.05	<0.05
Benzo(ghi)perylene	0.2	<0.05	<0.05	0.19	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	0.4	<0.05	<0.05	0.16	<0.05	<0.05	<0.05	<0.05
Chrysene	1.0	<0.05	<0.05	0.41	<0.05	<0.05	<0.05	0.07
Dibenz(a,h)anthracene	0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	130	0.18	<0.05	0.9	<0.05	<0.05	<0.05	0.07
Fluorene	400	0.14	<0.05	0.18	<0.05	<0.05	<0.05	0.14
Indeno(1,2,3-cd)pyrene	0.2	<0.05	<0.05	**0.25**	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene	1,800	0.31	0.08	0.06	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	1,800	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	0.08
1&2-Methylnaphthalene	1,800	-	-	-	-	-	-	-
Naphthalene	6,400	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05
Phenanthrene	580	0.75	0.16	1.29	0.17	<0.05	<0.05	0.48
Pyrene	68	0.16	<0.05	0.66	<0.05	<0.05	<0.05	0.07

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:
Table E.9b - Polycyclic Aromatic Hydrocarbons (PAHs) in Groundwater (Post Excavation)

Investigative Location		MW15-1		MW15-4		MW15-9	MW12-3	
Screen Depth Interval (m)		2.9-5.9		3.0-6.0		3.0-6.0	3.1-6.1	
Sample ID		MW15-1 (OB)	MW1*	MW15-4	MW15-14*	MW15-9	MW12-3	MW12-3 DUP*
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	2221661-08	2221661-09	1535199-04	1535199-10	1535199-06	1549270-01	1549270-02
Sampling Date		20-May-22	20-May-22	25-Aug-15		25-Aug-15	3-Dec-15	
Consultant		exp	exp	exp		exp	exp	
Laboratory		Paracel	Paracel	Paracel		Paracel	Paracel	
Date of Analysis		3-Jun-22	3-Jun-22	29/31-Aug-15		29/31-Aug-15	9-Dec-15	
Certificate of Analysis Number		2221661	2221661	1535199		1535199	1542970	
Acenaphthene	1,700	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	1.8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	2.4	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	4.7	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene	0.8	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	0.8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(ghi)perylene	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	0.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	1.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	130	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	400	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene	1,800	<0.05	0.17	<0.05	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	1,800	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1&2-Methylnaphthalene	1,800	<0.1	0.17	<0.10	<0.10	<0.10	<0.10	<0.10
Naphthalene	6,400	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	580	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	68	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:
Table E.10 - Polychlorinated Biphenyls (PCBs) in Groundwater

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW08-1	MW08-9	MW08-2	MW08-3	MW08-4	MW08-7	MW08-8
Screen Depth Interval (m)		1.53-5.49		1.37-5.94	2.13-5.79	1.98-5.94	1.53-6.1	1.53-6.1
Sample ID		MW08-1	MW08-9*	MW08-2	MW08-3	MW08-4	MW08-7	MW08-8
Lab ID		B08-035991-1	B08-035991-8	B08-035991-2	B08-035991-3	B08-035991-4	B08-03599-7	B08-04098-1
Sampling Date		5-Feb-08		4-Feb-08	4-Feb-08	4-Feb-08	5-Feb-08	8-Feb-08
Consultant		JWEL	JWEL	JWEL	JWEL	JWEL	JWEL	JWEL
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		39494	39494	39494	39494	39494	15-Feb-08	39494
Certificate of Analysis Number		B08-03599	B08-03599	B08-03599	B08-03599	B08-03599	B08-03599	B08-04098
Total Polychlorinated Biphenyls	15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.4

All groundwater concentrations reported in μg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:

Table E.11a - Metals & Inorganics in Groundwater (Pre-Excavation)

Investigative Location		MW08-1				MW08-2		MW08-3	MW08-4	
Screen Depth Interval (m)		1.53-5.49				1.37-5.94		2.13-5.79	1.98-5.94	
Sample ID		MW08-1	MW08-9	MW 08-1	MW 08-100*	MW08-2	MW 08-2	MW08-3	MW08-4	MW08-4
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	B08-03599-1	B08-03599-8	B08-25876-2	B08-25876-3	B08-03599-2	B08-25876-1	B08-03599-3	B08-03599-4	B09-31678-5
Sampling Date		5-Feb-08		11-Aug-08		4-Feb-08	11-Aug-08	4-Feb-08	4-Feb-08	5-Oct-09
Consultant		JWEL	JWEL	Trow	Trow	JWEL	Trow	JWEL	JWEL	Trow
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		6/7-Feb-08	6/7-Feb-08	12/20-Aug-08	12/20-Aug-08	6/7-Feb-08	12/20-Aug-08	6/7-Feb-08	6/7-Feb-08	9-Oct-09
Certificate of Analysis Number		B08-03599	B08-03599	B08-25876	B08-25876	B08-03599	B08-25876	B08-03599	B08-03599	B09-31678
Antimony	20,000	1	<1	-	-	<1	-	<1	<1	-
Arsenic	1,900	4	4	-	-	12	-	3	2	-
Barium	29,000	3100	162	-	-	3390	-	1870	597	-
Beryllium	67	<2	<2	-	-	<2	-	<2	<2	-
Boron (Total)	45,000	647	621	-	-	259	-	251	320	-
Cadmium	3	<0.2	<0.2	-	-	<0.2	-	<0.2	<0.2	-
Chromium (total)	810	<2	<2	-	-	<2	-	<2	<2	-
Chromium VI	140	<2	<2	-	-	<2	-	<2	<2	-
Cobalt	66	4	3	-	-	19	-	1	1	-
Copper	87	<2	3	<2	<2	<2	3	<2	<2	-
Lead	25	<0.2	<0.2	0.21	0.16	<0.2	0.19	<0.2	<0.2	-
Mercury	3	<0.02	<0.02	-	-	<0.02	-	<0.02	<0.02	-
Molybdenum	9,200	<10	<10	-	-	<10	-	<10	<10	-
Nickel	490	<10	<10	-	-	<10	-	<10	<10	-
Selenium	63	3	<2	-	-	17	-	4	4	-
Silver	2	<0.2	<0.2	-	-	<0.2	-	<0.2	<0.2	-
Thallium	510	<0.5	<0.5	-	-	<0.5	-	<0.5	<0.5	-
Uranium	420	-	-	-	-	-	-	-	-	-
Vanadium	250	<5	<5	-	-	<5	-	<5	<5	-
Zinc	1,100	<5	6	-	-	8	-	9	5	-
Free Cyanide	66	<0.005	<0.005	-	-	<0.005	-	<0.005	<0.005	-
Nitrite	NV	<3,000	<100	-	-	<10,000	-	<100	<100	<3,000

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
** Replacement monitoring wells installed on August 31, 2009 by Trow Associates Inc.
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.
Parameter detected and no SCS provided

GROUNDWATER ANALYTICAL RESULTS:

Table E.11a - Metals & Inorganics in Groundwater (Pre-Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW08-5		MW08-7	MW08-8		MW08-10**	MW08-11**	BH08-13		MW08-14
Screen Depth Interval (m)		1.22-5.49		1.53-6.1	1.53-6.1		2.7-5.8	3.8-6.9	3.9-6.9		3.72-6.72
Sample ID		MW08-5	MW08-5	MW08-7	MW08-8	MW08-8	MW08-10	MW08-11	MW 08-13	MW08-13	MW 08-14
Lab ID		B08-03599-5	B09-31678-6	B08-03599-7	B08-04098-1	B09-31678-10	B09-31678-9	B09-31678-8	B08-25876-9	B09-31678-7	B08-25876-4
Sampling Date		4-Feb-08	5-Oct-09	5-Feb-08	8-Feb-08	5-Oct-09	5-Oct-09	5-Oct-09	11-Aug-08	5-Oct-09	11-Aug-08
Consultant		JWEL	Trow	JWEL	JWEL	Trow	Trow	Trow	Trow	Trow	Trow
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		7-Feb-08	9-Oct-09	6/7-Feb-08	8- to 12-Feb-08	9-Oct-09	9-Oct-09	9-Oct-09	12/20-Aug-08	9-Oct-09	12/20-Aug-08
Certificate of Analysis Number		B08-03599	B09-31678	B08-03599	B08-04098	B09-31678	B09-31678	B09-31678	B08-25876	B09-31678	B08-25876
Antimony	20,000	-	-	<1	0.4	-	-	-	-	-	-
Arsenic	1,900	-	-	4	26.9	-	-	-	-	-	-
Barium	29,000	-	-	704	1770	-	-	-	-	-	-
Beryllium	67	-	-	<2	<2	-	-	-	-	-	-
Boron (Total)	45,000	-	-	188	66	-	-	-	-	-	-
Cadmium	3	-	-	<0.2	0.32	-	-	-	-	-	-
Chromium (total)	810	-	-	<2	<2	-	-	-	-	-	-
Chromium VI	140	-	-	<2	<2	-	-	-	-	-	-
Cobalt	66	-	-	5	4.4	-	-	-	-	-	-
Copper	87	-	-	<2	<2	-	-	-	<2	-	3
Lead	25	<0.2	-	<0.2	0.4	-	-	-	0.16	-	1.93
Mercury	3	-	-	<0.02	<0.02	-	-	-	-	-	-
Molybdenum	9,200	-	-	<10	<10	-	-	-	-	-	-
Nickel	490	-	-	<10	<10	-	-	-	-	-	-
Selenium	63	-	-	10	<0.2	-	-	-	-	-	-
Silver	2	-	-	<0.2	0.16	-	-	-	-	-	-
Thallium	510	-	-	<0.5	<0.05	-	-	-	-	-	-
Uranium	420	-	-	-	-	-	-	-	-	-	-
Vanadium	250	-	-	<5	<5	-	-	-	-	-	-
Zinc	1,100	-	-	8	7	-	-	-	-	-	-
Free Cyanide	66	-	-	<0.005	<0.005	-	-	-	-	-	-
Nitrite	NV	-	<3,000	<10,000	<10,000	<10,000	<3,000	<10,000	-	<3,000	-

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
** Replacement monitoring wells installed on August 31, 2009

Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.
Parameter detected and no SCS provided

GROUNDWATER ANALYTICAL RESULTS:

Table E.11a - Metals & Inorganics in Groundwater (Pre-Excavation)

Investigative Location		MW08-15			MW08-16	MW08-17	MW08-18	MW08-19
Screen Depth Interval (m)		3.1-6.1			2.72-5.72	2.82-5.82	-	0.97-3.97
Sample ID		MW 08-15	MW08-15	MW08-150	MW 08-16	MW 08-17	MW08-18	MW08-19
Lab ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	B08-25876-6	B09-31678-4	B09-31678-11	B08-25876-8	B08-25876-5	B09-31678-3	B09-31678-2
Sampling Date		11-Aug-08	5-Oct-09		11-Aug-08	11-Aug-08	5-Oct-09	5-Oct-09
Consultant		Trow	Trow	Trow	Trow	Trow	Trow	Trow
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		12/20-Aug-08	9-Oct-09	9-Oct-09	12/20-Aug-08	12/20-Aug-08	9-Oct-09	9-Oct-09
Certificate of Analysis Number		B08-25876	B09-31678	B09-31678	B08-25876	B08-25876	B09-31678	B09-31678
Antimony	20,000	-	-	-	-	-	-	-
Arsenic	1,900	-	-	-	-	-	-	-
Barium	29,000	-	-	-	-	-	-	-
Beryllium	67	-	-	-	-	-	-	-
Boron (Total)	45,000	-	-	-	-	-	-	-
Cadmium	3	-	-	-	-	-	-	-
Chromium (total)	810	-	-	-	-	-	-	-
Chromium VI	140	-	-	-	-	-	-	-
Cobalt	66	-	-	-	-	-	-	-
Copper	87	3	-	-	2	<2	-	-
Lead	25	0.23	-	-	0.27	0.29	-	-
Mercury	3	-	-	-	-	-	-	-
Molybdenum	9,200	-	-	-	-	-	-	-
Nickel	490	-	-	-	-	-	-	-
Selenium	63	-	-	-	-	-	-	-
Silver	2	-	-	-	-	-	-	-
Thallium	510	-	-	-	-	-	-	-
Uranium	420	-	-	-	-	-	-	-
Vanadium	250	-	-	-	-	-	-	-
Zinc	1,100	-	-	-	-	-	-	-
Free Cyanide	66	-	-	-	-	-	-	-
Nitrite	NV	-	<3,000	<3,000	-	-	<100	<3,000

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
** Replacement monitoring wells installed on August 31, 2009
Bold Concentration exceeds MECP (2011) SCS.
Reported detection limit exceeds MECP (2011) SCS.
Parameter detected and no SCS provided

GROUNDWATER ANALYTICAL RESULTS:
Table E.11b - Metals & Inorganics in Groundwater (Post-Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW12-3	MW15-1	MW15-6	MW15-2
Screen Depth Interval (m)		3.28-6.28	2.9-5.9	3.0-6.0	10.6-12.1
Sample ID		MW12-3	MW15-1	MW15-6	MW15-2
Lab ID		1535199-13	1535199-01	1535199-02	1538097-01
Sampling Date		26-Aug-15	25-Aug-15	25-Aug-15	15-Sep-15
Consultant		exp	exp	exp	exp
Laboratory		Paracel	Paracel	Paracel	Paracel
Date of Analysis		28/31-Aug-15	28/31-Aug-15	28/31-Aug-15	16-Sep-15
Certificate of Analysis Number		1535199	1535199	1535199	1538097
Antimony	20,000	<0.5	0.9	0.6	5.5
Arsenic	1,900	3	<1	2	20
Barium	29,000	41	425	6660	1760
Beryllium	67	<0.5	<.5	<0.5	<0.5
Boron (Total)	45,000	220	513	576	1070
Cadmium	2.7	<0.1	<0.1	<0.1	<0.1
Chromium (total)	810	<1	<1	<1	24
Cobalt	66	5	1.1	0.5	<0.5
Copper	87	<0.5	<0.5	<0.5	24.7
Lead	25	<0.1	<0.1	<0.1	0.2
Molybdenum	9,200	17.6	3	1.6	46.5
Nickel	490	26	3	2	3
Selenium	63	<1	<1	<1	45
Silver	1.5	<0.1	<0.1	<0.1	1
Thallium	510	<0.1	<0.1	<0.1	<0.1
Uranium	420	20.1	2.4	0.5	2.7
Vanadium	250	<0.5	<0.5	<0.5	22.6
Zinc	1,100	<5	6	<5	17

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
** Replacement monitoring wells installed on August 31, 2009 by Trow Associates Inc.
Bold Concentration exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:
Table E.12a - Sodium & Chloride in Groundwater (Pre-Excavation)

Investigative Location		MW08-1	MW08-2	MW08-3	MW08-4		MW08-5	MW08-7
Screen Depth Interval (m)		1.53-5.49	1.37-5.94	2.13-5.79	1.98-5.94		1.22-5.49	1.53-6.1
Sample ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW08-1	MW08-2	MW08-3	MW08-4	MW08-4	MW08-5	MW08-7
Lab ID		B08-03599-1	B08-03599-2	B08-03599-3	B08-03599-4	B09-31678-5	B09-31678-6	B08-03599-7
Sampling Date		5-Feb-08	4-Feb-08	4-Feb-08	4-Feb-08	5-Oct-09	5-Oct-09	5-Feb-08
Consultant		JWEL	JWEL	JWEL	JWEL	Trow	Trow	JWEL
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		7-Feb-08	7-Feb-08	7-Feb-08	7-Feb-08	10/13-Oct-09	10/13-Oct-09	7-Feb-08
Certificate of Analysis Number		B08-03599	B08-03599	B08-03599	B08-03599	B09-31678	B09-31678	B08-03599
Sodium	2,300,000	-	-	-	-	417,000	710,000	-
Chloride	2,300,000	1,590,000	**6,650,000**	759,000	570,000	793,000	1,020,000	**9,320,000**

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
** Replacement monitoring wells installed on August 31, 2009 by Trow Associates Inc.
Bold Concentration exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:
Table E.12a - Sodium & Chloride in Groundwater (Pre-Excavation)

Investigative Location		MW08-8		MW08-10**	MW08-11**	BH08-13	MW08-15	MW08-150	MW08-18	MW08-19
Screen Depth Interval (m)		1.53-6.1		1.88-4.88	3.9-6.9	3.9-6.9	3.1-6.1		2.5-5.5	0.97-3.97
Sample ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW08-8	MW08-8	MW08-10**	MW08-11**	BH08-13	MW08-15	MW08-150	MW08-18	MW08-19
Lab ID		B08-04098-1	B09-31678-10	B09-31678-9	B09-31678-8	B09-31678-7	B09-31678-4	B09-31678-11	B09-31678-3	B09-31678-2
Sampling Date		8-Feb-08		5-Oct-09	5-Oct-09	5-Oct-09	5-Oct-09		5-Oct-09	5-Oct-09
Consultant		JWEL	Trow	Trow	Trow	Trow	Trow	Trow	Trow	Trow
Laboratory		Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon	Caduceon
Date of Analysis		11-Feb-08	10/13-Oct-09	10/13-Oct-09	10/13-Oct-09	10/13-Oct-09	10/13-Oct-09	10/13-Oct-09	10/13-Oct-09	10/13-Oct-09
Certificate of Analysis Number		B08-04098	B09-31678	B09-31678	B09-31678	B09-31678	B09-31678	B09-31678	B09-31678	B09-31678
Sodium	2,300,000	-	**4,390,000**	2,150,000	**6,480,000**	**2,650,000**	633,000	636,000	151,000	869,000
Chloride	2,300,000	**6,350,000**	**12,200,000**	**7,050,000**	**19,300,000**	**6,220,000**	1,080,000	1,070,000	222,000	1,790,000

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
** Replacement monitoring wells installed on August 31, 2009 b
Bold Concentration exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:

Table E.12b - Sodium & Chloride in Groundwater (Post Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW15-1		MW15-2		MW15-4	
Screen Depth Interval (m)		2.9-5.9		10.5-12.1		3.0-6.0	
Sample ID		MW15-1	MW15-1	MW15-2	MW15-2	MW15-4	MW15-4
Lab ID		1535199-01	2108311-03	1538097-01	2108311-04	1941373-07	2105402-03
		25-Aug-15	18-Feb-21	15-Sep-15	18-Feb-21	8-Oct-19	28-Jan-21
Consultant		exp	EXP	exp	EXP	EXP	EXP
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		28/31-Aug-15	19-Feb-21	16/18-Sep-15	19-Feb-21	16-Oct-19	29-Jan-21
Certificate of Analysis Number		1535199	2108311	1538097	2108311	1941373	2105402
Sodium	2,300,000	593,000	398,000	50,100	1,560,000	**3,100,000**	**2,890,000**
Chloride	2,300,000	-	799,000	-	**2,470,000**	**6,800,000**	**5,880,000**

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
** Replacement monitoring wells installed on August 31, 2009 by Trow Associates Inc.
Bold Concentration exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:

Table E.12b - Sodium & Chloride in Groundwater (Post Excavation)

Investigative Location		MW15-5				MW15-6			MW15-7			
Screen Depth Interval (m)		16.6-18.1				3.0-6.0			10.6-12.1			
Sample ID	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW15-5	MW15-5	MW15-5	MW15-5	MW15-6	MW15-6	MW15-6	MW15-7	MW15-7	MW16-4*	MW15-7
Lab ID		1535199-03	1941373-08	2105402-04	2108311-05	1535199-04	1941373-13	2108355-01	1535199-05	1941373-11	1941373-12	2108355-02
		26-Aug-15	8-Oct-19	28-Jan-21	18-Feb-21	25-Aug-15	8-Oct-19	19-Feb-21	26-Aug-15	8-Oct-19	8-Oct-19	19-Feb-21
Consultant		exp	EXP	EXP	EXP	exp	EXP	EXP	exp	EXP	EXP	EXP
Laboratory		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		28/31-Aug-15	16-Oct-19	29-Jan-21	19-Feb-21	28/31-Aug-15	16-Oct-19	22-Feb-21	28/31-Aug-15	16-Oct-19	16-Oct-19	22-Feb-21
Certificate of Analysis Number		1535199	1941373	2105402	2108311	1535199	1941373	2108355	1535199	1941373	1941373	2108355
Sodium	2,300,000	**2,670,000**	1,380,000	**3,430,000**	1,880,000	**3,160,000**	**5,120,000**	**2,680,000**	**2,680,000**	**2,500,000**	**2,530,000**	2,200,000
Chloride	2,300,000	**5,120,000**	**2,960,000**	1,630,000	**4,240,000**	-	2,010,000	**7,830,000**	**7,390,000**	**7,300,000**	**7,440,000**	**7,380,000**

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
** Replacement monitoring wells installed on August 31, 2009
Bold Concentration exceeds MECP (2011) SCS.

GROUNDWATER ANALYTICAL RESULTS:

Table E.12b - Sodium & Chloride in Groundwater (Post Excavation)

Investigative Location	MECP (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition All Types of Land Use (medium/fine textured soil)	MW15-11				MW15-12			MW12-3	Field Blank	Trip Blank
Screen Depth Interval (m)		3.0-6.0				10.6-12.1			3.2-6.2	-	-
Sample ID		MW15-11	MW15-13*	MW15-11	MW15-11	MW15-12	MW15-12	MW15-12	MW12-3	-	-
Lab ID		1535199-07	1535199-09	1941373-09	2108311-01	1535199-08	1941373-10	2108311-02	1535199-13	2108312-05	2108312-06
		25-Aug-15		8-Oct-19	18-Feb-21	26-Aug-15	8-Oct-19	18-Feb-21	26-Aug-15	18-Feb-21	18-Feb-21
Consultant		exp		EXP	EXP	exp	EXP	EXP	exp	EXP	EXP
Laboratory		Paracel		Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel	Paracel
Date of Analysis		28/31-Aug-15		16-Oct-19	19-Feb-21	28/31-Aug-15	16-Oct-19	19-Feb-21	31-Aug-15	19-Feb-21	19-Feb-21
Certificate of Analysis Number		1535199		1941373	2108311	1535199	1941373	2108311	1535199	2108312	2108312
Sodium	2,300,000	**6,760,000**	**6,490,000**	1,840,000	1,590,000	437,000	434,000	352,000	270,000	<200	<200
Chloride	2,300,000	**9,280,000**	**9,170,000**	**2,790,000**	**2,560,000**	703,000	747,000	627,000	-	<1,000	<1,000

All groundwater concentrations reported in µg/L.
'<' = Parameter below detection limit, as indicated
'NV'= No value
* Field duplicate
** Replacement monitoring wells installed on August 31, 2009
Bold Concentration exceeds MECP (2011) SCS.

Appendix F:
Borehole Logs

Borehole Log MW08-14

Trow

Project No. OTEN00018293J

Project: Supplemental Phase II Environmental Site Assessment (ESA)

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Sheet No. 1 of 1

Date Drilled: 6/8/08

Drill Type: HSA

Datum: Local

Logged by: EGS Checked by: BCC

Split Spoon Sample ⊠
Auger Sample ▮
SPT (N) Value o
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test + S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SOIL DESCRIPTION	Assumed Elevation m	DEPTH	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Sample ID
	Topsoil.	100.42 / 100.3	0				
	FILL - sand and gravel, no petroleum odur, brown, dry.	99.7					
	SILT - with some sand, compact, no petroleum odour, brown, dry.	99.5					
	CLAYEY SILT - compact, no petroleum odour, brown, damp.	99.0	1				
	CLAY - compact, no petroleum odour, grey, damp.						
W.L. 98.42		98.2	2				
	soft, grey/ brown/ green, moist.	97.4					
	TILL - clay with small pebbles, soft, no petroleum odour, dark grey/ grey, wet.		3				
	coarse sand/ small granulars.	96.7	4				
		95.2	5				
	TILL - silty sand, with fractured shale bedrock pieces, no petroleum odour, dark grey/ grey, wet.	94.5					
	Inferred Bedrock/ End of Borehole.						

SS1: 11 (SPT) / 15 (Natural Moisture Content %)
SS2: 11 / 5
SS3: 11 / 5
SS4: 5 / 5
SS5: 10 / 30
SS6: 6 / 30
SS7: 22 / 5
SS8: 77 / 30

NOTES:
- Borehole data requires interpretation assistance from Trow before use by others
- This Drawing to be read with Trow Associates Inc. report OTEN00018293J
- SS5 was submitted for laboratory analysis of PHC (F1-F4) and VOCs.
- SS1, SS2, & SS5 were submitted for laboratory analysis of boron.
-

WATER LEVEL RECORDS

Water Level Date	Water Level (m)	Hole Open To (m)
Aug. 11/ 2008	2	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

ENVIRO BOREHOLE BH LOGS.GPJ TROW OTTAWA.GDT 22/8/08

Borehole Log MW08-15

Trow

Project No. OTEN00018293J

Project: Supplemental Phase II Environmental Site Assessment (ESA)

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Sheet No. 1 of 1

Date Drilled: 6/8/08

Drill Type: HSA

Datum: Local

Logged by: EGS Checked by: BCC

Split Spoon Sample ⊠
Auger Sample ▮▯
SPT (N) Value o
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test + S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	DEPTH
		Asphalt	100.36	0
		FILL - sand and gravel with large granulars, no petroleum odour, brown, dry.	100.2	
		FILL - silty clay with trace sand and gravel, no petroleum odour, grey/ brown, moist.	99.8	
▽		CLAYEY SILT - soft, no petroleum odour, grey/ brown, moist.	98.9	1
		SANDY SILT - no petroleum odour, grey, grey/ brown, moist.	98.4	
		CLAYEY SILT - soft, no petroleum odour, grey/ brown, moist.	98.3	
		CLAY - soft, no petroleum odour, grey, moist/ wet.	98.1	2
		TILL - clayey silt with trace sand and small pebbles, no petroleum odour, grey, wet.	96.8	3
		TILL - silty clay with small pebbles, no petroleum odour, grey, wet to moist.	95.9	4
		moist to dry.	95.2	5
		Inferred Bedrock/ End of Borehole.	94.2	6

W.L. 98.84

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 10 20 30

SAMPLES	Sample ID
	SS1
	SS2
	SS3
	SS4
	SS5
	SS6
	SS7
	SS8

NOTES:
- Borehole data requires interpretation assistance from Trow before use by others
- This Drawing to be read with Trow Associates Inc. report OTEN00018293J
- SS5 was submitted for laboratory analysis of PHC (F1-F4) and VOCs.
- SS2 & SS5 were submitted for laboratory analysis of boron.
-

WATER LEVEL RECORDS		
Water Level Date	Water Level (m)	Hole Open To (m)
Aug. 11/ 2008	1.52	

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

ENVIRO BOREHOLE BH LOGS.GPJ TROW OTTAWA.GDT 22/8/08

Borehole Log MW08-16

Trow

Project No. OTEN00018293J

Project: Supplemental Phase II Environmental Site Assessment (ESA)

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Sheet No. 1 of 1

Date Drilled: 6/8/08

Drill Type: HSA

Datum: Local

Logged by: EGS Checked by: BCC

Split Spoon Sample	⊠	Combustible Vapour Reading	□
Auger Sample	▯▯	Natural Moisture Content	×
SPT (N) Value	o	Atterberg Limits	⊢—o
Dynamic Cone Test	——	Undrained Triaxial at % Strain at Failure	⊕
Shelby Tube	■	Shear Strength by Penetrometer Test	▲
Shear Strength by Vane Test	+ S		

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	DEPTH	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Sample ID
		Asphalt.	100.18	0				
		Asphalt.	100.1					
		FILL - sand gravel with some granulars, no petroleum odour, brown, dry.	99.9		55	10		SS1
		FILL - clayey silt, no petroleum odour, black/ grey, damp.	99.5					
		CLAYEY SILT - compact, no petroleum odour, grey/ brown, dry/ damp.		1	9	40		SS2
		moist.	98.7		5	20		SS3
▽		W.L. 98.46	98.4					
		CLAY - compact, no petroleum odour, grey/ brown, damp.		2	3	65		SS4
		compact/ soft.	98.0					
		TILL - clayey silt with trace sand and small pebbles, no petroleum odour, dark grey/ grey, moist/ wet.	97.2	3	10	0		SS5
				4	12	15		SS6
		TILL - silt with trace clay and some pebbles, dark grey, wet.	95.7		12	0		SS7
		moist.	94.9	5	27	0		SS8
		Inferred Bedrock/ End of Borehole.	94.3					

NOTES:

- Borehole data requires interpretation assistance from Trow before use by others
- This Drawing to be read with Trow Associates Inc. report OTEN00018293J
- SS5 was submitted for laboratory analysis of PHC (F1-F4) and VOCs.
- SS1, SS2, & SS5 were submitted for laboratory analysis of boron.
-

WATER LEVEL RECORDS		
Water Level Date	Water Level (m)	Hole Open To (m)
Aug. 11/ 2008	1.72	

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

ENVIRO BOREHOLE BH LOGS.GPJ TROW OTTAWA.GDT 22/8/08

Borehole Log MW08-17

Trow

Project No. OTEN00018293J

Project: Supplemental Phase II Environmental Site Assessment (ESA)

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Sheet No. 1 of 1

Date Drilled: 6/8/08

Drill Type: Direct Push

Datum: Local

Logged by: CH Checked by: BCC

Split Spoon Sample ⊠
Auger Sample ▯▯
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	DEPTH
		Topsoil.	100.375 / 100.3	0
		FILL - silty sand with trace organics and gravel, no petroleum odour, brown, moist.	99.9	
		FILL - silty clayey sand, with trace gravel, no petroleum odour, brown, moist.	99.3	1
		FILL - sand, no petroleum odour, brown, moist.	99.1	
▽		TILL - clayey sand , compact, no petroleum odour, brown, moist.	98.9 W.L. 98.885	
		TILL - clay with sand and gravel, no petroleum odour, light brown, moist to wet.	97.9	2
		TILL - silty clay, soft, slight sewer odour, no petroleum odour, grey, wet.	97.2	3
		trace coarse sand.	96.7	
		very soft, slight petroleum odour.	95.8	4
		TILL - clay with coarse sand and gravel, compact, slight petroleum odour, grey, moist.	95.2	5
		no petroleum odour.	94.6	
		Inferred Bedrock/ End of Borehole.		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 10 20 30

SAMPLES	Sample ID	Combustible Vapour Reading (ppm)	Natural Moisture Content %
	GS1	10	
	SS2	0	
	SS3	0	
	SS4	0	
	SS5	10	
	SS6	10	
	SS7	10	
	SS8	5	
	SS9	10	
	SS10	10	

NOTES:
- Borehole data requires interpretation assistance from Trow before use by others
- This Drawing to be read with Trow Associates Inc. report OTEN00018293J
- SS6 was submitted for laboratory analysis of PHC (F1-F4) and VOCs.
- GS1, SS2, SS3 & SS6 were submitted for laboratory analysis of boron.
-

WATER LEVEL RECORDS

Water Level Date	Water Level (m)	Hole Open To (m)
Aug. 11/ 2008	1.49	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

ENVIRO BOREHOLE BH LOGS.GPJ TROW OTTAWA.GDT 22/8/08

Jacques Whitford

MONITORING WELL RECORD

MW08-1

CLIENT City of Ottawa — PROJECT No. 1034220 — ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario — DATUM Temporary — COMPILED BY SM

DATES: BORING January 28 2008 — WATER LEVEL February 4 — TPC ELEV. 99.560 — CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	99.66	
	99.5	Concrete slab on grade.
	99.1	Brown, GRAVELLY SAND, fill, dry.
1	98.8	Dark brown, SAND, fill, dry. Some staining and minor petroleum hydrocarbon odour.
	98.1	Brown to grey, SILTY SAND, trace clay, dry. Some staining and petroleum hydrocarbon odour.
2		
	96.9	Dark grey, CLAY, dry. Staining and strong petroleum hydrocarbon odour. - Moist
3		Brown to grey, SANDY SILT, moist. Some staining and petroleum hydrocarbon odour
4		- Wet
5	94.2	
		End of BOREHOLE at approximately 5.49 m bgs. Inferred Bedrock.
6		
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL ▽

DEPTH (ft): 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32

VAPOUR CONCENTRATIONS

● %LEL ▲ ppmv

● 20 40 60 80

▲ 100 200 300 400

SAMPLES TYPE	NUMBER	N-VALUE
SS	1	
SS	2	
SS	3	
SS	4	
SS	5	

WELL CONSTRUCTION

Protective Casing and Concrete Seal

38 mm, Schedule 40, PVC Casing, with Bentonite

38 mm, Schedule 40, PVC Casing, with Sandpack

38 mm, Schedule 40, slot #10, PVC Screen with Sandpack

LABORATORY ANALYSES:

MW08-1 SS2 was submitted for laboratory analysis of metals and general inorganics, and PAHs. MW08-1 SS3 was submitted for laboratory analysis of PHC(F1-F4), VOCs, and PCBs. MW08-1 SS4 was submitted for laboratory analysis of PHC(F1-F4), and VOCs.

▽ Groundwater Level

Jacques Whitford

MONITORING WELL RECORD

MW08-2

CLIENT City of Ottawa

LOCATION 1770 Heatherington Road, Ottawa, Ontario

DATES: BORING January 28 2008 WATER LEVEL February 4

PROJECT No. 1034220 ORIGINATED BY SM

DATUM Temporary COMPILED BY SM

TPC ELEV. 99.561 CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	99.66	
	99.5	Concrete slab on grade.
	99.1	Dark brown, SAND and ORGANICS, FILL, trace cobble, dry.
1		Brown to grey, SILTY CLAY, trace sand, dry.
2		
	96.9	- Moist
3		Brown to grey, SILTY SAND, trace clay, moist.
4		
		- Wet
5		
	93.9	
6	93.7	Grey crushed stone.
		End of BOREHOLE at approximately 5.94 m bgs. Inferred Bedrock.
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL ▽

DEPTH (ft): 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32

VAPOUR CONCENTRATIONS

● %LEL ▲ ppmv

● 20 40 60 80

▲ 100 200 300 400

SAMPLES

TYPE	NUMBER	N-VALUE
SS	1	
SS	2	
SS	3	
SS	4	
SS	5	

WELL CONSTRUCTION

Protective Casing and Concrete Seal

38 mm, Schedule 40, PVC Casing, with Bentonite

38 mm, Schedule 40, PVC Casing, with Sandpack

38 mm, Schedule 40, slot #10, PVC Screen with Sandpack

LABORATORY ANALYSES: MW08-2 SS1 was submitted for laboratory analysis of PCBs, PAHs, metals and general inorganics, PHC (F1-F4) and VOCs. MW08-2 SS2 was submitted for laboratory analysis of EC, SAR, and boron. MW08-2 SS4 was submitted for laboratory analysis of PHC (F1-F4) and VOCs.

▽ Groundwater Level

JWEL 1034220 HEATHERINGTON ROAD.GPJ SMART.GDT 08/02/29

MONITORING WELL RECORD

MW08-3

CLIENT City of Ottawa — PROJECT No. 1034220 — ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario — DATUM Temporary — COMPILED BY SM

DATES: BORING January 28 2008 — WATER LEVEL February 4 — TPC ELEV. 99.653 — CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	99.72	
	99.1	Brown, TOPSOIL, fill, some cobble, trace gravel, dry
1	98.5	Brown, SANDY SILT, dry.
		Brown to grey, SILTY CLAY, dry.
2	97.3	- Moist
	96.7	Brown to grey, SILTY CLAY, some sand, trace cobble, moist. - Slight petroleum hydrocarbon odour, Wet.
3		Brown, SILTY SAND, trace cobble, wet.
4		
5	94.5	
		Brown, SAND, with crushed stone.
6	93.9	
		End of BOREHOLE at approximately 5.79 m bgs. Inferred Bedrock.
7		
8		
9		
10		

STRATA PLOT | WATER LEVEL | DEPTH (ft)

VAPOUR CONCENTRATIONS — ● %LEL ▲ ppmv

● 20 40 60 80

▲ 100 200 300 400

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32

SAMPLES TYPE	NUMBER	N-VALUE
SS	1	
SS	2	
SS	3	
SS	3	
SS	5	

WELL CONSTRUCTION

- Protective Casing and Concrete Seal
- 38 mm, Schedule 40, PVC Casing, with Bentonite
- 38 mm, Schedule 40, PVC Casing, with Sandpack
- 38 mm, Schedule 40, slot #10, PVC Screen with Sandpack

LABORATORY ANALYSES: MW08-3 SS1 was submitted for laboratory analysis of metals and general inorganics, and PAHs. MW08-3 SS3 was submitted for laboratory analysis of PHC(F1-F4), VOCs, PCBs, EC, SAR, and boron.

▽ Groundwater Level

MONITORING WELL RECORD

Page 1 of
MW08-4

CLIENT City of Ottawa
PROJECT No. 1034220 ORIGINATED BY SM
LOCATION 1770 Heatherington Road, Ottawa, Ontario
DATUM Temporary COMPILED BY SM
DATES: BORING January 28 2008 WATER LEVEL February 4 TPC ELEV. 98.782 CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	98.90	
	98.3	Brown, TOPSOIL, fill, with sand and organics, dry.
1	97.7	Brown to grey, SILTY CLAY, some sand, dry.
2		Brown to grey, SILTY CLAY, dry.
		- Moist
3		- Some staining, Wet
	95.2	
4		Brown, SILTY SAND, some cobble, wet.
5		
	93.0	
6		End of BOREHOLE at approximately 5.94 m bgs. Inferred Bedrock.
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL ▽

VAPOUR CONCENTRATIONS
● %LEL ▲ ppmv
● 20 40 60 80
▲ 100 200 300 400
DEPTH (ft): 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32

SAMPLES TYPE	NUMBER	N-VALUE
SS	1	
SS	2	
SS	3	
SS	4	
SS	5	

WELL CONSTRUCTION
Protective Casing and Concrete Seal
38 mm, Schedule 40, PVC Casing, with Bentonite
38 mm, Schedule 40, PVC Casing, with Sandpack
38 mm, Schedule 40, slot #10, PVC Screen with Sandpack

LABORATORY ANALYSES: MW08-4 SS1 was submitted for laboratory analysis of PAHs, and metals and general inorganics. MW08-4 SS3 was submitted for laboratory analysis of PHC (F1-F4), VOCs, and PCBs.

▽ Groundwater Level

JWEL 1034220 HEATHERINGTON ROAD.GPJ SMART.GDT 08/02/29

Jacques Whitford

MONITORING WELL RECORD

MW08-5

CLIENT City of Ottawa — PROJECT No. 1034220 — ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario — DATUM Temporary — COMPILED BY SM

DATES: BORING January 28 2008 — WATER LEVEL February 4 — TPC ELEV. 98.892 — CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	99.01	
	98.9	Brown TOPSOIL, fill, dry.
1		Brown to grey, SILTY CLAY, some sand, trace cobble, dry.
	97.8	- Moist.
2		Brown, SAND, some cobble, trace silt, moist.
	96.6	
3		Brown, SILTY SAND, some cobble, moist.
		- Wet
4		
	94.1	
5		Brown, SAND, some cobble, wet.
	93.5	
6		End of BOREHOLE at approximately 5.49 m bgs. Inferred Bedrock.
7		
8		
9		
10		

STRATA PLOT

WATER LEVEL ▽

DEPTH (ft): 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32

VAPOUR CONCENTRATIONS

● %LEL ▲ ppmv

● 20 40 60 80

▲ 100 200 300 400

SAMPLES TYPE	NUMBER	N-VALUE
SS	1	
SS	2	
SS	3	
SS	4	
SS	5	

WELL CONSTRUCTION

Protective Casing and Concrete Seal

38 mm, Schedule 40, PVC Casing, with Bentonite

38 mm, Schedule 40, PVC Casing, with Sandpack

38 mm, Schedule 40, slot #10, PVC Screen with Sandpack

LABORATORY ANALYSES: MW08-5 SS4 was submitted for laboratory analysis of PHC(F1-F4), BTEX, and lead.

▽ Groundwater Level

MONITORING WELL RECORD

MW08-6

CLIENT City of Ottawa — PROJECT No. 1034220 — ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario — DATUM Temporary — COMPILED BY SM

DATES: BORING January 28 2008 — WATER LEVEL February 4 — TPC ELEV. 99.636 — CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE	WELL CONSTRUCTION
0	99.72					
	99.4	Brown, TOPSOIL, fill, dry.				Protective Casing anc Concrete Seal
1		Brown to grey, SILTY CLAY, some sand, trace stone, dry.	SS	1		38 mm, Schedule 40, PVC Casing, with Bentonite
	97.7		SS	2		
2		Dark brown, CLAYEY SILT, some sand, trace stone, dry.				
3		- Moist	SS	4		
4			SS	4		38 mm, Schedule 40, PVC Casing, with Sandpack
5		- Wet	SS	5		38 mm, Schedule 40, slot #10, PVC Screen with Sandpack
	93.9					
6		End of BOREHOLE at approximately 5.79 m bgs. Inferred Bedrock.				
7						
8						
9						
10						

VAPOUR CONCENTRATIONS — ● %LEL ▲ ppmv

● 20 40 60 80

▲ 100 200 300 400

DEPTH (ft): 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32

LABORATORY ANALYSES: MW08-6 SS4 was submitted for laboratory analysis of PHC(F1-F4), and VOCs.

▽ Groundwater Level

JWEL 1034220 HEATHERINGTON ROAD.GPJ SMART.GDT 08/02/29

MONITORING WELL RECORD

MW08-7

CLIENT City of Ottawa
PROJECT No. 1034220 ORIGINATED BY SM
LOCATION 1770 Heatherington Road, Ottawa, Ontario
DATUM Temporary COMPILED BY SM
DATES: BORING January 29 2008 WATER LEVEL February 5
TPC ELEV. 99.457 CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE	WELL CONSTRUCTION
0	99.57					
	99.4	Brown, SAND and ORGANICS, fill, trace stone, dry.				Protective Casing and Concrete Seal
1		Brown to grey, SILTY CLAY, some sand, trace cobbles, dry.	SS	1		38 mm, Schedule 40, PVC Casing, with Bentonite
2		- Moist	SS	2		38 mm, Schedule 40, PVC Casing, with Sandpack
3			SS	3		38 mm, Schedule 40, slot #10, PVC Screen with Sandpack
4	95.6	Dark Brown, SILTY SAND, some clay, trace cobble, moist.	SS	4		
5		- Wet	SS	5		
6	93.5	End of BOREHOLE at approximately 6.1 m bgs. Inferred Bedrock.				
7						
8						
9						
10						

STRATA PLOT | WATER LEVEL | DEPTH (ft) | VAPOUR CONCENTRATIONS ● %LEL ▲ ppmv

● 20 40 60 80
▲ 100 200 300 400

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32

LABORATORY ANALYSES: MW08-7 SS1 was submitted for laboratory analysis of PAHs, and metals and general inorganics. MW08-7 SS2 was submitted for laboratory analysis of PHC (F1-F4), VOCs, PCBs, EC and SAR. MW08-7 SS3 was submitted for laboratory analysis of PHC (F1 to F4), VOCs EC, and SAR.

▽ Groundwater Level

MONITORING WELL RECORD

MW08-8

CLIENT City of Ottawa PROJECT No. 1034220 ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario DATUM Temporary COMPILED BY SM

DATES: BORING January 29 2008 WATER LEVEL February 5 TPC ELEV. 99.765 CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION
0	99.86	
	99.7	Brown, TOPSOIL, fill, dry.
1		Brown to grey, SILTY CLAY, trace cobble, dry.
2		- Moist
3	96.8	
4		Grey, CLAY, moist.
5		- Wet
6	93.8	
7		End of BOREHOLE at approximately 6.1 m bgs. Inferred Bedrock.
8		
9		
10		

STRATA PLOT

WATER LEVEL ▽

DEPTH (ft): 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32

VAPOUR CONCENTRATIONS
● %LEL ▲ ppmv
● 20 40 60 80
▲ 100 200 300 400

SAMPLES TYPE	NUMBER	N-VALUE
SS	1	
SS	2	
SS	3	
SS	3	
SS	5	

WELL CONSTRUCTION

- Protective Casing and Concrete Seal
- 38 mm, Schedule 40, PVC Casing, with Bentonite
- 38 mm, Schedule 40, PVC Casing, with Sandpack
- 38 mm, Schedule 40, slot #10, PVC Screen with Sandpack

LABORATORY ANALYSES:

MW08-8 SS1 was submitted for laboratory analysis of PAHs, and metals and general inorganics. MW08-8 SS2 was submitted for laboratory analysis of PHC (F1-F4), VOCs, PCBs, EC, and SAR. MW08-8 SS3 was submitted for laboratory analysis of PHC (F1 to F4), VOCs, EC and SAR.

▽ Groundwater Level

JWEL 1034220 HEATHERINGTON ROAD.GPJ SMART.GDT 08/02/29

Log of Borehole 08-10

Trow

Project No: OTGE00018293JB

Project: Preliminary Geotechnical Investigation

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. 3

Feuille. 1 of 1

Date Drilled: 'August 5, 2008

Drill Type:

Datum: Geodetic

Logged by: _____ Checked by: _____

Split Spoon Sample	⊠	Combustible Vapour Reading	□
Auger Sample	▯▯	Natural Moisture Content	×
SPT (N) Value	o	Atterberg Limits	⊢—o
Dynamic Cone Test	——	Undreined Triaxiel at % Strain at Failure	⊕
Shelby Tube	■	Shear Strength by Penetrometer Test	▲
Shear Strength by Vane Test	+ S		

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic m	Depth	Standard Penetration Test N Value / Shear Strength kPe	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		FILL Silty clayey sand, brown/grey, dry (compact)	99.6	0	21			
		SILTY CLAY Grey, dry to wet	98.8	1	10			
				98				
				2	4			
				3	6, 53, s=52, s=8			
				4	2, 1			
		SILTY CLAY TILL Gravel, cobbles, occasional boulders, grey to brown, moist to dry (compact)	95.4	5	20			
					115/200 mm			
		Refusal to augers @ 5.8 m depth	93.8					

NOTES:
1. Borehole/Test Pit deta requires Interpretation by Trow before use by others
2. A 19 mm slotted standpipe instelled in the borehole upon completion of drilling
3. Field work supervised by a Trow representative
4. See Notes on Sample Descriptions
5. This Figure is to raed with Trow Associates Inc. report OTGE00018293JB

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
6 days	1.6	-

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE BH1TO1-1.GPJ TROW OTTAWA.GDT 22/8/08

Log of Borehole 08-11

Trow

Project No: OTGE00018293JB

Project: Preliminary Geotechnical Investigation

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. 4

Feuille. 1 of 1

Date Drilled: August 5, 2008

Drill Type:

Datum: Geodetic

Logged by: _____ Checked by: _____

Split Spoon Sample	⊠	Combustible Vapour Reading	□
Auger Sample	▮	Natural Moisture Content	×
SPT (N) Value	o	Atterberg Limits	⊢—○
Dynamic Cone Test	——	Undrained Triaxial at % Strain at Failure	⊕
Shelby Tube	■	Sheer Strength by Penetrometer Test	▲
Shear Strength by Vene Test	+ S		

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic m	Depth
		FILL Silty sand and gravel, trace clay, brown/grey, dry (very dense)	100.1	0
			99.2	
		SILTY CLAY Occasional gravel, brown/grey to grey, moist to wet (firm to stiff)		1
			98.3	2
				3
				4
			95.7	
		SILTY CLAY TILL Gravel, cobbles, rock fragments, occasional boulders, grey to brown, moist to dry (compact)		5
			-	6
			93.2	
		Refusal to augers @ 6.9 m depth		

Standard Penetration Test N Value: 20 40 60 80

Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750

Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

63 10 6 3 43 s=58 s=8 4 23 50 50/100 mm

LOG OF BOREHOLE BH1TO1-1.GPJ TROW OTTAWA.GDT 22/8/08

NOTES:
1. Borehole/Test Pit data requires Interpretation by Trow before use by others
2. A 19 mm slottad standpipe instelled in the borehole upon completion of drilling
3. Field work supervised by a Trow representative
4. See Notes on Sample Descriptions
5. This Figure is to read with Trow Associates Inc. report OTGE00018293JB

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
6 days	1.8	-

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

Log of Borehole 08-12

Trow

Project No: OTGE00018293JB

Project: Preliminary Geotechnical Investigation

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. 5

Feuille. 1 of 1

Date Drilled: 'August 5, 2008

Drill Type:

Datum: Geodetic

Logged by: _____ Checked by: _____

Split Spoon Sample	⊠	Combustible Vapour Reading	□
Auger Sample	▯	Netural Moisture Content	×
SPT (N) Value	o	Atterberg Limits	⊢—⊖
Dynamic Cone Test	——	Undrained Triaxial at % Strain et Failure	⊕
Shelby Tube	■	Shear Strength by Penetrometer Test	▲
Shear Strength by Vane Test	+ S		

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic m	Depth
		FILL Sand and gravel, some silt, brown/grey, wet (compact)	100.8	0
		SILTY CLAY Brown/grey, dry	100.0	1
		SILTY SAND TO SAND TILL Gravel, cobbles, occasional boulders, dark brown to dark grey, wet to dry (loose to very dense)	99.2	2
			98.5	3
				4
				5
				6
			94.4	7
		Refusal to augers @ 6.4 m depth		8

Standard Penetration Test N Value: 20 40 60 80

Shear Strength: 50 100 150 200 kPa

Combustible Vapour Raading (ppm): 250 500 750

Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

14 10 8 19 13 14 10 35 28/150 mm

LOG OF BOREHOLE BH1TO1-1.GPJ TROW OTTAWA.GDT 22/8/08

NOTES:
1. Borehole/Test Pit date requires Interpretation by Trow before use by others
2. A 19 mm slotted standpipe instelled in the borehole upon completion of drilling
3. Field work supervised by a Trow representative
4. See Notes on Sample Descriptions
5. This Figure is to raad with Trow Associetes Inc. report OTGE00018293JB

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
6 days	2.3	-

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

Log of Borehole 08-13

Trow

Project No: OTGE00018293JB

Project: Preliminary Geotechnical Investigation

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. 6

Feuille. 1 of 1

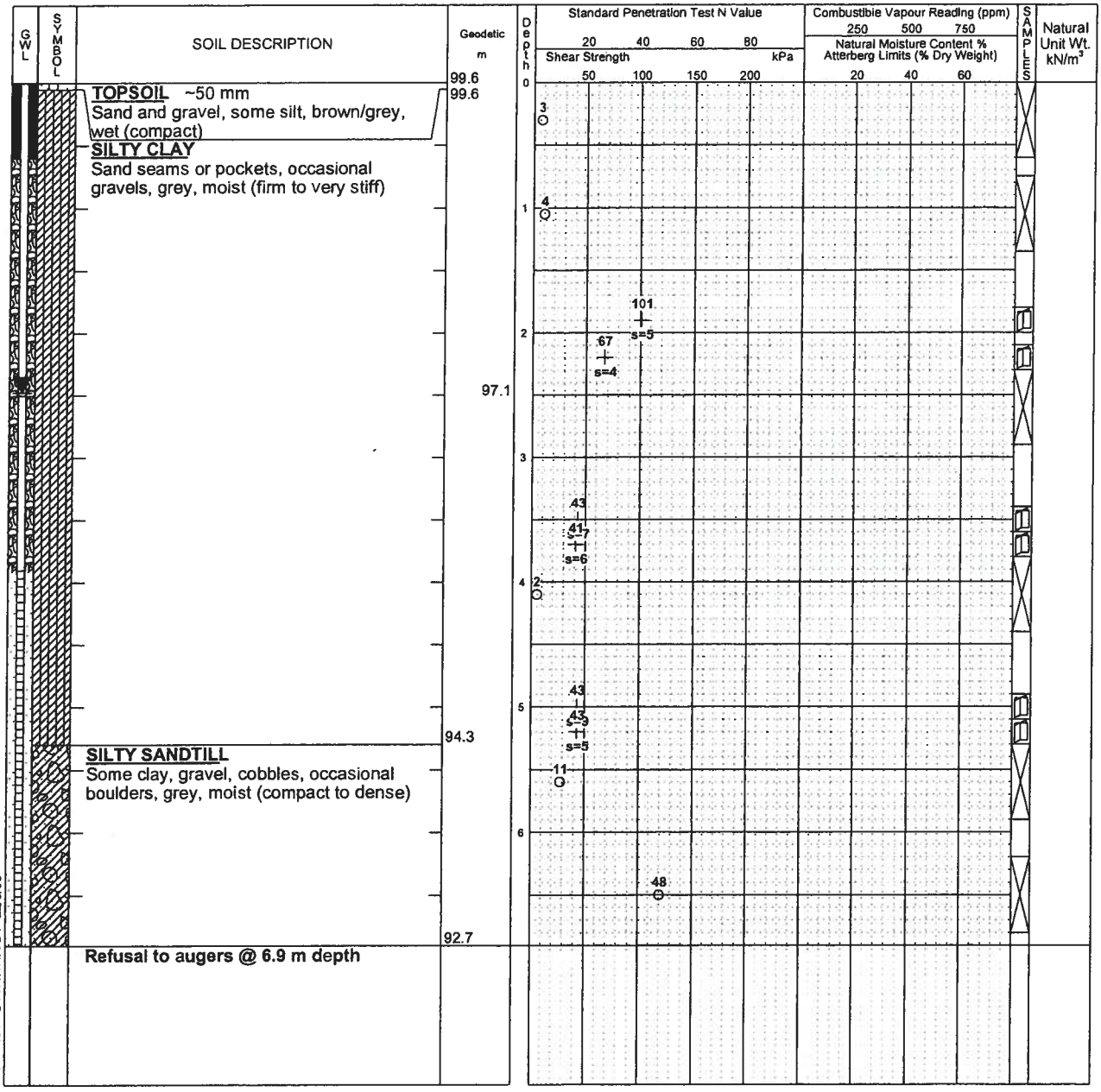
Date Drilled: August 5, 2008

Drill Type:

Datum: Geodetic

Logged by: _____ Checked by: _____

Split Spoon Sample	⊠	Combustible Vapour Reading	□
Auger Sample	◫	Natural Moisture Content	×
SPT (N) Value	○	Atterberg Limits	⊢○
Dynamic Cone Test	——	Undrained Triaxial at % Strain at Failure	⊕
Shelby Tube	■	Shear Strength by Penetrometer Test	▲
Shaar Strength by Vane Test	+ S		



LOG OF BOREHOLE BH1TO1-1.GPJ TROW OTTAWA.GDT 22/8/08

NOTES:
1. Borehole/Test Pit dete requires interpretation by Trow before use by others
2. A 19 mm slotted standpipe installed in the borehole upon completion of drilling
3. Field work supervised by e Trow representative
4. See Notes on Sample Descriptions
5. This Figure is to read with Trow Associates Inc. report OTGE00018293JB

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
6 days	2.5	-

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

Borehole Log MW08-10 REP

Trow

Project No. OTEN00018293J

Project: Supplemental Phase II Environmental Site Assessment (ESA)

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Sheet No. 1 of 1

Date Drilled: 31/8/09

Drill Type: Direct Push

Datum: Local

Logged by: DK Checked by: _____

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	DEPTH
		SAND AND GRAVEL: grey, dry	99.6	0
		CLAY: with some sand and gravel, grey, dry	99.0	
		CLAY: grey, moist	98.4	1
▽ W.L. 98.1				2
		wet		3
				4
			94.7	
		BH ENDED AT 4.88m		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 10 20 30

SAMPLES

Sample ID
SS1
SS2
SS3
SS4
SS5

NOTES:
- Borehole data requires interpretation assistance from Trow before use by others
- This Drawing to be read with Trow Associates Inc. report OTEN00018293J
-
-
-

WATER LEVEL RECORDS		
Water Level Date	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

ENVIRO BOREHOLE BH LOGS.GPJ TROW OTTAWA.GDT 11/11/09

Borehole Log MW08-11 REP

Trow

Project No. OTEN00018293J

Project: Supplemental Phase II Environmental Site Assessment (ESA)

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Sheet No. 1 of 1

Date Drilled: 31/8/09

Drill Type: Direct Push

Datum: Local

Logged by: DK Checked by: _____

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	DEPTH
		SAND AND GRAVEL: grey, dry	100.1	0
		CLAY: with some sand and gravel, grey, dry	99.4	1
▼		CLAY: grey, moist	98.3 **W.L. 98.3**	2
		wet		3
				4
				5
		BH ENDED AT 5.79m	94.3	

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 10 20 30

SAMPLES

Sample ID
SS1
SS2
SS3
SS4
SS5
SS6
SS7

NOTES:
- Borehole data requires interpretation assistance from Trow before use by others
- This Drawing to be read with Trow Associates Inc. report OTEN00018293J
-
-
-

WATER LEVEL RECORDS		
Water Level Date	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

ENVIRO BOREHOLE BH LOGS.GPJ TROW OTTAWA.GDT 11/11/09

Borehole Log MW08-14

Trow

Project No. OTEN00018293J

Project: Supplemental Phase II Environmental Site Assessment (ESA)

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Sheet No. 1 of 1

Date Drilled: 6/8/08

Drill Type: HSA

Datum: Local

Logged by: EGS Checked by: BCC

Split Spoon Sample	⊠	Combustible Vapour Reading	□
Auger Sample	◧	Natural Moisture Content	×
SPT (N) Value	○	Atterberg Limits	⊢○
Dynamic Cone Test	——	Undrained Triaxial at % Strain at Failure	⊕
Shelby Tube	■	Shear Strength by Penetrometer Test	▲
Shear Strength by Vane Test	+ S		

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	DEPTH	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Sample ID
			100.42		20 40 60 80 / 50 100 150 200	250 500 750 / 10 20 30		
		Topsoil.	100.3	0				
		FILL - sand and gravel, no petroleum odur, brown, dry.	99.7		11	15		SS1
		SILT - with some sand, compact, no petroleum odour, brown, dry.	99.5	1	11	5		SS2
		CLAYEY SILT - compact, no petroleum odour, brown, damp.	99.0					
		CLAY - compact, no petroleum odour, grey, damp.			11	5		SS3
			W.L. 98.42	2				
		soft, grey/ brown/ green, moist.	98.2		5	5		SS4
		TILL - clay with small pebbles, soft, no petroleum odour, dark grey/ grey, wet.	97.4	3	10	30		SS5
		coarse sand/ small granulars.	96.7	4	6	30		SS6
					22	5		SS7
			95.2	5				
		TILL - silty sand, with fractured shale bedrock pieces, no petroleum odour, dark grey/ grey, wet.	94.5		77	30		SS8
		Inferred Bedrock/ End of Borehole.						

NOTES:
- Borehole data requires interpretation assistance from Trow before use by others
- This Drawing to be read with Trow Associates Inc. report OTEN00018293J
- SS1 was submitted for laboratory analysis of PHC (F1-F4) and VOCs.
- SS1, SS2, & SS5 were submitted for laboratory analysis of boron.
-

WATER LEVEL RECORDS		
Water Level Date	Water Level (m)	Hole Open To (m)
Aug. 11/ 2008	2	

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

ENVIRO BOREHOLE BH LOGS.GPJ TROW OTTAWA.GDT 11/11/09

Borehole Log MW08-15

Trow

Project No. OTEN00018293J

Project: Supplemental Phase II Environmental Site Assessment (ESA)

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Sheet No. 1 of 1

Date Drilled: 6/8/08

Drill Type: HSA

Datum: Local

Logged by: EGS Checked by: BCC

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SOIL DESCRIPTION	Assumed Elevation m	DEPTH
	Asphalt	100.36	0
	FILL - sand and gravel with large granulars, no petroleum odour, brown, dry.	100.2	
	FILL - silty clay with trace sand and gravel, no petroleum odour, grey/ brown, moist.	99.8	
W.L. 98.84	CLAYEY SILT - soft, no petroleum odour, grey/ brown, moist.	98.9	1
	SANDY SILT - no petroleum odour, grey, grey/ brown, moist.	98.4	
	CLAYEY SILT - soft, no petroleum odour, grey/ brown, moist.	98.3	2
	CLAY - soft, no petroleum odour, grey, moist/ wet.	98.1	
	TILL - clayey silt with trace sand and small pebbles, no petroleum odour, grey, wet.	96.8	3
	TILL - silty clay with small pebbles, no petroleum odour, grey, wet to moist.	95.9	4
	moist to dry.	95.2	5
	Inferred Bedrock/ End of Borehole.	94.2	6

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 10 20 30

SAMPLES	Sample ID	SPT N	Shear Strength (kPa)	Combustible Vapour Reading (ppm)	Natural Moisture Content % / Atterberg Limits (% Dry Weight)
	SS1	10		5	
	SS2	5		10	
	SS3	2		30	
	SS4	2		40	
	SS5	2		0	
	SS6	4		30	
	SS7	15		15	
	SS8	30		10	

NOTES:
- Borehole data requires interpretation assistance from Trow before use by others
- This Drawing to be read with Trow Associates Inc. report OTEN00018293J
- SS5 was submitted for laboratory analysis of PHC (F1-F4) and VOCs.
- SS2 & SS5 were submitted for laboratory analysis of boron.
-

WATER LEVEL RECORDS

Water Level Date	Water Level (m)	Hole Open To (m)
Aug. 11/ 2008	1.52	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

ENVIRO BOREHOLE BH LOGS.GPJ TROW OTTAWA.GDT 11/11/09

Borehole Log MW08-16

Trow

Project No. OTEN00018293J

Project: Supplemental Phase II Environmental Site Assessment (ESA)

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Sheet No. 1 of 1

Date Drilled: 6/8/08

Drill Type: HSA

Datum: Local

Logged by: EGS Checked by: BCC

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	DEPTH
		Asphalt.	100.18	0
		FILL - sand gravel with some granulars, no petroleum odour, brown, dry.	100.1 99.9	
		FILL - clayey silt, no petroleum odour, black/ grey, damp.	99.5	
		CLAYEY SILT - compact, no petroleum odour, grey/ brown, dry/ damp.		1
		moist.	98.7	
▽			98.4 W.L. 98.46	2
		CLAY - compact, no petroleum odour, grey/ brown, damp.		
		compact/ soft.	98.0	
			97.2	3
		TILL - clayey silt with trace sand and small pebbles, no petroleum odour, dark grey/ grey, moist/ wet.		
			95.7	4
		TILL - silt with trace clay and some pebbles, dark grey, wet.		
		moist.	94.9	5
			94.3	
		Inferred Bedrock/ End of Borehole.		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa
Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 10 20 30

SAMPLES	Sample ID	SPT N	Shear Strength (kPa)	Combustible Vapour Reading (ppm)	Natural Moisture Content %
	SS1	55		10	
	SS2	9		40	
	SS3	5		20	
	SS4	3		65	
	SS5	10		0	
	SS6	12		15	
	SS7	12		0	
	SS8	27		0	

NOTES:
- Borehole data requires interpretation assistance from Trow before use by others
- This Drawing to be read with Trow Associates Inc. report OTEN00018293J
- SS5 was submitted for laboratory analysis of PHC (F1-F4) and VOCs.
- SS1, SS2, & SS5 were submitted for laboratory analysis of boron.
-

WATER LEVEL RECORDS

Water Level Date	Water Level (m)	Hole Open To (m)
Aug. 11/ 2008	1.72	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

ENVIRO BOREHOLE BH LOGS.GPJ TROW OTTAWA.GDT 11/11/09

Borehole Log MW08-17

Trow

Project No. OTEN00018293J

Project: Supplemental Phase II Environmental Site Assessment (ESA)

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Sheet No. 1 of 1

Date Drilled: 6/8/08

Drill Type: Direct Push

Datum: Local

Logged by: CH Checked by: BCC

Split Spoon Sample	⊠	Combustible Vapour Reading	□
Auger Sample	◧	Natural Moisture Content	×
SPT (N) Value	○	Atterberg Limits	⊢○
Dynamic Cone Test	——	Undrained Triaxial at % Strain at Failure	⊕
Shelby Tube	■	Shear Strength by Penetrometer Test	▲
Shear Strength by Vane Test	+ S		

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	DEPTH	Standard Penetration Test N Value (20 40 60 80) / Shear Strength (50 100 150 200 kPa)	Combustible Vapour Reading (ppm) (250 500 750) / Natural Moisture Content % Atterberg Limits (% Dry Weight) (10 20 30)	SAMPLES	Sample ID
		Topsoil.	100.375 100.3	0		10		GS1
		FILL - silty sand with trace organics and gravel, no petroleum odour, brown, moist.	99.9			0		SS2
		FILL - silty clayey sand, with trace gravel, no petroleum odour, brown, moist.	99.3	1		0		SS3
		FILL - sand, no petroleum odour, brown, moist.	99.1 98.9 **W.L.**			0		SS4
		TILL - clayey sand , compact, no petroleum odour, brown, moist.	**98.885**			10		SS5
		TILL - clay with sand and gravel, no petroleum odour, light brown, moist to wet.	97.9	2		10		SS6
		TILL - silty clay, soft, slight sewer odour, no petroleum odour, grey, wet.	97.2	3		10		SS7
		trace coarse sand.	96.7			5		SS8
		very soft, slight petroleum odour.	95.8	4		10		SS9
		TILL - clay with coarse sand and gravel, compact, slight petroleum odour, grey, moist.	95.2	5		10		SS10
		no petroleum odour.	94.6					
		Inferred Bedrock/ End of Borehole.						

NOTES:
- Borehole data requires interpretation assistance from Trow before use by others
- This Drawing to be read with Trow Associates Inc. report OTEN00018293J
- SS6 was submitted for laboratory analysis of PHC (F1-F4) and VOCs.
- GS1, SS2, SS3 & SS6 were submitted for laboratory analysis of boron.
-

WATER LEVEL RECORDS

Water Level Date	Water Level (m)	Hole Open To (m)
Aug. 11/ 2008	1.49	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

ENVIRO BOREHOLE BH LOGS.GPJ TROW OTTAWA.GDT 11/11/09

Borehole Log MW18

Trow

Project No. OTEN00018293J

Project: Supplemental Phase II Environmental Site Assessment (ESA)

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Sheet No. 1 of 1

Date Drilled: 10/11/08

Drill Type: Direct Push

Datum: Local

Logged by: DK Checked by: _____

Split Spoon Sample	⊠	Combustible Vapour Reading	□
Auger Sample	◧	Natural Moisture Content	×
SPT (N) Value	○	Atterberg Limits	⊢○
Dynamic Cone Test	——	Undrained Triaxial at % Strain at Failure	⊕
Shelby Tube	■	Shear Strength by Penetrometer Test	▲
Shear Strength by Vane Test	+ S		

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	DEPTH	Standard Penetration Test N Value (20 40 60 80) / Shear Strength (50 100 150 200 kPa)	Combustible Vapour Reading (ppm) (250 500 750) / Natural Moisture Content % Atterberg Limits (% Dry Weight) (10 20 30)	SAMPLES	Sample ID
		TOPSOIL		0				
		trace gravel						
		SILTY CLAY - brown, soft, moist, no odour						SS1
		SILTY CLAY - olive, soft, moist, no odour		1				SS2A
								SS2B
		grey, soft, wet		2				
		sand seam						SS3A
		SILTY CLAY - grey, soft, wet						
				3				SS3B
		very soft, saturated						
		with gravel		4				SS4
		with trace fine gravel, no odour						
				5				SS5
		Inferred Bedrock/ End of Borehole.						

NOTES:
- Borehole data requires interpretation assistance from Trow before use by others
- This Drawing to be read with Trow Associates Inc. report OTEN00018293J
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-

WATER LEVEL RECORDS		
Water Level Date	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

ENVIRO BOREHOLE BH LOGS.GPJ TROW OTTAWA.GDT 11/11/09

Borehole Log MW19

Trow

Project No. OTEN00018293J

Project: Supplemental Phase II Environmental Site Assessment (ESA)

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Sheet No. 1 of 1

Date Drilled: 10/11/08

Drill Type: Direct Push

Datum: Local

Logged by: DK Checked by: _____

Split Spoon Sample	⊠	Combustible Vapour Reading	□
Auger Sample	◧	Natural Moisture Content	×
SPT (N) Value	○	Atterberg Limits	⊢○
Dynamic Cone Test	——	Undrained Triaxial at % Strain at Failure	⊕
Shelby Tube	■	Shear Strength by Penetrometer Test	▲
Shear Strength by Vane Test	+ S		

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	DEPTH	Standard Penetration Test N Value (20 40 60 80) / Shear Strength (50 100 150 200 kPa)	Combustible Vapour Reading (ppm) (250 500 750) / Natural Moisture Content % Atterberg Limits (% Dry Weight) (10 20 30)	SAMPLES	Sample ID
		TOPSOIL		0				
		SILTY CLAY - brown, firm, moist, no odour, with trace fine gravel and trace organics						
		SILTY CLAY - brown, firm, moist, no odour						SS1
		SILTY CLAY - olive, firm, moist, no odour		1				SS2A
								SS2B
		wet		2				SS3A
		with trace gravel		3				SS3B
		SILTY CLAY - dark brown, soft, saturated, no odour		4				SS4
								SS5
		Inferred Bedrock/ End of Borehole.		5				

NOTES:
- Borehole data requires interpretation assistance from Trow before use by others
- This Drawing to be read with Trow Associates Inc. report OTEN00018293J
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-

WATER LEVEL RECORDS		
Water Level Date	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

ENVIRO BOREHOLE BH LOGS.GPJ TROW OTTAWA.GDT 11/11/09

Jacques Whitford

TEST PIT RECORD

TP08-1

CLIENT City of Ottawa PROJECT No. 1034220 ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario DATUM Temporary COMPILED BY SM

DATES: BORING January 30 2008 WATER LEVEL TPC ELEV. CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	VAPOUR CONCENTRATIONS ● %LEL ▲ ppmv	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0						● 20 40 60 80 ▲ 100 200 300 400			
		Dark brown, TOPSOIL, fill, some sand, gravel, and organics.					GS	11	
		Grey to brown, SILTY CLAY, some sand and gravel.			2		GS	12	
1		Grey, CLAY, trace silt.			4		GS	13	
2					6				
					8				
3					10				
					12				
4					14				
					16				
5					18				
					20				
6					22				
					24				
7					26				
					28				
8					30				
9					32				
10									

LABORATORY ANALYSES: TP08-11 was submitted for laboratory analysis of metals and general inorganics, and PAHs.

Jacques Whitford

TEST PIT RECORD

TP08-2

CLIENT City of Ottawa PROJECT No. 1034220 ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario DATUM Temporary COMPILED BY SM

DATES: BORING January 30 2008 WATER LEVEL TPC ELEV. CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	VAPOUR CONCENTRATIONS ● %LEL ▲ ppmv	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
						● 20 40 60 80 ▲ 100 200 300 400			
0		Dark brown, SANDY GRAVEL, fill, some organics.					GS	21	
		Brown to grey, SILTY CLAY, some sand and gravel.			2		GS	22	
1		Grey, CLAY, trace silt.			4		GS	23	
2					6				
					8				
3					10				
					12				
4					14				
					16				
5					18				
					20				
6					22				
					24				
7					26				
					28				
8					30				
9					32				
10									

LABORATORY ANALYSES: TP08-23 was submitted for laboratory analysis of PHC (F1-F4), BTEX, and PCBs.

Jacques Whitford

TEST PIT RECORD

TP08-3

CLIENT City of Ottawa
PROJECT No. 1034220 ORIGINATED BY SM
LOCATION 1770 Heatherington Road, Ottawa, Ontario
DATUM Temporary COMPILED BY SM
DATES: BORING January 30 2008 WATER LEVEL
TPC ELEV. CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	VAPOUR CONCENTRATIONS ● %LEL ▲ ppmv	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0						● 20 40 60 80 ▲ 100 200 300 400			
0		Dark brown, SANDY GRAVEL, fill, some organics.					GS	31	
		Brown to grey, SILTY CLAY, some sand and gravel. Some staining.			2		GS	32	
1		Grey, CLAY, trace silt. Some staining.					GS	33	
					4				
2					6				
					8				
3					10				
					12				
4					14				
					16				
5					18				
					20				
6					22				
					24				
7					26				
					28				
8					30				
9									
10					32				

LABORATORY ANALYSES: TP08-32 was submitted for laboratory analysis of metals and general inorganics, and PAHs. TP08-33 was submitted for laboratory analysis of PHC (F1-F4), BTEX, and PCBs.

Jacques Whitford

TEST PIT RECORD

TP08-4

CLIENT City of Ottawa PROJECT No. 1034220 ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario DATUM Temporary COMPILED BY SM

DATES: BORING January 30 2008 WATER LEVEL TPC ELEV. CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	VAPOUR CONCENTRATIONS ● %LEL ▲ ppmv	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
						● 20 40 60 80 ▲ 100 200 300 400			
0		Dark brown, TOPSOIL, fill, some sand, gravel, and organics.					GS	41	
							GS	42	
		Grey to brown, SILTY CLAY, some sand and gravel.			2				
1					4				
2					6				
					8				
3					10				
					12				
4					14				
5					16				
					18				
6					20				
					22				
7					24				
					26				
8					28				
9					30				
					32				
10									

LABORATORY ANALYSES: TP08-41 was submitted for laboratory analysis of metals and general inorganics, PAHs, PCBs, PHC (F1-F4), and BTEX. TP08-42 was submitted for laboratory analysis of EC and SAR.

Jacques Whitford

TEST PIT RECORD

TP08-5

CLIENT City of Ottawa
PROJECT No. 1034220
ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario
DATUM Temporary
COMPILED BY SM

DATES: BORING January 30 2008
WATER LEVEL
TPC ELEV.
CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	VAPOUR CONCENTRATIONS ● %LEL ▲ ppmv	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0		Compact gravel and cobbles.				● 20 40 60 80 ▲ 100 200 300 400			
1		Grey, CLAY, some sand and silt, moist.			4		GS	51	
2									
3									
4									
5									
6									
7									
8									
9									
10									

LABORATORY ANALYSES: TP08-51 was submitted for laboratory analysis of PHC (F1-F4), BTEX, PCBs, EC and SAR.

Jacques Whitford

TEST PIT RECORD

TP08-6

CLIENT City of Ottawa PROJECT No. 1034220 ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario DATUM Temporary COMPILED BY SM

DATES: BORING January 30 2008 WATER LEVEL TPC ELEV. CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	VAPOUR CONCENTRATIONS ● %LEL ▲ ppmv	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
						● 20 40 60 80 ▲ 100 200 300 400			
0		Crushed stone, some sand, fill.			2				
1		Dark brown to grey, SILTY CLAY, some stone.			4	▲	GS	61	
2					6				
3					8				
4					10				
5					12				
6					14				
7					16				
8					18				
9					20				
10					22				
					24				
					26				
					28				
					30				
					32				

LABORATORY ANALYSES: TP08-6I was submitted for laboratory analysis of EC and SAR.

Jacques Whitford

TEST PIT RECORD

TP08-7

CLIENT City of Ottawa — PROJECT No. 1034220 — ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario — DATUM Temporary — COMPILED BY SM

DATES: BORING January 30 2008 — WATER LEVEL — TPC ELEV. — CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	VAPOUR CONCENTRATIONS ● %LEL ▲ ppmv	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0						● 20 40 60 80 ▲ 100 200 300 400			
		Dark brown, compact, stone, sand, organics, fill.					GS	71	
		Brown to grey, SANDY CLAY, some orgaincs. Some staining.			2		GS	72	
1		Brown to grey, CLAY, some silt.			4		GS	73	
2					6				
					8				
3					10				
					12				
4					14				
5					16				
					18				
6					20				
					22				
7					24				
					26				
8					28				
9					30				
10					32				

LABORATORY ANALYSES: TP08-72 was submitted for laboratory analysis of metals and general inorganics, and PAHs

Jacques Whitford

TEST PIT RECORD

TP08-8

CLIENT City of Ottawa PROJECT No. 1034220 ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario DATUM Temporary COMPILED BY SM

DATES: BORING January 30 2008 WATER LEVEL TPC ELEV. CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	VAPOUR CONCENTRATIONS ● %LEL ▲ ppmv	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
						● 20 40 60 80 ▲ 100 200 300 400			
0		Brown, compact, fill, some organics.					GS	81	
		Dark brown, very compact, SAND and fill, some organics, and staining.			2		GS	82	
1		Dark grey, compact, CLAY.			4		GS	83	
2					6				
					8				
3					10				
					12				
4					14				
					16				
5					18				
					20				
6					22				
					24				
7					26				
					28				
8					30				
9									
					32				
10									

LABORATORY ANALYSES: TP08-82 was submitted for laboratory analysis of metals and general inorganics, and PAHs. TP08-83 was submitted for laboratory analysis of PHC (F1-F4), BTEX, and PCBs.

Jacques Whitford

TEST PIT RECORD

TP08-12

CLIENT City of Ottawa PROJECT No. 1034220 ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario DATUM Temporary COMPILED BY SM

DATES: BORING January 30 2008 WATER LEVEL TPC ELEV. CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	VAPOUR CONCENTRATIONS ● %LEL ▲ ppmv	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
						● 20 40 60 80 ▲ 100 200 300 400			
0		Dark brown, GRAVEL, some sand.					GS	121	
		Brown, very compact, SANDY GRAVEL, some staining and petroleum hydrocarbon odours.			2		GS	122	
1		Grey, CLAY, some sand and staining.			4		GS	123	
2					6				
					8				
3					10				
					12				
4					14				
5					16				
					18				
6					20				
					22				
7					24				
					26				
8					28				
9					30				
					32				
10									

LABORATORY ANALYSES MW08-121 was submitted for laboratory analysis of metals and general inorganics, and PAHs. MW08-122 and MW08-123 were submitted for laboratroy anaysis of PHC F1 to F4, BTEX, and PCBs

Jacques Whitford

TEST PIT RECORD

TP08-13

CLIENT City of Ottawa PROJECT No. 1034220 ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario DATUM Temporary COMPILED BY SM

DATES: BORING January 30 2008 WATER LEVEL TPC ELEV. CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	DEPTH (ft)	VAPOUR CONCENTRATIONS ● %LEL ▲ ppmv	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0		Grey, very compact, crushed stone.				● 20 40 60 80 ▲ 100 200 300 400			
		Dark brown, very compact, fill, some stone, and sand.			2		GS	131	
1		Brown, SAND.					GS	132	
		Grey, CLAY, some pink veins.			4		GS	133	
2					6				
					8				
3					10				
					12				
4					14				
5					16				
					18				
6					20				
					22				
7					24				
					26				
8					28				
9					30				
10					32				

LABORATORY ANALYSES: TP08-132 was submitted for laboratory analysis of metals and general inorganics, and PAHs. A blind duplicate of TP08-132 called TP08-231 was also submitted for laboratory analysis of metals and general inorganics, and PAHs.

Jacques Whitford

TEST PIT RECORD

TP08-15

CLIENT City of Ottawa
PROJECT No. 1034220
ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario
DATUM Temporary
COMPILED BY SM

DATES: BORING January 30 2008
WATER LEVEL
TPC ELEV.
CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0		Dark brown, very compact, SANDY STONE, some staining and petroleum hydrocarbon odours.			GS	151	
1		Dark brown, very compact, SANDY DTONE, some staining and red crushed bricks.			GS	152	
		Grey, SILTY CLAY, some sand.			GS	153	

VAPOUR CONCENTRATIONS
● %LEL ▲ ppmv

DEPTH (ft)	● %LEL	▲ ppmv
	20	100
	40	200
	60	300
	80	400

LABORATORY ANALYSES: TP08-151 was submitted for laboratory analysis of metals and general inorganics, and PAHs. TP08-153 was submitted for laboratory analysis of EC and SAR.

Jacques Whitford

TEST PIT RECORD

TP08-16

CLIENT City of Ottawa PROJECT No. 1034220 ORIGINATED BY SM

LOCATION 1770 Heatherington Road, Ottawa, Ontario DATUM Temporary COMPILED BY SM

DATES: BORING January 30 2008 WATER LEVEL TPC ELEV. CHECKED BY

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES N-VALUE
0		Dark brown, compact crushed stone.			
		Dark brown, very compact, SANDY GRAVEL, fill.	GS	161	
		Grey, SILTY CLAY, some sand.	GS	162	
1			GS	163	
2					
3					
4					
5					
6					
7					
8					
9					
10					

VAPOUR CONCENTRATIONS ● %LEL ▲ ppmv

● 20 40 60 80

▲ 100 200 300 400

DEPTH (ft): 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32

LABORATORY ANALYSES: TP08-161 was submitted for laboratory analysis of metals and general inorganics, and PAHs.

Test Pit logs for Heatherington Rd. 29/07/08

Test Pit Name	Depth (m)	Soil Analysis	Soil Description
TP 1	0 – 0.05		Grey, dry sand and gravel.
	0.05 –0.40		Dark brown, dry, clay with sand and gravel.
	0.40 – 0.50		Grey, moist, coarse sand and gravel.
	0.50 – 0.70		Black, moist, clay and fine sand.
	0.70 – 1.0		Grey, moist clay.
TP 2	0 – 0.3		Grey, sand and gravel with some organics.
	0.3 – 0.5		Brown, sandy clay.
	0.5 – 0.6		Brown / grey. Fine sand dry.
	0.6 – 1.0		Grey, moist clay.
TP 3			
			No Test Pit done. Surface sample taken.
TP 4	0 – 0.15		Brown, dry, topsoil with organics.
	0.15 – 0.50		Brown, dry, coarse sand and gravel.
	0.50 – 1.0		Black, dry, clay.
TP 5	0 – 0.15		Dark brown, dry, topsoil (sod).
	0.15 – 0.5		Brown, dry, coarse sand and gravel.
	0.50 – 0.65		Brown, dry, fine sand.
	0.65 – 0.80		Light brown, dry, fine sand.
	0.80 – 1.0		Brown, dry, clay with trace silt.
TP 6	0 – 0.10		Black, dry, asphalt.
	0.10 – 0.40		Brown, moist, sand and crushed gravel.
	0.40 – 0.65		Dark grey, moist, sand.
	0.65 – 0.70		Grey, damp, silt.
	0.70 – 1.0		Grey/brown, moist, clay.
TP 7	0 – 0.70		Brown, dry, mixed, topsoil with some sand and debris (asphalt).
	0.70 – 1.0		Grey/green, dry, clay with some sand.
TP 8	0 – 0.15		Brown, dry, topsoil with organics.
	0.15 – 0.40		Brown/grey, clay and sand.
	0.40 – 1.0		Brown, dry, clay.
TP9	0 – 0.15		Dark brown, dry, topsoil (sod).
	0.15 – 0.40		Dark brown, moist, clay with trace sand and organics.
	0.40 – 0.65		Light brown, moist, clay with trace sand and organics.
	0.65 – 1.0		Light brown, moist/wet, clay.
TP 10	0 – 0.15		Dark brown topsoil and grass.
	0.15 – 0.40		Dark brown, moist, clay with trace sand and organics.
	0.40 – 0.65		Light brown, moist, clay with trace sand and organics.
	0.65 – 1.0		Light brown, moist/wet clay with organics.

Not Applicable to RA Site

Test Pit logs for Heatherington Rd. 29/07/08

Test Pit Name	Depth (m)	Soil Analysis	Soil Description
TP 11	0 – 0.15		Grey, dry, sand and gravel.
	0.15 – 0.70		Brown/black, dry, sand with clay and gravel.
	0.70 – 1.0		Grey/green, dry, clay.
TP 12	0 – 0.10		Grey, dry, sand and gravel.
	0.10 – 0.60		Brown, dry, sand and gravel.
	0.60 – 1.0		Brown/green, dry, clay.
TP 13	0 – 0.30		Brown/grey, dry, coarse sand and gravel.
	0.30 – 0.80		Grey/brown, dry, clay with coarse sand.
	0.80 – 1.0		Grey/brown, moist/damp, clay.
TP 14	0 – 0.08		Black, dry, asphalt.
	0.08 – 0.30		Grey, dry, coarse sand and gravel.
	0.30 – 0.36		Black, dry, asphalt.
	0.36 – 0.55		Grey, dry, coarse sand and gravel.
	0.55 – 1.0		Grey, wet, 3" crushed stone. 0.95m – 1.0m wet.
TP 15	0 – 0.10		Black, dry, asphalt.
	0.10 – 0.30		Brown, dry, sand and gravel.
	0.30 – 1.0		Grey, 3"crushed stone. 0.55m – 1.0m wet.
TP16	0 – 0.10		Grey, dry, sand and gravel with organics.
	0.10 – 0.50		Grey, dry, 3" crushed stone with some clay.
	0.50 – 0.80		Grey, dry, 3" crushed stone with some sand.
	0.80 – 1.0		Grey/green, dry, clay.
TP 17	0 – 0.15		Black, dry, asphalt.
	0.15 – 0.50		Brown, dry, coarse sand and gravel.
	0.50 – 1.0		Brown/green, dry, clay.
TP 18	0 – 0.25		Brown, dry, coarse sand and gravel with trace clay.
	0.25 – 0.50		Grey/black, dry, coarse sand and gravel with trace clay.
	0.50 – 0.75		Dark grey, moist, clay.
	0.75 – 0.90		Gery, moist, silt.
	0.90 – 1.0		Grey/brown, moist, clay.
TP 19	0 – 0.20		Brown, dry, sand and gravel with coarse sand.
	0.20 – 0.45		Brown, dry, coarse sand and gravel.
	0.450 – 0.65		Dark brown, dry, sand.
	0.65 – 0.75		Grey/brown, moist, sand.
	0.75 – 1.0		Grey, moist, clay with trace silt.
TP 20	0 – 0.35		Brown, dry, sand and gravel.
	0.35 – 0.70		Dark grey, dry, sand with some coarse sand.
	0.70 – 1.0		Grey/green/brown, damp, clay with trace silt.

Test Pit logs for Heatherington Rd. 29/07/08

Test Pit Name	Depth (m)	Soil Analysis	Soil Description
TP 21	0 – 0.07		Black, dry, asphalt.
	0.07 – 0.70		Brown, dry, sand and gravel.
	0.70 – 1.0		Brown, dry, fine sand.
TP 22	0 – 0.40		Brown, dry, topsoil with organics.
	0.40 – 0.60		Brown, dry, coarse sand.
	0.60 – 1.0		Grey, dry, sand and 3" crushed stone.
TP 23	0 – 0.30		Brown, dry, sand and gravel with coarse sand.
	0.30 – 0.40		Dark brown, moist, sandy clay.
	0.40 – 1.0		Grey/brown, moist/wet, clay.
TP 24	0 – 0.20		Grey/brown, dry, sand and crushed gravel.
	0.20 – 0.80		Brown, damp, sand and gravel with coarse sand and granular.
	0.80 – 1.0		Grey/dark grey, dry, clay with trace silt.
TP 25	0 – 0.25		Brown, Dry, sand and gravel, granular mixed throughout.
	0.25 – 0.50		Black, dry, asphalt.
	0.50 – 0.80		Grey, dry, sand and coarse gravel.
	0.80 – 1.0		Grey/green, dry, silty clay.
TP 26	0 – 0.35		Grey/brown, dry, sand with some clay and gravel mixed in.
	0.35 – 0.50		Dark brown, moist, sandy clay.
	0.50 – 1.0		Grey/brown, moist, silty clay.
TP 27	0 – 0.30		Brown, dry, coarse sand.
	0.30 – 0.50		Brown, dry, coarse sand with some granular.
	0.50 – 1.0		Brown/green, dry, clay.

Not Applicable to RA Site

Not Applicable to RA Site

Test Pit logs for Heatherington Rd. (16/10/2008

Test Pit Name	Depth (m)	Soil Description
TP 20A	0 – 0.65	Brown, sand and gravel.
	0.65 – 0.10	Grey. Silty clay with some sand.
TP 20B	0 – 0.30	Brown, sand and gravel.
	0.30 – 0.40	Dark brown/black, sand and gravel.
	0.40 – 1.0	Grey, silty clay with some sand and gravel.
TP 20C	0 – 0.20	Brown, sand and gravel.
	0.20 – 0.60	Dark brown/black. Sand and gravel with clay.
	0.60 – 1.0	Grey/light green, silty clay.
TP 20D	0 – 0.45	Brown, sand and gravel.
	0.45 – 0.70	Dark brown, clay with sand and silt.
	0.70 – 1.0	Grey, silty clay.
TP 20E	0 – 0.30	Brown, sand and gravel.
	0.30 – 0.50	Dark brown/black, sand and gravel with clay.
	0.50 – 1.0	Grey, silty clay.
TP20F	0 – 0.45	Brown, sand and gravel.
	0.45 – 0.75	Dark brown, clay with sand and silt.
	0.75 – 1.0	Grey, silty clay.
TP22A	0 – 0.50	Grey, sand and gravel.
	0.50 – 0.80	Grey/black. Sand and gravel with clay
	0.80 – 1.0	Grey, silty clay.
TP22B	0 – 0.70	Grey/brown, sand and gravel.
	0.70 – 1.0	Grey/black. Silty clay.
TP22C	0 – 0.60	Brown, sand and gravel.
	0.60 – 1.0	Grey/black. Silty clay.
TP22D	0 – 0.80	Brown, sand and gravel.
	0.80 – 1.0	Grey/black. Silty clay.
TP22E	0 – 0.40	Brown/grey, sand and gravel.
	0.40 – 0.70	Grey, sand and gravel.
	0.70 – 1.0	Grey/black. Silty clay.
TP22F	0 – 0.45	Grey, sand and small gravel.
	0.45 – 0.80	Grey, sand and large gravel.
	0.80 – 1.0	Brown, clayey silt.

Not Applicable to RA Site

Log of Borehole MW12-1

Project No: OTT-00018293-J1

Project: Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. 1

Page. 1 of 1

Date Drilled: 27/6/12

Drill Type: CME Truck Mount

Datum: Assumed Elevation

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test —
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	Depth
		FILL Grannular B, compact, grey	98.694	0
▽				1
				2
			96.424	
				3
		moist	94.7	4
		TILL Sandy clay with gravel, grey		
		wet		5
			92.6	6
		Borehole terminated at 6.10 m		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. Groundwater sample submitted for PHC(F1-F4), and VOC
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J1

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
155 Days	2.27 m	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00018293-J1 -BOREHOLE LOGS, JAN 2, 2013.GPJ TROW OTTAWA.GDT 27/8/13

Log of Borehole MW12-10

Project No: OTT-00018293-J1

Project: Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. 10

Page. 1 of 1

Date Drilled: 2/11/12

Drill Type: CME Truck Mount

Datum: Assumed Elevation

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	Depth
		ASPHALT	99.041	0
		FILL Grey sand and gravel, moist	98.9	
			98.3	
		SILTY CLAY Brown silty clay, stiff, moist		1
				2
			96.871	
		TILL Sandy clay with gravel, loose, grey	96.8	
		wet		3
				4
			94.5	
		Borehole terminated at 4.57 m		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. Soil samples MW12-10 SS2 and SS3 submitted for PHC(F1-F4), and VOC
3. Groundwater sample submitted for PHC(F1-F4), and VOC
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J1

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
27 Days	2.17 m	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00018293-J1 -BOREHOLE LOGS, JAN 2, 2013.GPJ TROW OTTAWA.GDT 27/8/13

Log of Borehole MW12-11

Project No: OTT-00018293-J1

Project: Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. 11

Page. 1 of 1

Date Drilled: 2/11/12

Drill Type: CME Truck Mount

Datum: Assumed Elevation

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits —⊖—
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	Depth
			99.187	0
		ASPHALT	99.1	
		FILL Grey sand and gravel, moist		
			98.4	
		SILTY CLAY Brown silty clay, stiff, moist		1
				2
			96.997 96.9	
		TILL Sandy clay with gravel, loose, grey		
		wet		3
				4
			94.6	
		Borehole terminated at 4.57 m		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

0
0
1.1% LEL
0
0

SAMPLES

Natural Unit Wt. kN/m³

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. Soil samples MW12-11 SS2 and SS3 submitted for PHC(F1-F4), and VOC
3. Groundwater sample submitted for PHC(F1-F4), and VOC
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J1

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
27 Days	2.19 m	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00018293-J1 -BOREHOLE LOGS, JAN 2, 2013.GPJ TROW OTTAWA.GDT 27/8/13

Log of Borehole MW12-2

Project No: OTT-00018293-J1

Project: Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. 2

Page. 1 of 1

Date Drilled: 27/6/12

Drill Type: CME Truck Mount

Datum: Assumed Elevation

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	Depth
		FILL	98.728	0
		Grannular B, compact, grey		
				1
				2
			96.678	
				3
		moist		
		wet		
			94.8	4
		TILL		
		Sandy clay with gravel, grey		5
				6
			92.6	
		Borehole terminated at 6.10 m		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. Groundwater sample submitted for PHC(F1-F4), and VOC
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J1

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
155 Days	2.05 m	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00018293-J1 -BOREHOLE LOGS, JAN 2, 2013.GPJ TROW OTTAWA.GDT 27/8/13

Log of Borehole MW12-3

Project No: OTT-00018293-J1

Project: Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. 3

Page. 1 of 1

Date Drilled: 27/6/12

Drill Type: CME Truck Mount

Datum: Assumed Elevation

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	Depth
		FILL Grannular B, compact, grey	98.685	0
			96.755	2
			94.4	4
		TILL Sandy clay with gravel, grey moist wet		5
			92.6	6
		Borehole terminated at 6.10 m		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. Groundwater sample submitted for PHC(F1-F4), and VOC
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J1

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
155 Days	1.93 m	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00018293-J1 -BOREHOLE LOGS, JAN 2, 2013.GPJ TROW OTTAWA.GDT 27/8/13

Log of Borehole MW12-4

Project No: OTT-00018293-J1

Project: Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. 4

Page. 1 of 1

Date Drilled: 27/6/12

Drill Type: CME Truck Mount

Datum: Assumed Elevation

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	Depth
		FILL	98.508	0
		Grannular B, compact, grey		
				1
			96.798	
				2
		moist		
		wet		3
			94.5	
		TILL		4
		Sandy clay with gravel, grey		
				5
			93.3	
		Borehole terminated at 5.18 m		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. Groundwater sample submitted for PHC(F1-F4), and VOC
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J1

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
155 Days	1.71 m	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00018293-J1 -BOREHOLE LOGS, JAN 2, 2013.GPJ TROW OTTAWA.GDT 27/8/13

Log of Borehole MW12-5

Project No: OTT-00018293-J1

Project: Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. 5

Page. 1 of 1

Date Drilled: 1/11/12

Drill Type: CME Truck Mount

Datum: Assumed Elevation

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	Depth
		FILL Dark brown silty sand with trace gravel, moist	98.647	0
			97.9	
▽		**SILTY CLAY** Grey silty clay, stiff, moist		1
			96.797	2
			95.6	3
		TILL Sandy clay with gravel, loose, grey wet		4
			93.2	5
		Borehole terminated at 5.49 m		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

0
0
0
0.1% LEL
0
0
0

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. Soil samples MW12-5 SS4 and SS5 submitted for PHC(F1-F4), and VOC
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J1

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
28 Days	1.85 m	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00018293-J1 -BOREHOLE LOGS. JAN 2. 2013.GPJ TROW OTTAWA.GDT 27/8/13

Log of Borehole MW12-8

Project No: OTT-00018293-J1

Project: Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. 8

Page. 1 of 1

Date Drilled: 2/11/12

Drill Type: CME Truck Mount

Datum: Assumed Elevation

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	Depth
		FILL Brown silty sand with some gravel, moist	98.826	0
		SILTY CLAY Brown silty clay, stiff, moist	98.1	1
▽			97.016	2
		TILL Sandy clay with gravel, loose, grey wet	96.5	3
			94.3	4
		Borehole terminated at 4.57 m		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength kPa: 50 100 150 200

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

0.5% LEL
0
1.4% LEL
0.3% LEL

SAMPLES

Natural Unit Wt. kN/m³

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. Soil samples MW12-8 SS4 and SS5 submitted for PHC(F1-F4), and VOC
3. Groundwater sample submitted for PHC(F1-F4), and VOC
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J1

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
27 Days	1.81 m	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00018293-J1 -BOREHOLE LOGS, JAN 2, 2013.GPJ TROW OTTAWA.GDT 27/8/13

Log of Borehole Pit MW14-1

Project No: OTT-00018293-J2

Project: Environmental Remediation and Groundwater Monitoring Program

Location: 1770 Heatherington Road. Ottawa, Ontario

Figure No. 3

Page. 1 of 1

Date Drilled: June 16th, 2014

Drill Type: CME-75 (truck-mount)

Datum: Geodetic

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		SAND FILL Some organics and roots present, brown, moist, (compact)	99.08	0	11			
			97.9	1				
		CLAY Grey, moist, desiccated, no odours		2	5			
			96.1	3				
		SAND AND GRAVEL TILL WITH SOME SILT AND CLAY Dark grey to grey, wet, no odours, (compact)		4				
			93.9	5	11			
		Borehole Terminated at 5.2 m Depth						

Standard Penetration Test N Value: 20 40 60 80
Shear Strength kPa: 50 100 150 200
Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60

NOTES:
1. Borehole/Test Pit data requires Interpretation by exp. before use by others
2. A monitoing well with a 51 mm diameter pipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J2

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	7.75 - 8.8	100	89
2	8.8 - 10.28	100	84

LOG OF TEST PIT LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 8/20/15

Log of Borehole Pit MW14-2

Project No: OTT-00018293-J2

Project: Environmental Remediation and Groundwater Monitoring Program

Location: 1770 Heatherington Road. Ottawa, Ontario

Figure No. 4

Page. 1 of 1

Date Drilled: June 16th, 2014

Drill Type: CME-75 (truck-mount)

Datum: Geodetic

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○—|
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic m	Depth
		CRUSHED LIMESTONE FILL Granular B sand and gravel, grey, moist	98.85	0
				1
				2
			95.8	3
		TILL Dark grey, wet, no odours, (loose)		
				4
		Borehole Terminated at 4.3 m Depth	94.6	

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa
Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60
SAMPLES
Natural Unit Wt. kN/m³

8 ○

NOTES:
1. Borehole/Test Pit data requires Interpretation by exp. before use by others
2. A monitoing well with a 51 mm diameter pipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J2

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF TEST PIT LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 8/20/15

Log of Borehole Pit MW14-3

Project No: OTT-00018293-J2

Project: Environmental Remediation and Groundwater Monitoring Program

Location: 1770 Heatherington Road. Ottawa, Ontario

Figure No. 5

Page. 1 of 1

Date Drilled: June 16th, 2014

Drill Type: CME-75 (truck-mount)

Datum: Geodetic

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		CRUSHED LIMESTONE FILL Granular B sand and gravel, grey, moist, (loose)	98.87	0	20 40 60 80 Shear Strength kPa 50 100 150 200	250 500 750 Natural Moisture Content % Atterberg Limits (% Dry Weight) 20 40 60		
				1				
				2	5 ○			
			95.8	3				
		TILL Dark grey, wet, no odours, (compact)			11 ○			
			95.2					
		Borehole Terminated at 3.7 m Depth						

NOTES:
1. Borehole/Test Pit data requires Interpretation by exp. before use by others
2. A monitoing well with a 51 mm diameter pipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J2

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF TEST PIT LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 8/20/15

Log of Borehole Pit MW14-4

Project No: OTT-00018293-J2

Project: Environmental Remediation and Groundwater Monitoring Program

Location: 1770 Heatherington Road. Ottawa, Ontario

Figure No. 6

Page. 1 of 1

Date Drilled: June 16th, 2014

Drill Type: CME-75 (truck-mount)

Datum: Geodetic

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		CRUSHED LIMESTONE FILL Granular B sand and gravel, grey, moist, (loose)	98.61	0	20 40 60 80 Shear Strength kPa 50 100 150 200	250 500 750 Natural Moisture Content % / Atterberg Limits (% Dry Weight) 20 40 60		
				1				
				2	8 ○			
			95.5	3				
		TILL Dark grey, wet, no odours, (compact)			10 ○			
			94.9					
		Auger Refusal at 3.7 m Depth, Borehole Terminated						

LOG OF TEST PIT LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 8/20/15

NOTES:
1. Borehole/Test Pit data requires Interpretation by exp. before use by others
2. A monitoing well with a 51 mm diameter pipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J2

WATER LEVEL RECORDS		
Elapsed Time	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

Log of Borehole Pit MW14-5

Project No: OTT-00018293-J2

Project: Environmental Remediation and Groundwater Monitoring Program

Location: 1770 Heatherington Road. Ottawa, Ontario

Figure No. 7

Page. 1 of 1

Date Drilled: June 17th, 2014

Drill Type: CME-75 (truck-mount)

Datum: Geodetic

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		CRUSHED LIMESTONE FILL Granular B sand and gravel, grey, moist, (loose)	98.57	0	20 40 60 80 50 100 150 200 kPa	250 500 750 20 40 60		
				1				
				2	7 ○			
			95.5	3				
		TILL Dark grey, wet, no odours, (compact)			10 ○			
				4				
			94.4					
		Borehole Terminated at 4.2 m Depth						

LOG OF TEST PIT LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 8/20/15

NOTES:
1. Borehole/Test Pit data requires Interpretation by exp. before use by others
2. A monitoing well with a 51 mm diameter pipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J2

WATER LEVEL RECORDS		
Elapsed Time	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

Log of Borehole Pit MW14-6

Project No: OTT-00018293-J2

Project: Environmental Remediation and Groundwater Monitoring Program

Location: 1770 Heatherington Road. Ottawa, Ontario

Figure No. 8

Page. 1 of 1

Date Drilled: June 17th, 2014

Drill Type: CME-75 (truck-mount)

Datum: Geodetic

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic m	Depth
		MIXED FILL SAND AND GRAVEL WITH CLAY AND SILT Grey/brown, moist, (loose)	98.62	0
				1
				2
			95.5	3
		TILL Dark grey, wet, no odours, (compact)		
				4
			94.0	
		Borehole Terminated at 4.6 m Depth		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

NOTES:
1. Borehole/Test Pit data requires Interpretation by exp. before use by others
2. A monitoing well with a 51 mm diameter pipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J2

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF TEST PIT LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 8/20/15

Log of Borehole Pit MW14-7

Project No: OTT-00018293-J2

Project: Environmental Remediation and Groundwater Monitoring Program

Location: 1770 Heatherington Road. Ottawa, Ontario

Figure No. 9

Page. 1 of 1

Date Drilled: June 17th, 2014

Drill Type: CME-75 (truck-mount)

Datum: Geodetic

Logged by: DK Checked by: CTK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○—|
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Geodetic m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		MIXED FILL SAND AND GRAVEL WITH CLAY AND SILT Grey/brown, moist, (loose)	98.77	0	20 40 60 80 / 50 100 150 200 kPa	250 500 750 / 20 40 60		
			97.6	1				
		SILTY CLAY Grey, moist, no odours		2	5 ○			
			95.8	3				
		SAND AND GRAVEL TILL WITH SOME SILT AND CLAY Dark grey to grey, wet, no odours, (loose)			6 ○			
			94.5	4				
		Borehole Terminated at 4.3 m Depth						

LOG OF TEST PIT LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 8/20/15

NOTES:
1. Borehole/Test Pit data requires Interpretation by exp. before use by others
2. A monitoing well with a 51 mm diameter pipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J2

WATER LEVEL RECORDS		
Elapsed Time	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

Log of Borehole BH15-10

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa

Figure No. _____

Page. 1 of 1

Date Drilled: 8/4/15

Drill Type: Geoprobe

Datum: Assumed

Logged by: TG Checked by: CK

Split Spoon Sample	⊠	Combustible Vapour Reading	□
Auger Sample	◧	Natural Moisture Content	×
SPT (N) Value	○	Atterberg Limits	⊢○
Dynamic Cone Test	———	Undrained Triaxial at % Strain at Failure	⊕
Shelby Tube	■	Shear Strength by Penetrometer Test	▲
Shear Strength by Vane Test	+ S		

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		FILL Sand and gravel, brown, moist, no odour		0	20 40 60 80 50 100 150 200	250 500 750 20 40 60		
		SILTY CLAY Brown to grey, moist to wet, no odour		1				
				2				
				3				
				4				
		TILL Silty clay with sand and gravel, becoming more sandy with depth, grey, wet, no odour		5				
				6				
		Borehole Terminated at 6.1 m Depth						

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. The borehole was backfilled upon completion
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

Log of Borehole BH15-8

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa

Figure No. _____

Page. 1 of 1

Date Drilled: 8/4/15

Drill Type: Geoprobe

Datum: Assumed

Logged by: TG Checked by: CK

Split Spoon Sample	⊠	Combustible Vapour Reading	□
Auger Sample	◧	Natural Moisture Content	×
SPT (N) Value	○	Atterberg Limits	⊢○
Dynamic Cone Test	———	Undrained Triaxial at % Strain at Failure	⊕
Shelby Tube	■	Shear Strength by Penetrometer Test	▲
Shear Strength by Vane Test	+ S		

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		FILL Sand and gravel, brown, moist, no odour		0	20 40 60 80 50 100 150 200	250 500 750 20 40 60		
		SILTY CLAY Brown to grey, moist to wet, no odour		1				
				2				
				3				
		TILL Silty clay with sand and gravel, becoming more sandy with depth, grey, wet, no odour		4				
				5				
				6				
		Borehole Terminated at 6.1 m Depth						

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. The borehole was backfilled upon completion
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

Log of Borehole MW15-1

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa

Figure No. _____

Page. 1 of 1

Date Drilled: 8/4/15

Drill Type: Geoprobe

Datum: Assumed

Logged by: TG Checked by: CK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth
		FILL Sand and gravel, brown, moist, no odour	98.35	0
			97.6	
		SILTY CLAY Brown to grey, moist to wet, no odour		1
▽			96.59	2
				3
				4
			93.9	
		TILL Silty clay with sand and gravel, becoming more sandy with depth, grey, wet, no odour		5
			92.4	
		Borehole Terminated at 6.0 m Depth		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60

0 (1 m)
0 (2 m)
15 (4 m)
0 (5 m)

SAMPLES

Natural Unit Wt. kN/m³

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. A monument monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
August 25, 2015	1.8	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

Log of Borehole MW15-11

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa

Figure No. _____

Page. 1 of 1

Date Drilled: 8/4/15

Drill Type: Geoprobe

Datum: Assumed

Logged by: TG Checked by: CK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth
			99.13	0
		FILL Sand and gravel, brown, moist, no odour	98.8	
		SILTY CLAY Brown to grey, moist, no odour		1
			97.6	
		TILL Silty clay with sand and gravel, becoming more sandy with depth, grey, wet, no odour		2
▽			96.96	
				3
				4
				5
			93.0	6
		Borehole Terminated at 6.1 m Depth		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. A monument monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
August 25, 2015	2.2	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

Log of Borehole MW15-12

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa

Figure No. _____

Page. 1 of 2

Date Drilled: 8/15/15

Drill Type: Geoprobe

Datum: Assumed

Logged by: TG Checked by: CK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth
		FILL Sand and gravel, brown, moist, no odour	99.13	0
			98.5	
		SILTY CLAY and SILTY CLAY TILL Grey, moist		1
▽			96.97	2
				3
				4
				5
				6
			92.1	7
		LIMESTONE BEDROCK Well weathered to minor fractures		8
				9
				10

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

Continued Next Page

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. A monument monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
August 25, 2015	2.2	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

Log of Borehole MW15-12

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Figure No. _____

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth	Standard Penetration Test N Value / Shear Strength kPa (20 40 60 80 / 50 100 150 200)	Combustible Vapour Reading (ppm) 250 500 750 / Natural Moisture Content % Atterberg Limits (% Dry Weight) 20 40 60	SAMPLES	Natural Unit Wt. kN/m^3
		LIMESTONE BEDROCK Well weathered to minor fractures *(continued)*	89.13	10 11 12				
		Borehole Terminated at 12.2 m Depth	86.9					

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. A monument monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
August 25, 2015	2.2	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

Log of Borehole MW15-2

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa

Figure No. _____

Page. 1 of 2

Date Drilled: 8/10/15

Drill Type: Geoprobe

Datum: Assumed

Logged by: DC Checked by: CK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth
		FILL Sand and gravel, brown, moist, no odour	98.36	0
		SILTY CLAY and SILTY CLAY TILL Grey, moist	95.0	3
		LIMESTONE BEDROCK Well weathered to minor fractures	92.9	6

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

Continued Next Page

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. A monument monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
August 25, 2015	Dry	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

Log of Borehole MW15-2

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Figure No. _____

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth	Standard Penetration Test N Value / Shear Strength kPa (20 40 60 80 / 50 100 150 200)	Combustible Vapour Reading (ppm) 250 500 750 / Natural Moisture Content % Atterberg Limits (% Dry Weight) 20 40 60	SAMPLES	Natural Unit Wt. kN/m^3
		LIMESTONE BEDROCK Well weathered to minor fractures *(continued)*	88.36	10				
				11				
			86.65					
			86.2	12				
		Borehole Terminated at 12.2 m Depth						

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. A monument monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
August 25, 2015	Dry	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

Log of Borehole MW15-4

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa

Figure No. _____

Page. 1 of 1

Date Drilled: 8/4/15

Drill Type: Geoprobe

Datum: Assumed

Logged by: TG Checked by: CK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth
		FILL Sand and gravel, brown, moist, no odour	98.7	0
			97.9	
		SILTY CLAY Brown to grey, moist to wet, no odour		1
▽			96.91	2
			95.7	3
		TILL Silty clay with sand and gravel, becoming more sandy with depth, grey, wet, no odour		4
				5
			92.6	6
		Borehole Terminated at 6.1 m Depth		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. A monument monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
August 25, 2015	1.8	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

Log of Borehole MW15-5

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa

Figure No. _____

Page. 1 of 2

Date Drilled: 8/11/15

Drill Type: Geoprobe

Datum: Assumed

Logged by: DC Checked by: CK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth
		FILL Sand and gravel, brown, moist, no odour	98.71	0
			98.1	
		SILTY CLAY and SILTY CLAY TILL Grey, moist		1
				2
▽			96.22	
				3
				4
				5
				6
			91.7	7
		LIMESTONE BEDROCK Well weathered to minor fractures		8
				9
				10

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

Continued Next Page

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. A monument monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
August 25, 2015	2.5	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

Log of Borehole MW15-5

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Figure No. _____

Page. 2 of 2

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth	Standard Penetration Test N Value / Shear Strength kPa (20 40 60 80 / 50 100 150 200)	Combustible Vapour Reading (ppm) 250 500 750 / Natural Moisture Content % Atterberg Limits (% Dry Weight) 20 40 60	SAMPLES	Natural Unit Wt. kN/m³
		LIMESTONE BEDROCK Well weathered to minor fractures *(continued)*	88.71	10 11 12 13 14 15 16 17 18				
		Borehole Terminated at 18.3 m Depth	80.4					

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. A monument monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
August 25, 2015	2.5	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

Log of Borehole MW15-6

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa

Figure No. _____

Page. 1 of 1

Date Drilled: 8/4/15

Drill Type: Geoprobe

Datum: Assumed

Logged by: TG Checked by: CK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth
		FILL Sand and gravel, brown, moist, no odour	97.77 97.5	0
		SILTY CLAY Brown to grey, moist to wet, no odour		1
▽			95.94	2
			94.7	3
		TILL Silty clay with sand and gravel, becoming more sandy with depth, grey, wet, no odour		4
				5
			91.7	6
		Borehole Terminated at 6.1 m Depth		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. A monument monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
August 25, 2015	1.8	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

Log of Borehole MW15-7

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa

Figure No. _____

Page. 1 of 2

Date Drilled: 8/15/15

Drill Type: Geoprobe

Datum: Assumed

Logged by: TG Checked by: CK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth
		FILL Sand and gravel, brown, moist, no odour	97.8	0
			97.2	
		SILTY CLAY and SILTY CLAY TILL Grey, moist		1
▽			95.96	2
				3
				4
				5
				6
				7
		LIMESTONE BEDROCK Well weathered to minor fractures	90.8	8
				9
				10

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

Continued Next Page

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. A monument monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
August 25, 2015	1.8	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

Log of Borehole MW15-7

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Figure No. _____

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth	Standard Penetration Test N Value / Shear Strength kPa (20 40 60 80 / 50 100 150 200)	Combustible Vapour Reading (ppm) 250 500 750 / Natural Moisture Content % Atterberg Limits (% Dry Weight) 20 40 60	SAMPLES	Natural Unit Wt. kN/m^3
		LIMESTONE BEDROCK Well weathered to minor fractures *(continued)*	87.8	10 11 12				
		Borehole Terminated at 12.2 m Depth	85.6					

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. A monument monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
August 25, 2015	1.8	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

Log of Borehole MW15-9

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa

Figure No. _____

Page. 1 of 1

Date Drilled: 8/4/15

Drill Type: Geoprobe

Datum: Assumed

Logged by: TG Checked by: CK

Split Spoon Sample ☒
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth
			98.16	0
		FILL Sand and gravel, brown, moist, no odour	97.9	
		SILTY CLAY Brown to grey, moist to wet, no odour		1
				2
			95.68	
				3
			94.4	
		TILL Silty clay with sand and gravel, becoming more sandy with depth, grey, wet, no odour		4
				5
			92.1	6
		Borehole Terminated at 6.1 m Depth		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES

Natural Unit Wt. kN/m³

NOTES:
1. Borehole data requires interpretation by exp. before use by others
2. A monument monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work supervised by an exp representative.
4. See Notes on Sample Descriptions
5. This Figure is to read with exp. Services Inc. report OTT-00018293-J5

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
August 25, 2015	2.5	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE LOGS OF BOREHOLES.GPJ TROW OTTAWA.GDT 9/16/15

Test Pit Logs

Berm Assessment, 1770 Heatherington Road, Ottawa, Ontario

Test Pit ID	Test Pit Sample ID	Depth (m)	Description	Sample Number	Vapour Reading (ppm)
TP-21-12	TP12	0.0 – 0.2	Topsoil	NA	NA
		0.2 – 1.0	Sand and stone; brown; moist; no odours	S1	10
		1.0 – 2.0	Sand and stone; light brown; moist; no odours	S2	5
		2.0 – 3.0	Sand and stone, some garbage; light brown; moist; no odours	S3	5
TP-21-13	TP13	0.0 – 0.2	Topsoil	NA	NA
		0.2 – 1.0	Sand and stone; light brown; moist; no odours	S1	5
		1.0 – 2.0	Sand and stone; light brown; moist; no odours	S2	10
		2.0 – 3.0	Sand and stone, some garbage; light brown; moist; no odours	S3	5
TP-21-14	TP14	0.0 – 1.0	Sand and stone; light brown; moist; no odours	S1	10
		1.0 – 2.0	Sand and soil, some garbage; light brown; moist; no odours	S2	5
		2.0 – 3.0	Sand and soil, some garbage; brown; moist; no odours	S3	10
TP-21-15	TP15	0.0 – 0.1	Topsoil	NA	NA
		0.1 – 1.0	Sand and stone; light brown; moist; no odours	S1	0
		1.0 – 2.0	Sand and soil; light brown; moist; no odours	S2	5
		2.0 – 3.0	Sand and soil, some debris; light brown; moist; no odours	S3	5
TP-21-16	TP16	0.0 – 0.75	Sand and soil; light brown; moist; no odours	S1	10
		0.75 – 1.5	Sand and soil; light brown; dry; no odours	S2	5
		1.5 – 2.5	Sand and soil, some garbage; light brown; moist; no odours	S3	5
TP-21-17	TP17	0.0 – 0.2	Topsoil	NA	NA
		0.2 – 1.0	Sand and stone; brown; moist; no odours	S1	10
		1.0 – 2.0	Sand and stone, some garbage; brown; moist; no odours	S2	5
TP-21-18	TP18	0.0 – 0.1	Topsoil	NA	NA
		0.0 – 1.0	Sand and stone; brown; moist; no odours	S1	5
		1.0 – 2.0	Sand and stone, some garbage; brown; moist; no odours	S2	10
TP-21-19	TP19	0.0 – 0.1	Topsoil	NA	NA
		0.1 – 1.0	Sand and stone; light brown; moist; no odours	S1	15
		1.0 – 2.0	Sand and stone; light brown; moist; no odours	S2	10
		2.0 – 3.0	Sand and stone, some debris, some garbage; light brown; moist; no odours	S3	5
TP-21-20	TP20	0.0 – 1.0	Sand and stone; light brown; moist; no odours	S1	0
		1.0 – 2.0	Sand and stone, concrete pieces; light brown; moist; no odours	S2	0
		2.0 – 3.0	Sand and stone, concrete pieces; light brown; no odours	S3	0

Test Pit ID	Test Pit Sample ID	Depth (m)	Description	Sample Number	Vapour Reading (ppm)
TP-21-21	TP21	0.0 – 1.0	Sand and stone; light brown; moist; no odours	S1	10
		1.0 – 2.0	Sand and stone, some garbage; light brown; moist; no odours	S2	5
		2.0 – 3.0	Sand and stone; light brown; moist; no odours	S3	0
TP-21-22	TP22	0.0 – 0.3	Topsoil	NA	NA
		0.3 – 1.0	Sand and stone; light brown; moist; no odours	S1	10
		1.0 – 2.0	Sand and stone; light brown; moist; no odours	S2	5
		2.0 – 3.0	Sand and stone, some garbage; light brown; moist; no odours	S3	10
TP-21-23	TP23	0.0 – 0.3	Topsoil	NA	NA
		0.3 – 1.0	Sand and soil, some debris; brown; moist; no odours	S1	15
		1.0 – 2.0	Sand and soil, some garbage, some debris; light brown; dry; no odours	S2	15
		2.0 – 3.0	Sand and soil, some debris; light brown; dry; no odours	S3	15
TP-21-24	TP24	0.0 – 1.0	Sand and stone, some garbage; light brown; dry; no odours	S1	0
		1.0 – 2.0	Sand and stone, some debris; light brown; dry; no odours	S2	0
		2.0 – 3.0	Sand and stone, some garbage; light brown; dry; no odours	S3	0
TP-21-25	TP25	0.0 – 1.0	Sand and stone; brown; moist; no odours	S1	0
		1.0 – 2.0	Sand and stone, some garbage; brown; moist; no odours	S2	0
		2.0 – 3.0	Sand and stone, some garbage; brown; moist; no odours	S3	0
TP-21-25	TP26	0.0 – 0.1	Topsoil	NA	NA
		0.1 – 1.0	Sand and stone; light brown; moist; no odours	S1	5
		1.0 – 2.0	Sand and stone; brown; moist; no odours	S2	5
		2.0 – 3.0	Sand and stone, some garbage; brown; moist; no odours	S3	0
TP-21-27	TP27	0.0 – 1.0	Sand and stone, some debris, some garbage; brown; moist; no odours	S1	0
		1.0 – 2.0	Sand and stone, some debris, some garbage; brown; moist; no odours	S2	0
		2.0 – 3.0	Sand and stone, some debris, some garbage; brown; moist; no odours	S3	0
		2.0 – 3.0	Organics, trace black decaying matter; no odours	S4	0
TP-21-28	TP28	0.0 – 1.0	Sand and stone, worms; brown; moist; no odours	S1	0
		1.0 – 2.0	Sand and stone, some garbage; light brown; moist; no odours	S2	0
		2.0 – 3.0	Sand and stone, some debris; brown; moist; no odours	S3	0
TP-21-29	TP29	0.0 – 1.0	Sand and stone, some debris; brown; moist; no odours	S1	0
		1.0 – 2.0	Sand and stone, some garbage; light brown; moist; no odours	S2	0
		2.0 – 3.0	Sand and stone; brown; moist; no odours	S3	0
		2.0 – 3.0	Some decaying organics; black; moist; no odours	S4	0
TP-21-30	TP30	0.0 – 1.0	Sand and stone, some garbage; light brown; dry; no odours	S1	0
		1.0 – 2.0	Sand and stone, some garbage, some debris; light brown; dry; no odours	S2	0
		2.0 – 3.0	Sand and stone, concrete pieces; light brown; moist; no odours	S3	0

Test Pit ID	Test Pit Sample ID	Depth (m)	Description	Sample Number	Vapour Reading (ppm)
	TP30 (re-sample)	0.0 – 1.0	Sand and stone, some garbage; light brown; dry; no odours	S1	5
		1.0 – 2.0	Sand and stone, some garbage, some debris; light brown; dry; no odours	S2	5
		2.0 – 3.0	Sand and stone, concrete pieces, some garbage; light brown; moist; no odours	S3	5
TP-21-31	TP31	0.0 – 1.0	Sand and stone, some garbage; light brown; moist; no odours	S1	5
		1.0 – 2.0	Sand and stone, some garbage; light brown; moist; no odours	S2	5
		2.0 – 3.0	Sand and stone, some debris; brown; moist; no odours	S3	0
TP-21-32	TP32	0.0 – 1.0	Sand and stone, some debris; brown; moist; no odours	S1	5
		1.0 – 2.0	Sand and stone, some garbage; brown; moist; no odours	S2	5
		2.0 – 3.0	Sand and stone, some debris; light brown; no odours	S3	0
TP-21-33	TP33	0.0 – 0.1	Topsoil	NA	NA
		0.1 – 1.0	Sand and stone, some garbage; brown; moist; no odours	S1	5
		1.0 – 2.0	Sand and stone, some garbage, some debris; brown; moist	S2	5
		2.0 – 3.0	Sand and stone, plastic debris; brown; moist; no odours	S3	0
TP-21-34	TP34	0.0 – 1.0	Sand and stone dust, some garbage; brown; dry; no odours	S1	5
		1.0 – 2.0	Sand and stone dust, plastic debris; brown; moist; no odours	S2	5
		2.0 – 3.0	Sand and stone, plastic debris, some garbage; brown; moist; no odours	S3	0
TP-21-35	TP35	0.0 – 1.0	Sand and stone dust, plastic debris, some garbage; brown; dry; no odours	S1	5
		1.0 – 2.0	Sand and stone dust, some debris; brown; dry; no odours	S2	5
		2.0 – 3.0	Sand and stone, some debris; light brown; moist; no odours	S3	0
	TP35 (re-sample)	0.0 – 1.0	Sand and stone dust, plastic debris, some garbage; brown; moist; no odours	S1	5
		1.0 – 2.0	Sand and stone dust, some debris, some garbage; brown; dry; no odours	S2	0
		2.0 – 3.0	Sand and soil, some debris, some garbage; brown; moist; no odours	S3	0
TP-21-36	TP36	0.0 – 1.0	Sand and stone, some debris; brown; dry; no odours	S1	5
		1.0 – 2.0	Sand and stone dust, some debris; light brown; dry; no odours	S2	5
		2.0 – 3.0	Sand and stone, some garbage; brown; moist; no odours	S3	5
TP-21-37	TP37	0.0 – 1.0	Sand and stone; brown/red; moist; no odours	S1	5
		1.0 – 2.0	Sand and stone; red; dry; no odours	S2	5
		2.0 – 3.0	Sand and stone; brown/red; moist; no odours	S3	0
TP-21-38	TP38	0.0 – 1.0	Sand and stone; brown; moist; no odours	S1	0
		1.0 – 2.0	Sand and stone; brown; moist; no odours	S2	5
		2.0 – 3.0	Sand and stone; brown; moist; no odours	S3	0
TP-21-39	TP39	0.0 – 1.0	Sand and stone; brown; moist; no odours	S1	5
		1.0 – 2.0	Sand and stone; brown; moist; no odours	S2	5
TP-21-40	TP40	0.0 – 1.0	Sand, some soil, plastic debris; brown; moist	S1	10
		1.0 – 2.0	Sand and stone, some garbage; light brown; moist	S2	5

Test Pit ID	Test Pit Sample ID	Depth (m)	Description	Sample Number	Vapour Reading (ppm)
		2.0 – 3.0	Sand, some stone, some debris; brown; moist; no odours	S3	5
TP-21-41	TP41	0.0 – 1.0	Sand and stone, concrete pieces, some garbage; brown; moist; no odours	S1	5
		1.0 – 2.0	Sand and stone, some debris; light brown; dry; no odours	S2	5
		2.0 – 3.0	Sand and stone, concrete pieces, some debris; light brown; dry; no odours	S3	5
TP-21-42	TP42	0.0 – 1.0	Sand; brown; moist; no odours	S1	10
		1.0 – 2.0	Sand, concrete pieces, some debris; brown; moist; no odours	S2	10
		2.0 – 3.0	Sand, concrete pieces, some debris; brown; moist; no odours	S3	5

Log of Borehole BH22-1

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Page. 1 of 1

Date Drilled: May 20th, 2022

Drill Type: Hand Auger

Datum: Assumed Elevation

Logged by: MAD Checked by: CTK

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	Depth
		FILL Sand and gravel crushed stone, grey, moist, no odours or stains.	88.04	0
		SAND AND GRAVEL FILL Brown, moist, wet, no odours or stains.	87.7	
		SAND WITH SILT Grey with orange mottling, wet, no odours or stains.	87.5	
			86.8	1
		SILT AND CLAY Brown and grey, moist, no odours or stains.	86.5	
		Refusal on Boulder at 1.50 m Depth, End of Borehole		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa
Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60
SAMPLES
Natural Unit Wt. kN/m³

5
15
15

NOTES:
1. Borehole data requires interpretation by EXP before use by others
2. The borehole was backfilled upon completion of drilling.
3. Field work was completed by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00018293-J5

WATER LEVEL RECORDS		
Date	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00018293-J5 - BH LOGS - HAND AUGER.GPJ TROW OTTAWA.GDT 6/6/22

Log of Borehole BH22-2

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Page. 1 of 1

Date Drilled: May 20th, 2022

Drill Type: Hand Auger

Datum: Assumed Elevation

Logged by: MAD Checked by: CTK

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		TOPSOIL Sand and gravel, brown and grey, moist, no odours or stains.	87.84	0	20 40 60 80 / 50 100 150 200 kPa	250 500 750 / 20 40 60		
		SAND AND GRAVEL FILL Trace silt and clay present, trace glass debris present, brown, moist, no odours or stains.	87.6			25		
		Refusal at 1.10 m Depth, End of Borehole	86.7	1				

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. The borehole was backfilled upon completion of drilling.
3. Field work was completed by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00018293-J5

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00018293-J5 - BH LOGS - HAND AUGER.GPJ TROW OTTAWA.GDT 6/6/22

Log of Borehole BH22-3

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Page. 1 of 1

Date Drilled: May 20th, 2022

Drill Type: Hand Auger

Datum: Assumed Elevation

Logged by: MAD Checked by: CTK

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—⊖
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	Depth
		FILL Sand and gravel, brown and grey, moist, no odours or stains.	87.59	0
		SAND WITH TRACE GRAVEL FILL Dark grey, moist, no odours or stains.	87.0	
		SILT AND CLAY TO SILTY CLAY Bluish grey turning to grey, moist turning wet, no odours or stains.	86.7	1
				2
		End of Borehole at 2.50 m Depth	85.1	

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa

Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % / Atterberg Limits (% Dry Weight): 20 40 60

SAMPLES: 40, 25, 25, 35

Natural Unit Wt. kN/m³

NOTES:
1. Borehole data requires interpretation by EXP before use by others
2. The borehole was backfilled upon completion of drilling.
3. Field work was completed by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00018293-J5

WATER LEVEL RECORDS		
Date	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00018293-J5 - BH LOGS - HAND AUGER.GPJ TROW OTTAWA.GDT 6/6/22

Log of Borehole TP-30A

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Page. 1 of 1

Date Drilled: May 20th, 2022

Drill Type: Hand Auger

Datum: Assumed Elevation

Logged by: MAD Checked by: CTK

Split Spoon Sample ⊠
Auger Sample ◧
SPT (N) Value ○
Dynamic Cone Test ——
Shelby Tube ■
Shear Strength by Vane Test +S

Combustible Vapour Reading □
Natural Moisture Content ×
Atterberg Limits |—⊖
Undrained Triaxial at % Strain at Failure ⊕
Shear Strength by Penetrometer Test ▲

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	Depth
			86.88	0
		FILL Sand and gravel with silt and clay, brown and grey, moist, no odours or stains, (stockpiled soil).	86.8	
		CRUSHED STONE FILL Grey, moist to wet, no odours or stains.	86.4	
		SILTY SAND Dark grey, moist, organic odour, no stains.	86.2	
		SILT WITH CLAY Bluish grey, moist, no odours or stains.	86.1	
		End of Borehole at 0.80 m Depth		

Standard Penetration Test N Value: 20 40 60 80
Shear Strength: 50 100 150 200 kPa
Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 20 40 60
SAMPLES
Natural Unit Wt. kN/m³

5

NOTES:
1. Borehole data requires interpretation by EXP before use by others
2. The borehole was backfilled upon completion of drilling.
3. Field work was completed by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00018293-J5

WATER LEVEL RECORDS

Date	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00018293-J5 - BH LOGS - HAND AUGER.GPJ TROW OTTAWA.GDT 6/6/22

Log of Borehole TP-30B

Project No: OTT-00018293-J5

Project: Phase II Environmental Site Assessment

Location: 1770 Heatherington Road, Ottawa, Ontario

Figure No. _____

Page. 1 of 1

Date Drilled: May 20th, 2022

Drill Type: Hand Auger

Datum: Assumed Elevation

Logged by: MAD Checked by: CTK

Split Spoon Sample	⊠	Combustible Vapour Reading	□
Auger Sample	◧	Natural Moisture Content	×
SPT (N) Value	○	Atterberg Limits	⊢○
Dynamic Cone Test	——	Undrained Triaxial at % Strain at Failure	⊕
Shelby Tube	■	Shear Strength by Penetrometer Test	▲
Shear Strength by Vane Test	+ S		

GWL	SYMBOL	SOIL DESCRIPTION	Assumed Elevation m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		FILL Sand silt and clay, organics present including cattail tubers, brown and dark brown, moist, organic odour, no stains, (stockpiled soil).	86.88	0	20 40 60 80 / 50 100 150 200 kPa	250 500 750 / 20 40 60		
		SILT WITH CLAY Bluish grey, moist, no odours or stains.	86.5			20		
		End of Borehole at 0.70 m Depth	86.2					

NOTES:

1. Borehole data requires interpretation by EXP before use by others
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3. Field work was completed by an EXP representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00018293-J5

WATER LEVEL RECORDS		
Date	Water Level (m)	Hole Open To (m)

CORE DRILLING RECORD			
Run No.	Depth (m)	% Rec.	RQD %

LOG OF BOREHOLE OTT-00018293-J5 - BH LOGS - HAND AUGER.GPJ TROW OTTAWA.GDT 6/6/22

Appendix G:
Laboratory Certificates of Analysis

CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42287 / 42288

REPORT No. B08-03242

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-23	TP08-33	TP08-41	TP08-51
			Sample I.D.:		B08-03242-1	B08-03242-2	B08-03242-3	B08-03242-4
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
pH	pH Units		EPA 150.1	06-Feb-08/O	--	--	7.85	--
Conductivity	µmho/cm	1	SM 2510	06-Feb-08/O	--	--	5630	--
Sodium Adsorption Ratio	units		SM 3120	06-Feb-08/O	--	--	152	--
Antimony	µg/g	0.1	HYDSWG-E3091	06-Feb-08/O	--	--	0.1	--
Arsenic	µg/g	1	HYDSWG-E3091	05-Feb-08/O	--	--	4	--
Barium	µg/g	1	EPA 6010	06-Feb-08/O	--	--	53	--
Beryllium	µg/g	0.2	EPA 6010	06-Feb-08/O	--	--	0.3	--
Boron (Hot Water Ext.)	µg/g	0.1	EPA 200.7	06-Feb-08/O	--	--	1.2	--
Cadmium	µg/g	0.5	EPA 6010	06-Feb-08/O	--	--	< 0.5	--
Chromium	µg/g	1	EPA 6010	06-Feb-08/O	--	--	18	--
Chromium (VI)	µg/g	0.5	EPA7196	06-Feb-08/O	--	--	< 0.5	--
Cobalt	µg/g	1	EPA 6010	06-Feb-08/O	--	--	7	--
Copper	µg/g	1	EPA 6010	06-Feb-08/O	--	--	18	--
Cyanide (Free)	ug/g	0.005	in house	04-Feb-08/K	--	--	< 0.05	--
Lead	µg/g	5	EPA 6010	06-Feb-08/O	--	--	24	--
Mercury	µg/g	0.005	EPA 7471A	06-Feb-08/O	--	--	0.038	--
Molybdenum	µg/g	1	EPA 6010	06-Feb-08/O	--	--	1	--
Nickel	µg/g	1	EPA 6010	06-Feb-08/O	--	--	13	--
Selenium	µg/g	0.1	HYDSWG-E3091	05-Feb-08/O	--	--	< 0.1	--
Silver	µg/g	0.2	EPA 6010	06-Feb-08/O	--	--	< 0.2	--
Thallium	µg/g	0.2	EPA 6020	06-Feb-08/O	--	--	< 0.2	--
Vanadium	µg/g	1	EPA 6010	06-Feb-08/O	--	--	26	--
Zinc	µg/g	1	EPA 6010	06-Feb-08/O	--	--	67	--
Benzene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	< 0.001	< 0.001

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Gord Murphy
Lab Supervisor

Accredited by the Standards Council of Canada and CAEAL for specific tests.
The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior written consent from Caduceon Environmental Laboratories.

CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42287 / 42288

REPORT No. B08-03242

Report To:
Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-23	TP08-33	TP08-41	TP08-51
			Sample I.D.:		B08-03242-1	B08-03242-2	B08-03242-3	B08-03242-4
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Ethylbenzene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Xylene, m,p-	µg/g	0.002	EPA 8260	07-Feb-08/O	< 0.002	< 0.002	< 0.002	< 0.002
Styrene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Xylene, o-	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	< 0.001	< 0.001
PHC F1 (C6-C10)	µg/g	10	CWS Tier1	06-Feb-08/K	< 10	< 10	< 10	< 10
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	07-Feb-08/O	96	100	103	100
Toluene-d8 (SS)	%	10	EPA 8260	07-Feb-08/O	93	93	92	95
Bromofluorobenzene,4(SS)	%	10	EPA 8260	07-Feb-08/O	95	94	96	98
Comment-purgeable	-		-	07-Feb-08	-	-	-	-
PHC F2 (>C10-C16)	µg/g	5	CWS Tier1	11-Feb-08/K	< 5	< 5	< 7	< 5
PHC F3 (>C16-C34)	µg/g	10	CWS Tier1	11-Feb-08/K	< 10	< 10	90	< 10
PHC F4 (>C34-C50)	µg/g	10	CWS Tier1	11-Feb-08/K	< 10	< 10	100	20
Comment-extractable	-		-	11-Feb-08	-	-	NDP/HO	NDP
Acenaphthene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Acenaphthylene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Benzo(a)anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Benzo(a)pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Benzo(b)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Benzo(b+k)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Benzo(g,h,i)perylene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Benzo(k)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Chrysene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Dibenzo(a,h)anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Fluorene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Indeno(1,2,3,-cd)pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Methylnaphthalene,1-	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Accredited by the Standards Council of Canada and CAEAL for specific tests.
The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior written consent from Caduceon Environmental Laboratories.

C.O.C.: 42287 / 42288

REPORT No. B08-03242

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342
P.O. NUMBER: 01906-9t843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-23	TP08-33	TP08-41	TP08-51
			Sample I.D.:		B08-03242-1	B08-03242-2	B08-03242-3	B08-03242-4
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Methylnaphthalene,2-	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Naphthalene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Phenanthrene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
Pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	--	--	--
2-Fluorobiphenyl (SS)	% rec.	10	EPA 8270	11-Feb-08/K	73	--	--	--
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	11-Feb-08/K	53	--	--	--
Poly-Chlorinated Biphenyls (PCB's)	µg/g	0.02	EPA 8081	13-Feb-08/O	< 0.02	< 0.02	< 0.02	< 0.02
Aroclor	-		EPA 8081	13-Feb-08/O	-	-	-	-

1. Diluted due to sample matrix
2. Low Recovery due to matrix
3. Note: Elevated MDL due to sample matrix.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior written consent from Caduceon Environmental Laboratories.

CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

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Tel: 613-526-0123
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DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-15	TP08-83	TP08-93	TP08-101
			Sample I.D.:		B08-03242-5	B08-03242-6	B08-03242-7	B08-03242-8
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
pH	pH Units		EPA 150.1	06-Feb-08/O	--	--	--	--
Conductivity	µmho/cm	1	SM 2510	06-Feb-08/O	--	--	--	--
Sodium Adsorption Ratio	units		SM 3120	06-Feb-08/O	--	--	--	--
Antimony	µg/g	0.1	HYDSWG-E3091	06-Feb-08/O	--	--	--	--
Arsenic	µg/g	1	HYDSWG-E3091	05-Feb-08/O	--	--	--	--
Barium	µg/g	1	EPA 6010	06-Feb-08/O	--	--	--	--
Beryllium	µg/g	0.2	EPA 6010	06-Feb-08/O	--	--	--	--
Boron (Hot Water Ext.)	µg/g	0.1	EPA 200.7	06-Feb-08/O	--	--	--	--
Cadmium	µg/g	0.5	EPA 6010	06-Feb-08/O	--	--	--	--
Chromium	µg/g	1	EPA 6010	06-Feb-08/O	--	--	--	--
Chromium (VI)	µg/g	0.5	EPA7196	06-Feb-08/O	--	--	--	--
Cobalt	µg/g	1	EPA 6010	06-Feb-08/O	--	--	--	--
Copper	µg/g	1	EPA 6010	06-Feb-08/O	--	--	--	--
Cyanide (Free)	ug/g	0.005	in house	04-Feb-08/K	--	--	--	--
Lead	µg/g	5	EPA 6010	06-Feb-08/O	--	--	--	--
Mercury	µg/g	0.005	EPA 7471A	06-Feb-08/O	--	--	--	--
Molybdenum	µg/g	1	EPA 6010	06-Feb-08/O	--	--	--	--
Nickel	µg/g	1	EPA 6010	06-Feb-08/O	--	--	--	--
Selenium	µg/g	0.1	HYDSWG-E3091	05-Feb-08/O	--	--	--	--
Silver	µg/g	0.2	EPA 6010	06-Feb-08/O	--	--	--	--
Thallium	µg/g	0.2	EPA 6020	06-Feb-08/O	--	--	--	--
Vanadium	µg/g	1	EPA 6010	06-Feb-08/O	--	--	--	--
Zinc	µg/g	1	EPA 6010	06-Feb-08/O	--	--	--	--
Benzene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	< 0.001	< 0.001

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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C.O.C.: 42287 / 42288

REPORT No. B08-03242

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 31-Jan-08

DATE REPORTED: 13-Feb-08

SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342

P.O. NUMBER: 01906-91843-S01 Ottawa

WATERWORKS NO.

			Client I.D.:		TP08-15	TP08-83	TP08-93	TP08-101
			Sample I.D.:		B08-03242-5	B08-03242-6	B08-03242-7	B08-03242-8
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Ethylbenzene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Xylene, m,p-	µg/g	0.002	EPA 8260	07-Feb-08/O	< 0.002	< 0.002	< 0.002	< 0.002
Styrene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Xylene, o-	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	< 0.001	< 0.001
PHC F1 (C6-C10)	µg/g	10	CWS Tier1	06-Feb-08/K	< 10	< 10	< 10	< 10
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	07-Feb-08/O	102	99	90	94
Toluene-d8 (SS)	%	10	EPA 8260	07-Feb-08/O	90	92	90	89
Bromofluorobenzene,4(SS)	%	10	EPA 8260	07-Feb-08/O	96	95	94	96
Comment-purgeable	-		-	07-Feb-08	-	-	-	-
PHC F2 (>C10-C16)	µg/g	5	CWS Tier1	11-Feb-08/K	< 5	< 5	< 5	< 6
PHC F3 (>C16-C34)	µg/g	10	CWS Tier1	11-Feb-08/K	< 10	< 10	< 10	60
PHC F4 (>C34-C50)	µg/g	10	CWS Tier1	11-Feb-08/K	< 10	< 10	< 10	100
Comment-extractable	-		-	11-Feb-08	-	-	-	NDP/HO
Acenaphthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Acenaphthylene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Anthracene	µg/g	0.005	EPA 8270	t1-Feb-08/K	--	--	--	--
Benzo(a)anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Benzo(a)pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Benzo(b)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Benzo(b+k)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Benzo(g,h,i)perylene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Benzo(k)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Chrysene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Dibenzo(a,h)anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Fluorene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Indeno(1,2,3,-cd)pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Methylnaphthalene,1-	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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Attention: Jane Yaraskavitch

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Tel: 613-526-0123
Fax: 613 526-1244

DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-15	TP08-83	TP08-93	TP08-101
			Sample I.D.:		B08-03242-5	B08-03242-6	B08-03242-7	B08-03242-8
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Methylnaphthalene,2-	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Naphthalene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Phenanthrene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
Pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	--	--
2-Fluorobiphenyl (SS)	% rec.	10	EPA 8270	11-Feb-08/K	--	--	--	--
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	11-Feb-08/K	--	--	--	--
Poly-Chlorinated Biphenyls (PCB's)	µg/g	0.02	EPA 8081	13-Feb-08/O	< 0.02	< 0.02	< 0.02	< 0.02
Aroclor	-		EPA 8081	13-Feb-08/O	-	-	-	-

1. Diluted due to sample matrix
2. Low Recovery due to matrix
3. Note: Elevated MDL due to sample matrix.

Gord Murphy
Lab Supervisor

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SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-113	TP08-142	TP08-121	TP08-122
			Sample I.D.:		B08-03242-9	B08-03242-10	B08-03242-11	B08-03242-12
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
pH	pH Units		EPA 150.1	06-Feb-08/O	--	--	8.80	--
Conductivity	µmho/cm	1	SM 2510	06-Feb-08/O	--	--	1410	--
Sodium Adsorption Ratio	units		SM 3120	06-Feb-08/O	--	--	60.9	--
Antimony	µg/g	0.1	HYDSWG-E3091	06-Feb-08/O	--	--	< 0.1	--
Arsenic	µg/g	1	HYDSWG-E3091	05-Feb-08/O	--	--	--	--
Barium	µg/g	1	EPA 6010	06-Feb-08/O	--	--	17	--
Beryllium	µg/g	0.2	EPA 6010	06-Feb-08/O	--	--	< 0.2	--
Boron (Hot Water Ext.)	µg/g	0.1	EPA 200.7	06-Feb-08/O	--	--	0.3	--
Cadmium	µg/g	0.5	EPA 6010	06-Feb-08/O	--	--	< 0.5	--
Chromium	µg/g	1	EPA 6010	06-Feb-08/O	--	--	5	--
Chromium (VI)	µg/g	0.5	EPA7196	06-Feb-08/O	--	--	< 0.5	--
Cobalt	µg/g	1	EPA 6010	06-Feb-08/O	--	--	4	--
Copper	µg/g	1	EPA 6010	06-Feb-08/O	--	--	9	--
Cyanide (Free)	ug/g	0.005	in house	04-Feb-08/K	--	--	< 0.05	--
Lead	µg/g	5	EPA 6010	06-Feb-08/O	--	--	13	--
Mercury	µg/g	0.005	EPA 7471A	06-Feb-08/O	--	--	0.012	--
Molybdenum	µg/g	1	EPA 6010	06-Feb-08/O	--	--	3	--
Nickel	µg/g	1	EPA 6010	06-Feb-08/O	--	--	7	--
Selenium	µg/g	0.1	HYDSWG-E3091	05-Feb-08/O	--	--	< 0.1	--
Silver	µg/g	0.2	EPA 6010	06-Feb-08/O	--	--	< 0.2	--
Thallium	µg/g	0.2	EPA 6020	06-Feb-08/O	--	--	< 0.2	--
Vanadium	µg/g	1	EPA 6010	06-Feb-08/O	--	--	20	--
Zinc	µg/g	1	EPA 6010	06-Feb-08/O	--	--	22	--
Benzene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	--	< 0.001

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Gord Murphy
Lab Supervisor

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CADUCEON™ ENVIRONMENTAL LABORATORIES

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REPORT No. B08-03242

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Attention: Jane Yaraskavitch

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Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-113	TP08-142	TP08-121	TP08-122
			Sample I.D.:		B08-03242-9	B08-03242-10	B08-03242-11	B08-03242-12
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Toluene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	--	< 0.001
Ethylbenzene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	--	< 0.001
Xylene, m,p-	µg/g	0.002	EPA 8260	07-Feb-08/O	< 0.002	< 0.002	--	< 0.002
Styrene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	--	< 0.001
Xylene, o-	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	< 0.001	--	< 0.001
PHC F1 (C6-C10)	µg/g	10	CWS Tier1	06-Feb-08/K	< 10	< 10	--	< 10
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	07-Feb-08/O	92	91	--	89
Toluene-d8 (SS)	%	10	EPA 8260	07-Feb-08/O	89	91	--	92
Bromofluorobenzene,4(SS)	%	10	EPA 8260	07-Feb-08/O	94	96	--	96
Comment-purgeable	-		-	07-Feb-08	-	-	--	-
PHC F2 (>C10-C16)	µg/g	5	CWS Tier1	11-Feb-08/K	< 5	< 5	--	< 5
PHC F3 (>C16-C34)	µg/g	10	CWS Tier1	11-Feb-08/K	< 10	< 10	--	40
PHC F4 (>C34-C50)	µg/g	10	CWS Tier1	11-Feb-08/K	< 10	< 10	--	100
Comment-extractable	-		-	11-Feb-08	-	-	--	NDP/HO
Acenaphthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Acenaphthylene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Benzo(a)anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Benzo(a)pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Benzo(b)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Benzo(b+k)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Benzo(g,h,i)perylene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Benzo(k)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Chrysene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Dibenzo(a,h)anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Fluorene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--

Gord Murphy
Lab Supervisor

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DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-113	TP08-142	TP08-121	TP08-122
			Sample I.D.:		B08-03242-9	B08-03242-10	B08-03242-11	B08-03242-12
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Indeno(1,2,3,-cd)pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Methylnaphthalene,1-	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Methylnaphthalene,2-	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Naphthalene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Phenanthrene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
Pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	--	< 0.1	--
2-Fluorobiphenyl (SS)	% rec.	10	EPA 8270	11-Feb-08/K	--	--	10 [2]	--
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	11-Feb-08/K	--	--	34	--
Poly-Chlorinated Biphenyls (PCB's)	µg/g	0.02	EPA 8081	13-Feb-08/O	< 0.02	< 0.02	--	< 0.02
Aroclor	-		EPA 8081	13-Feb-08/O	-	-	--	-

1 Diluted due to sample matrix
2 Low Recovery due to matrix
3 Note: Elevated MDL due to sample matrix

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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DATE RECEIVED: 31-Jan-08
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SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-123	TP08-11	TP08-32	TP08-72
			Sample I.D.:		B08-03242-13	B08-03242-14	B08-03242-15	B08-03242-16
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
pH	pH Units		EPA 150.1	06-Feb-08/O	--	8.55	8.32	8.50
Conductivity	µmho/cm	1	SM 2510	06-Feb-08/O	--	299	1240	1840
Sodium Adsorption Ratio	units		SM 3120	06-Feb-08/O	--	7.01	19.9	20.1
Antimony	µg/g	0.1	HYDSWG-E3091	06-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Arsenic	µg/g	1	HYDSWG-E3091	05-Feb-08/O	--	1	2	2
Barium	µg/g	1	EPA 6010	06-Feb-08/O	--	58	129	166
Beryllium	µg/g	0.2	EPA 6010	06-Feb-08/O	--	< 0.2	0.3	0.4
Boron (Hot Water Ext.)	µg/g	0.1	EPA 200.7	06-Feb-08/O	--	0.4	0.5	0.7
Cadmium	µg/g	0.5	EPA 6010	06-Feb-08/O	--	< 0.5	< 0.5	< 0.5
Chromium	µg/g	1	EPA 6010	06-Feb-08/O	--	16	35	49
Chromium (VI)	µg/g	0.5	EPA7196	06-Feb-08/O	--	< 0.5	< 0.5	< 0.5
Cobalt	µg/g	1	EPA 6010	06-Feb-08/O	--	4	9	12
Copper	µg/g	1	EPA 6010	06-Feb-08/O	--	12	22	24
Cyanide (Free)	ug/g	0.005	in house	04-Feb-08/K	--	< 0.05	< 0.05	< 0.05
Lead	µg/g	5	EPA 6010	06-Feb-08/O	--	22	26	25
Mercury	µg/g	0.005	EPA 7471A	06-Feb-08/O	--	0.028	0.063	0.022
Molybdenum	µg/g	1	EPA 6010	06-Feb-08/O	--	< 1	< 1	1
Nickel	µg/g	1	EPA 6010	06-Feb-08/O	--	10	17	26
Selenium	µg/g	0.1	HYDSWG-E3091	05-Feb-08/O	--	< 0.1	< 0.1	0.1
Silver	µg/g	0.2	EPA 6010	06-Feb-08/O	--	< 0.2	< 0.2	< 0.2
Thallium	µg/g	0.2	EPA 6020	06-Feb-08/O	--	< 0.2	< 0.2	< 0.2
Vanadium	µg/g	1	EPA 6010	06-Feb-08/O	--	21	38	48
Zinc	µg/g	1	EPA 6010	06-Feb-08/O	--	53	93	69
Benzene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	--	--	--

Gord Murphy
Lab Supervisor

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Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-123	TP08-11	TP08-32	TP08-72
			Sample I.D.:		B08-03242-13	B08-03242-14	B08-03242-15	B08-03242-16
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Toluene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	--	--	--
Ethylbenzene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	--	--	--
Xylene, m,p-	µg/g	0.002	EPA 8260	07-Feb-08/O	< 0.002	--	--	--
Styrene	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	--	--	--
Xylene, o-	µg/g	0.001	EPA 8260	07-Feb-08/O	< 0.001	--	--	--
PHC F1 (C6-C10)	µg/g	10	CWS Tier1	06-Feb-08/K	< 10	--	--	--
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	07-Feb-08/O	91	--	--	--
Toluene-d8 (SS)	%	10	EPA 8260	07-Feb-08/O	92	--	--	--
Bromofluorobenzene,4(SS)	%	10	EPA 8260	07-Feb-08/O	96	--	--	--
Comment-purgeable	-		-	07-Feb-08	-	--	--	--
PHC F2 (>C10-C16)	µg/g	5	CWS Tier1	11-Feb-08/K	7	--	--	--
PHC F3 (>C16-C34)	µg/g	10	CWS Tier1	11-Feb-08/K	< 10	--	--	--
PHC F4 (>C34-C50)	µg/g	10	CWS Tier1	11-Feb-08/K	30	--	--	--
Comment-extractable	-		-	11-Feb-08	NDP	--	--	--
Acenaphthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	< 0.04	< 0.02	< 0.05
Acenaphthylene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	< 0.04	< 0.02	< 0.05
Anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	0.18	0.02	< 0.05
Benzo(a)anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	0.603	0.090	< 0.05
Benzo(a)pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	0.33	0.074	< 0.05
Benzo(b)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	0.691	0.12	< 0.05
Benzo(b+k)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	1.13	0.20	< 0.05
Benzo(g,h,i)perylene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	< 0.04	0.02	< 0.05
Benzo(k)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	0.434	0.074	< 0.05
Chrysene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	0.640	0.12	< 0.05
Dibenzo(a,h)anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	< 0.04	< 0.02	< 0.05
Fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	1.09	0.16	0.080
Fluorene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	< 0.04	< 0.02	< 0.05

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42287 / 42288

REPORT No. B08-03242

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

	Client I.D.:				TP08-123	TP08-11	TP08-32	TP08-72
	Sample I.D.:				B08-03242-13	B08-03242-14	B08-03242-15	B08-03242-16
	Date Collected:				30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Indeno(1,2,3,-cd)pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	0.044	0.03	< 0.05
Methylnaphthalene,1-	µg/g	0.005	EPA 8270	11-Feb-08/K	--	< 0.04	< 0.02	< 0.05
Methylnaphthalene,2-	µg/g	0.005	EPA 8270	11-Feb-08/K	--	< 0.04	< 0.02	< 0.05
Naphthalene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	0.16	< 0.02	< 0.05
Phenanthrene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	1.15	0.13	0.070
Pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	--	0.750	0.12	0.050
2-Fluorobiphenyl (SS)	% rec.	10	EPA 8270	11-Feb-08/K	--	95	68	80
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	11-Feb-08/K	--	61	66	40
Poly-Chlorinated Biphenyls (PCB's)	µg/g	0.02	EPA 8081	13-Feb-08/O	< 0.02	--	--	--
Aroclor	-		EPA 8081	13-Feb-08/O	-	--	--	--

1. Diluted due to sample matrix
2. Low Recovery due to matrix
3. Note: Elevated MDL due to sample matrix.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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Final Report

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Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

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Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - t0342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-82	TP08-92	TP08-141	TP08-151
			Sample I.D.:		B08-03242-17	B08-03242-18	B08-03242-19	B08-03242-20
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
pH	pH Units		EPA 150.1	06-Feb-08/O	9.11	7.43	8.91	8.02
Conductivity	µmho/cm	1	SM 2510	06-Feb-08/O	369	1500	660	528
Sodium Adsorption Ratio	units		SM 3120	06-Feb-08/O	3.06	14.3	10.4	28.9
Antimony	µg/g	0.1	HYDSWG-E3091	06-Feb-08/O	0.2	< 0.1	< 0.1	0.8
Arsenic	µg/g	1	HYDSWG-E3091	05-Feb-08/O	5	2	2	2
Barium	µg/g	1	EPA 6010	06-Feb-08/O	178	130	78	49
Beryllium	µg/g	0.2	EPA 6010	06-Feb-08/O	0.5	0.3	< 0.2	< 0.2
Boron (Hot Water Ext.)	µg/g	0.1	EPA 200.7	06-Feb-08/O	0.2	0.9	0.3	0.7
Cadmium	µg/g	0.5	EPA 6010	06-Feb-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	µg/g	1	EPA 6010	06-Feb-08/O	19	29	14	20
Chromium (VI)	µg/g	0.5	EPA7196	06-Feb-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Cobalt	µg/g	1	EPA 6010	06-Feb-08/O	17	7	4	4
Copper	µg/g	1	EPA 6010	06-Feb-08/O	34	21	9	24
Cyanide (Free)	ug/g	0.005	in house	04-Feb-08/K	< 0.05	< 0.05	< 0.05	< 0.05
Lead	µg/g	5	EPA 6010	06-Feb-08/O	16	19	14	20
Mercury	µg/g	0.005	EPA 7471A	06-Feb-08/O	0.032	0.114	0.025	0.022
Molybdenum	µg/g	1	EPA 6010	06-Feb-08/O	2	< 1	2	2
Nickel	µg/g	1	EPA 6010	06-Feb-08/O	32	15	8	7
Selenium	µg/g	0.1	HYDSWG-E3091	05-Feb-08/O	< 0.1	0.3	0.1	< 0.1
Silver	µg/g	0.2	EPA 6010	06-Feb-08/O	< 0.2	0.3	< 0.2	< 0.2
Thallium	µg/g	0.2	EPA 6020	06-Feb-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Vanadium	µg/g	1	EPA 6010	06-Feb-08/O	25	33	18	14
Zinc	µg/g	1	EPA 6010	06-Feb-08/O	60	80	29	74
Benzene	µg/g	0.001	EPA 8260	07-Feb-08/O	--	--	--	--

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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C.O.C.: 42287 / 42288

REPORT No. B08-03242

Report To:
Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - t0342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-82	TP08-92	TP08-141	TP08-151
			Sample I.D.:		B08-03242-17	B08-03242-18	B08-03242-19	B08-03242-20
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Toluene	µg/g	0.001	EPA 8260	07-Feb-08/O	--	--	--	--
Ethylbenzene	µg/g	0.001	EPA 8260	07-Feb-08/O	--	--	--	--
Xylene, m,p-	µg/g	0.002	EPA 8260	07-Feb-08/O	--	--	--	--
Styrene	µg/g	0.001	EPA 8260	07-Feb-08/O	--	--	--	--
Xylene, o-	µg/g	0.001	EPA 8260	07-Feb-08/O	--	--	--	--
PHC F1 (C6-C10)	µg/g	10	CWS Tier1	06-Feb-08/K	--	--	--	--
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	07-Feb-08/O	--	--	--	--
Toluene-d8 (SS)	%	10	EPA 8260	07-Feb-08/O	--	--	--	--
Bromofluorobenzene,4(SS)	%	10	EPA 8260	07-Feb-08/O	--	--	--	--
Comment-purgeable	-		-	07-Feb-08	--	--	--	--
PHC F2 (>C10-C16)	µg/g	5	CWS Tier1	11-Feb-08/K	--	--	--	--
PHC F3 (>C16-C34)	µg/g	10	CWS Tier1	11-Feb-08/K	--	--	--	--
PHC F4 (>C34-C50)	µg/g	10	CWS Tier1	11-Feb-08/K	--	--	--	--
Comment-extractable	-		-	11-Feb-08	--	--	--	--
Acenaphthene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	< 0.02	< 0.01	< 0.03
Acenaphthylene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	< 0.02	< 0.01	< 0.03
Anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	< 0.02	< 0.01	0.03
Benzo(a)anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	0.04	0.02	0.34
Benzo(a)pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	< 0.02	< 0.01	0.36
Benzo(b)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	0.03	0.02	0.564
Benzo(b+k)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	0.04	0.02	0.903
Benzo(g,h,i)perylene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	< 0.02	< 0.01	0.15
Benzo(k)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	< 0.02	< 0.01	0.34
Chrysene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	0.03	0.02	0.473
Dibenzo(a,h)anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	< 0.02	< 0.01	< 0.03
Fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	0.05	0.03	0.503
Fluorene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	< 0.02	0.043	< 0.03

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
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DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

	Client I.D.:			TP08-82	TP08-92	TP08-141	TP08-151
	Sample I.D.:			B08-03242-17	B08-03242-18	B08-03242-19	B08-03242-20
	Date Collected:			30-Jan-08	30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Indeno(1,2,3,-cd)pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	< 0.02	< 0.01	0.20
Methylnaphthalene,1-	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	< 0.02	0.22	< 0.03
Methylnaphthalene,2-	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	< 0.02	0.13	< 0.03
Naphthalene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	< 0.02	0.04	< 0.03
Phenanthrene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	0.03	0.072	0.418
Pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.005	0.03	0.02	0.30
2-Fluorobiphenyl (SS)	% rec.	10	EPA 8270	11-Feb-08/K	84	114	80	44
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	11-Feb-08/K	59	68	44	26
Poly-Chlorinated Biphenyls (PCB's)	µg/g	0.02	EPA 8081	13-Feb-08/O	--	--	--	--
Aroclor	-		EPA 8081	13-Feb-08/O	--	--	--	--

1 Diluted due to sample matrix
2 Low Recovery due to matrix
3 Note: Elevated MDL due to sample matrix.

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Gord Murphy
Lab Supervisor

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DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-161	TP08-132	TP08-231	
			Sample I.D.:		B08-03242-21	B08-03242-22	B08-03242-23	
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
pH	pH Units		EPA 150.1	06-Feb-08/O	8.55	7.51	7.48	
Conductivity	µmho/cm	1	SM 2510	06-Feb-08/O	1480	3020	3490	
Sodium Adsorption Ratio	units		SM 3120	06-Feb-08/O	25.3	46.7	52.9	
Antimony	µg/g	0.1	HYDSWG-E3091	06-Feb-08/O	0.3	0.2	< 0.1	
Arsenic	µg/g	1	HYDSWG-E3091	05-Feb-08/O	2	< 1	1	
Barium	µg/g	1	EPA 6010	06-Feb-08/O	87	43	52	
Beryllium	µg/g	0.2	EPA 6010	06-Feb-08/O	0.3	< 0.2	0.2	
Boron (Hot Water Ext.)	µg/g	0.1	EPA 200.7	06-Feb-08/O	0.3	0.3	0.4	
Cadmium	µg/g	0.5	EPA 6010	06-Feb-08/O	< 0.5	< 0.5	< 0.5	
Chromium	µg/g	1	EPA 6010	06-Feb-08/O	22	20	22	
Chromium (VI)	µg/g	0.5	EPA7196	06-Feb-08/O	< 0.5	< 0.5	< 0.5	
Cobalt	µg/g	1	EPA 6010	06-Feb-08/O	7	5	5	
Copper	µg/g	1	EPA 6010	06-Feb-08/O	16	11	12	
Cyanide (Free)	ug/g	0.005	in house	04 Feb-08/K	< 0.05	< 0.05	< 0.05	
Lead	µg/g	5	EPA 6010	06-Feb-08/O	25	5	6	
Mercury	µg/g	0.005	EPA 7471A	06-Feb-08/O	0.029	0.011	0.018	
Molybdenum	µg/g	1	EPA 6010	06-Feb-08/O	1	< 1	< 1	
Nickel	µg/g	1	EPA 6010	06-Feb-08/O	14	11	12	
Selenium	µg/g	0.1	HYDSWG-E3091	05-Feb-08/O	0.2	< 0.1	< 0.1	
Silver	µg/g	0.2	EPA 6010	06-Feb-08/O	< 0.2	< 0.2	< 0.2	
Thallium	µg/g	0.2	EPA 6020	06-Feb-08/O	< 0.2	< 0.2	< 0.2	
Vanadium	µg/g	1	EPA 6010	06-Feb-08/O	30	25	27	
Zinc	µg/g	1	EPA 6010	06-Feb-08/O	51	24	29	
Benzene	µg/g	0.001	EPA 8260	07-Feb-08/O	--	--	--	

Gord Murphy
Lab Supervisor

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DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

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P.O. NUMBER: 01906-91843-S01 Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-161	TP08-132	TP08-231
			Sample I.D.:		B08-03242-21	B08-03242-22	B08-03242-23
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Toluene	µg/g	0.001	EPA 8260	07-Feb-08/O	--	--	--
Ethylbenzene	µg/g	0.001	EPA 8260	07-Feb-08/O	--	--	--
Xylene, m,p-	µg/g	0.002	EPA 8260	07-Feb-08/O	--	--	--
Styrene	µg/g	0.001	EPA 8260	07-Feb-08/O	--	--	--
Xylene, o-	µg/g	0.001	EPA 8260	07-Feb-08/O	--	--	--
PHC F1 (C6-C10)	µg/g	10	CWS Tier1	06-Feb-08/K	--	--	--
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	07-Feb-08/O	--	--	--
Toluene-d8 (SS)	%	10	EPA 8260	07-Feb-08/O	--	--	--
Bromofluorobenzene,4(SS)	%	10	EPA 8260	07-Feb-08/O	--	--	--
Comment-purgeable	-		-	07-Feb-08	--	--	--
PHC F2 (>C10-C16)	µg/g	5	CWS Tier1	11-Feb-08/K	--	--	--
PHC F3 (>C16-C34)	µg/g	10	CWS Tier1	11-Feb-08/K	--	--	--
PHC F4 (>C34-C50)	µg/g	10	CWS Tier1	11-Feb-08/K	--	--	--
Comment-extractable	-		-	11-Feb-08	--	--	--
Acenaphthene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.02	< 0.005	< 0.005
Acenaphthylene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.02	< 0.005	< 0.005
Anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.02	< 0.005	< 0.005
Benzo(a)anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	0.02	< 0.005	0.006
Benzo(a)pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.02	< 0.005	< 0.005
Benzo(b)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.02	< 0.005	0.008
Benzo(b+k)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.02	0.007	0.012
Benzo(g,h,i)perylene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.02	< 0.005	< 0.005
Benzo(k)fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.02	< 0.005	< 0.005
Chrysene	µg/g	0.005	EPA 8270	11-Feb-08/K	0.02	< 0.005	0.006
Dibenzo(a,h)anthracene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.02	< 0.005	< 0.005
Fluoranthene	µg/g	0.005	EPA 8270	11-Feb-08/K	0.02	< 0.005	< 0.005
Fluorene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.02	< 0.005	< 0.005

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Gord Murphy
Lab Supervisor

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42287 / 42288

REPORT No. B08-03242

Report To:
Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

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2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: City of Ottawa Work Yard - 10342
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		TP08-161	TP08-132	TP08-231	
			Sample I.D.:		B08-03242-21	B08-03242-22	B08-03242-23	
			Date Collected:		30-Jan-08	30-Jan-08	30-Jan-08	
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Indeno(1,2,3,-cd)pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.02	< 0.005	< 0.005	
Methylnaphthalene,1-	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.02	< 0.005	< 0.005	
Methylnaphthalene,2-	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.02	< 0.005	< 0.005	
Naphthalene	µg/g	0.005	EPA 8270	11-Feb-08/K	< 0.02	< 0.005	< 0.005	
Phenanthrene	µg/g	0.005	EPA 8270	11-Feb-08/K	0.03	< 0.005	< 0.005	
Pyrene	µg/g	0.005	EPA 8270	11-Feb-08/K	0.02	< 0.005	< 0.005	
2-Fluorobiphenyl (SS)	% rec.	10	EPA 8270	11-Feb-08/K	75	73	64	
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	11-Feb-08/K	42	73	43	
Poly-Chlorinated Biphenyls (PCB's)	µg/g	0.02	EPA 8081	13-Feb-08/O	--	--	--	
Aroclor	-		EPA 8081	13-Feb-08/O	--	--	--	

1. Diluted due to sample matrix
2. Low Recovery due to matrix
3. Note: Elevated MDL due to sample matrix.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42261 / 42262

REPORT No. B08-03004

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

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Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-1 SS2	MW08-1 SS3	MW08-1 SS4	MW08-2 SS1
			Sample I.D.:		B08-03004-1	B08-03004-2	B08-03004-3	B08-03004-4
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
pH	pH Units		EPA 150.1	31-Jan-08/O	7.45	--	--	7.15
Conductivity	µmho/cm	1	SM 2510	31-Jan-08/O	479	--	--	8060
Sodium Adsorption Ratio	units		SM 3120	31-Jan-08/O	6.54	--	--	61.7
Antimony	µg/g	0.1	HYDSWG-E3091	04-Feb-08/O	0.1	--	--	0.3
Arsenic	µg/g	1	HYDSWG-E3091	01-Feb-08/O	< 1	--	--	1
Selenium	µg/g	0.1	HYDSWG-E3091	31-Jan-08/O	0.3	--	--	0.2
Barium	µg/g	1	EPA 6010	31-Jan-08/O	364	--	--	54
Beryllium	µg/g	0.2	EPA 6010	31-Jan-08/O	0.7	--	--	0.2
Boron (Hot Water Ext.)	µg/g	0.1	EPA 200.7	31-Jan-08/O	0.3	--	--	2.6
Cadmium	µg/g	0.5	EPA 6010	31-Jan-08/O	< 0.5	--	--	0.5
Chromium	µg/g	1	EPA 6010	31-Jan-08/O	60	--	--	9
Chromium (VI)	µg/g	0.5	EPA7196	06-Feb-08/O	< 0.5	--	--	< 0.5
Cobalt	µg/g	1	EPA 6010	31-Jan-08/O	19	--	--	4

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Gord Murphy
Lab Supervisor

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42261 / 42262

REPORT No. B08-03004

Report To:
Jacques Whitford - Lancaster
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Attention: Jane Yaraskavitch

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Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-1 SS2	MW08-1 SS3	MW08-1 SS4	MW08-2 SS1
			Sample I.D.:		B08-03004-1	B08-03004-2	B08-03004-3	B08-03004-4
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Copper	µg/g	1	EPA 6010	31-Jan-08/O	40	--	--	16
Cyanide (Free)	ug/g	0.005	in house	01-Feb-08/K	< 0.005	--	--	< 0.005
Lead	µg/g	5	EPA 6010	31-Jan-08/O	10	--	--	198
Mercury	µg/g	0.005	EPA 7471A	01-Feb-08/O	0.007	--	--	0.027
Molybdenum	µg/g	1	EPA 6010	31-Jan-08/O	2	--	--	1
Nickel	µg/g	1	EPA 6010	31-Jan-08/O	34	--	--	7
Silver	µg/g	0.2	EPA 6010	31-Jan-08/O	< 0.2	--	--	< 0.2
Thallium	µg/g	0.2	EPA 6020	31-Jan-08/O	0.3	--	--	< 0.2
Vanadium	µg/g	1	EPA 6010	31-Jan-08/O	81	--	--	16
Zinc	µg/g	1	EPA 6010	31-Jan-08/O	112	--	--	86
Poly-Chlorinated Biphenyls (PCB's)	µg/g	0.2	EPA 8081	11-Feb-08/O	--	< 0.2	--	< 0.2
Aroclor	-		EPA 8081	11-Feb-08/O	--	-	--	-
Acenaphthene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.012
Acenaphthylene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	< 0.005
Anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	< 0.005

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42261 / 42262

REPORT No. B08-03004

Report To:
Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01 Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-1 SS2	MW08-1 SS3	MW08-1 SS4	MW08-2 SS1
			Sample I.D.:		B08-03004-1	B08-03004-2	B08-03004-3	B08-03004-4
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Benzo(a)anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.026
Benzo(a)pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.027
Benzo(b)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.044
Benzo(b+k)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.063
Benzo(g,h,i)perylene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.020
Benzo(k)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.019
Chrysene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.033
Dibenzo(a,h)anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	< 0.005
Fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.028
Fluorene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.010
Indeno(1,2,3,-cd)pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.027
Methylnaphthalene,1-	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.030
Methylnaphthalene,2-	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.015
Naphthalene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.079
Phenanthrene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.046

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Gord Murphy
Lab Supervisor

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C.O.C.: 42261 / 42262

REPORT No. B08-03004

Report To:
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2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
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Caduceon Environmental Laboratories
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Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-1 SS2	MW08-1 SS3	MW08-1 SS4	MW08-2 SS1
			Sample I.D.:		B08-03004-1	B08-03004-2	B08-03004-3	B08-03004-4
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	< 0.005	--	--	0.035
2-Fluorobiphenyl (SS)	% rec.	10	EPA 8270	04-Feb-08/K	98	--	--	78
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	04-Feb-08/K	80	--	--	70
Benzene	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Bromodichloromethane	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Bromoform	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Bromomethane	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Chloroform	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Dibromochloromethane	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Dibromoethane,1,2- (Ethylene Dibromide)	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Dichlorobenzene,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Dichlorobenzene,1,3-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Dichlorobenzene,1,4-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Dichloroethane,1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-1 SS2	MW08-1 SS3	MW08-1 SS4	MW08-2 SS1
			Sample I.D.:		B08-03004-1	B08-03004-2	B08-03004-3	B08-03004-4
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Dichloroethane,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Dichloroethene, 1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Dichloroethene, cis-1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Dichloroethene, trans-1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Dichloromethane (Methylene Chloride)	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Dichloropropane,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Dichloropropene, cis-1,3-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Dichloropropene, trans-1,3-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Ethylbenzene	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Monochlorobenzene (Chlorobenzene)	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Naphthalene	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Styrene	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Tetrachloroethane,1,1,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Tetrachloroethane,1,1,2,2	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Gord Murphy
Lab Supervisor

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DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-1 SS2	MW08-1 SS3	MW08-1 SS4	MW08-2 SS1
			Sample I.D.:		B08-03004-1	B08-03004-2	B08-03004-3	B08-03004-4
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Tetrachloroethylene	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Toluene	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Trichlorobenzene,1,2,4-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Trichloroethane,1,1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Trichloroethane,1,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Trichloroethylene	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Vinyl Chloride	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Xylene, m,p-	µg/g	0.002	EPA 8260	31-Jan-08/O	--	< 0.002	< 0.002	< 0.002
Xylene, o-	µg/g	0.001	EPA 8260	31-Jan-08/O	--	< 0.001	< 0.001	< 0.001
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	31-Jan-08/O	--	102	100	100
Toluene-d8 (SS)	%	10	EPA 8260	31-Jan-08/O	--	105	99	99
Bromofluorobenzene,4(SS)	%	10	EPA 8260	31-Jan-08/O	--	105	95	98
PHC F1 (C6-C10)	µg/g	10	CWS Tier1	04-Feb-08/K	--	< 10	< 10	< 10
PHC F2 (>C10-C16)	µg/g	5	CWS Tier1	01-Feb-08/K	--	5	23	5
PHC F3 (>C16-C34)	µg/g	10	CWS Tier1	01-Feb-08/K	--	< 10	30	50

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Gord Murphy
Lab Supervisor

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42261 / 42262

REPORT No. B08-03004

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-1 SS2	MW08-1 SS3	MW08-1 SS4	MW08-2 SS1
			Sample I.D.:		B08-03004-1	B08-03004-2	B08-03004-3	B08-03004-4
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
PHC F4 (>C34-C50)	µg/g	10	CWS Tier1	01-Feb-08/K	--	< 10	< 10	70
Comment-extractable	-		-	01-Feb-08	--	NDP	NDP	NDP

1. Note: Elevated MDL due to high % moisture.

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-2 SS4	MW08-3 SS1	MW08-3 SS3	MW08-4 SS1
			Sample I.D.:		B08-03004-5	B08-03004-6	B08-03004-7	B08-03004-8
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
pH	pH Units		EPA 150.1	31-Jan-08/O	--	8.26	--	7.92
Conductivity	µmho/cm	1	SM 2510	31-Jan-08/O	--	266	--	591
Sodium Adsorption Ratio	units		SM 3120	31-Jan-08/O	--	7.28	--	8.04
Antimony	µg/g	0.1	HYDSWG-E3091	04-Feb-08/O	--	0.2	--	0.1
Arsenic	µg/g	1	HYDSWG-E3091	01-Feb-08/O	--	< 1	--	< 1
Selenium	µg/g	0.1	HYDSWG-E3091	31-Jan-08/O	--	0.3	--	0.3
Barium	µg/g	1	EPA 6010	31-Jan-08/O	--	98	--	239
Beryllium	µg/g	0.2	EPA 6010	31-Jan-08/O	--	0.3	--	0.5
Boron (Hot Water Ext.)	µg/g	0.1	EPA 200.7	31-Jan-08/O	--	0.6	--	0.4
Cadmium	µg/g	0.5	EPA 6010	31-Jan-08/O	--	< 0.5	--	< 0.5
Chromium	µg/g	1	EPA 6010	31-Jan-08/O	--	29	--	58
Chromium (VI)	µg/g	0.5	EPA7196	06-Feb-08/O	--	< 0.5	--	< 0.5
Cobalt	µg/g	1	EPA 6010	31-Jan-08/O	--	7	--	13

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Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 0t906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-2 SS4	MW08-3 SS1	MW08-3 SS3	MW08-4 SS1
			Sample I.D.:		B08-03004-5	B08-03004-6	B08-03004-7	B08-03004-8
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Copper	µg/g	1	EPA 6010	31-Jan-08/O	--	14	--	22
Cyanide (Free)	ug/g	0.005	in house	01-Feb-08/K	--	< 0.005	--	< 0.005
Lead	µg/g	5	EPA 6010	31-Jan-08/O	--	13	--	8
Mercury	µg/g	0.005	EPA 7471A	01-Feb-08/O	--	0.060	--	0.030
Molybdenum	µg/g	1	EPA 6010	31-Jan-08/O	--	< 1	--	< 1
Nickel	µg/g	1	EPA 6010	31-Jan-08/O	--	14	--	30
Silver	µg/g	0.2	EPA 6010	31-Jan-08/O	--	< 0.2	--	< 0.2
Thallium	µg/g	0.2	EPA 6020	31-Jan-08/O	--	< 0.2	--	< 0.2
Vanadium	µg/g	1	EPA 6010	31-Jan-08/O	--	33	--	54
Zinc	µg/g	1	EPA 6010	31-Jan-08/O	--	63	--	79
Poly-Chlorinated Biphenyls (PCB's)	µg/g	0.2	EPA 8081	11-Feb-08/O	--	--	< 0.2	--
Aroclor	-		EPA 8081	11-Feb-08/O	--	--	-	--
Acenaphthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	< 0.02	--	< 0.005
Acenaphthylene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	< 0.02	--	< 0.005
Anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	0.08	--	< 0.005

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Gord Murphy
Lab Supervisor

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DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-2 SS4	MW08-3 SS1	MW08-3 SS3	MW08-4 SS1
			Sample I.D.:		B08-03004-5	B08-03004-6	B08-03004-7	B08-03004-8
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Benzo(a)anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	0.28	--	0.007
Benzo(a)pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	0.34	--	0.008
Benzo(b)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	0.31	--	0.012
Benzo(b+k)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	0.56	--	0.017
Benzo(g,h,i)perylene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	0.19	--	0.007
Benzo(k)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	0.25	--	< 0.005
Chrysene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	0.29	--	0.010
Dibenzo(a,h)anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	0.02	--	< 0.005
Fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	0.39	--	0.010
Fluorene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	0.03	--	< 0.005
Indeno(1,2,3,-cd)pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	0.19	--	0.006
Methylnaphthalene,1-	µg/g	0.005	EPA 8270	04-Feb-08/K	--	< 0.02	--	< 0.005
Methylnaphthalene,2-	µg/g	0.005	EPA 8270	04-Feb-08/K	--	< 0.02	--	< 0.005
Naphthalene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	< 0.02	--	< 0.005
Phenanthrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	0.28	--	0.006

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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DATE RECEIVED: 30-Jan-08
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SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

Client I.D.:					MW08-2 SS4	MW08-3 SS1	MW08-3 SS3	MW08-4 SS1
Sample I.D.:					B08-03004-5	B08-03004-6	B08-03004-7	B08-03004-8
Date Collected:					28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	0.32	--	0.008
2-Fluorobiphenyl (SS)	% rec.	10	EPA 8270	04-Feb-08/K	--	83	--	70
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	04-Feb-08/K	--	105	--	67
Benzene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	0.003	--
Bromodichloromethane	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Bromoform	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Bromomethane	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Carbon Tetrachloride	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Chloroform	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dibromochloromethane	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dibromoethane,1,2- (Ethylene Dibromide)	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichlorobenzene,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichlorobenzene,1,3-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichlorobenzene,1,4-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloroethane,1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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DATE RECEIVED: 30-Jan-08
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SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-2 SS4	MW08-3 SS1	MW08-3 SS3	MW08-4 SS1
			Sample I.D.:		B08-03004-5	B08-03004-6	B08-03004-7	B08-03004-8
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Dichloroethane,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloroethene, 1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloroethene, cis-1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	0.014	--
Dichloroethene, trans-1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloromethane (Methylene Chloride)	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloropropane,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloropropene, cis-1,3-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloropropene, trans-1,3-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Ethylbenzene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Monochlorobenzene (Chlorobenzene)	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Naphthalene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Styrene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Tetrachloroethane,1,1,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Tetrachloroethane,1,1,2,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--

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P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

Client I.D.:					MW08-2 SS4	MW08-3 SS1	MW08-3 SS3	MW08-4 SS1
Sample I.D.:					B08-03004-5	B08-03004-6	B08-03004-7	B08-03004-8
Date Collected:					28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Tetrachloroethylene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Toluene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Trichlorobenzene,1,2,4-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Trichloroethane,1,1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Trichloroethane,1,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Trichloroethylene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	0.006	--
Vinyl Chloride	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Xylene, m,p-	µg/g	0.002	EPA 8260	31-Jan-08/O	< 0.002	--	< 0.002	--
Xylene, o-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	31-Jan-08/O	102	--	103	--
Toluene-d8 (SS)	%	10	EPA 8260	31-Jan-08/O	99	--	105	--
Bromofluorobenzene,4(SS)	%	10	EPA 8260	31-Jan-08/O	92	--	98	--
PHC F1 (C6-C10)	µg/g	10	CWS Tier1	04-Feb-08/K	< 10	--	< 10	--
PHC F2 (>C10-C16)	µg/g	5	CWS Tier1	01-Feb-08/K	20	--	6	--
PHC F3 (>C16-C34)	µg/g	10	CWS Tier1	01-Feb-08/K	20	--	10	--

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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DATE RECEIVED: 30-Jan-08
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SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

	Client I.D.:		MW08-2 SS4	MW08-3 SS1	MW08-3 SS3	MW08-4 SS1
	Sample I.D.:		B08-03004-5	B08-03004-6	B08-03004-7	B08-03004-8
	Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	28-Jan-08
Parameter	Reference Method	Date/Site Analyzed				
PHC F4 (>C34-C50)	CWS Tier1	01-Feb-08/K	10	--	< 10	--
Comment-extractable	-	01-Feb-08	NDP	--	NDP	--

Units	M.D.L.
µg/g	10
-	

1. Note: Elevated MDL due to high % moisture.

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Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

Client I.D.:					MW08-4 SS3	MW08-5 SS4	MW08-6 SS4	MW08-7 SS1
Sample I.D.:					B08-03004-9	B08-03004-10	B08-03004-11	B08-03004-12
Date Collected:					28-Jan-08	28-Jan-08	28-Jan-08	29-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
pH	pH Units		EPA 150.1	31-Jan-08/O	--	--	--	8.00
Conductivity	µmho/cm	1	SM 2510	31-Jan-08/O	--	--	--	4270
Sodium Adsorption Ratio	units		SM 3120	31-Jan-08/O	--	--	--	72.4
Antimony	µg/g	0.1	HYDSWG-E3091	04-Feb-08/O	--	--	--	0.1
Arsenic	µg/g	1	HYDSWG-E3091	01-Feb-08/O	--	--	--	1
Selenium	µg/g	0.1	HYDSWG-E3091	31-Jan-08/O	--	--	--	< 0.1
Barium	µg/g	1	EPA 6010	31-Jan-08/O	--	--	--	134
Beryllium	µg/g	0.2	EPA 6010	31-Jan-08/O	--	--	--	0.4
Boron (Hot Water Ext.)	µg/g	0.1	EPA 200.7	31-Jan-08/O	--	--	--	0.6
Cadmium	µg/g	0.5	EPA 6010	31-Jan-08/O	--	--	--	< 0.5
Chromium	µg/g	1	EPA 6010	31-Jan-08/O	--	--	--	32
Chromium (VI)	µg/g	0.5	EPA7196	06-Feb-08/O	--	--	--	< 0.5

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42261 / 42262

REPORT No. B08-03004

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-4 SS3	MW08-5 SS4	MW08-6 SS4	MW08-7 SS1
			Sample I.D.:		B08-03004-9	B08-03004-10	B08-03004-11	B08-03004-12
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	29-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Cobalt	µg/g	1	EPA 6010	31-Jan-08/O	--	--	--	10
Copper	µg/g	1	EPA 6010	31-Jan-08/O	--	--	--	15
Cyanide (Free)	ug/g	0.005	in house	01-Feb-08/K	--	--	--	< 0.005
Lead	µg/g	5	EPA 6010	31-Jan-08/O	--	14	--	14
Mercury	µg/g	0.005	EPA 7471A	01-Feb-08/O	--	--	--	0.023
Molybdenum	µg/g	1	EPA 6010	31-Jan-08/O	--	--	--	< 1
Nickel	µg/g	1	EPA 6010	31-Jan-08/O	--	--	--	17
Silver	µg/g	0.2	EPA 6010	31-Jan-08/O	--	--	--	< 0.2
Thallium	µg/g	0.2	EPA 6020	31-Jan-08/O	--	--	--	< 0.2
Vanadium	µg/g	1	EPA 6010	31-Jan-08/O	--	--	--	47
Zinc	µg/g	1	EPA 6010	31-Jan-08/O	--	--	--	65
Poly-Chlorinated Biphenyls (PCB's)	µg/g	0.2	EPA 8081	11-Feb-08/O	< 0.2	--	--	--
Aroclor	-		EPA 8081	11-Feb-08/O	-	--	--	--
Acenaphthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	< 0.01

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Gord Murphy
Lab Supervisor

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Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed	Client I.D.: MW08-4 SS3	MW08-5 SS4	MW08-6 SS4	MW08-7 SS1
					Sample I.D.: B08-03004-9	B08-03004-10	B08-03004-11	B08-03004-12
					Date Collected: 28-Jan-08	28-Jan-08	28-Jan-08	29-Jan-08
Acenaphthylene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	< 0.01
Anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	< 0.01
Benzo(a)anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	0.03
Benzo(a)pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	0.01
Benzo(b)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	0.01
Benzo(b+k)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	0.03
Benzo(g,h,i)perylene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	< 0.01
Benzo(k)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	0.01
Chrysene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	0.03
Dibenzo(a,h)anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	< 0.01
Fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	0.04
Fluorene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	< 0.01
Indeno(1,2,3,-cd)pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	< 0.01
Methylnaphthalene,1-	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	< 0.01
Methylnaphthalene,2-	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	< 0.01

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Gord Murphy
Lab Supervisor

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DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-4 SS3	MW08-5 SS4	MW08-6 SS4	MW08-7 SS1
			Sample I.D.:		B08-03004-9	B08-03004-10	B08-03004-11	B08-03004-12
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	29-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Naphthalene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	< 0.01
Phenanthrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	0.03
Pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	--	0.03
2-Fluorobiphenyl (SS)	% rec.	10	EPA 8270	04-Feb-08/K	--	--	--	92
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	04-Feb-08/K	--	--	--	61
Benzene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	< 0.001	--
Bromodichloromethane	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Bromoform	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Bromomethane	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Carbon Tetrachloride	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Chloroform	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dibromochloromethane	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dibromoethane,1,2-(Ethylene Dibromide)	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichlorobenzene,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Gord Murphy
Lab Supervisor

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Final Report

C.O.C.: 42261 / 42262

REPORT No. B08-03004

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2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
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Ottawa, Ontario, K1V 7P1
Tel 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-4 SS3	MW08-5 SS4	MW08-6 SS4	MW08-7 SS1
			Sample I.D.:		B08-03004-9	B08-03004-10	B08-03004-11	B08-03004-12
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	29-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Dichlorobenzene,1,3-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichlorobenzene,1,4-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloroethane,1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloroethane,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloroethene, 1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloroethene, cis-1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloroethene, trans-1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloromethane (Methylene Chloride)	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloropropane,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloropropene, cis-1,3-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Dichloropropene, trans-1,3-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Ethylbenzene	µg/g	0.001	EPA 8260	31-Jan-08/O	0.004	< 0.001	< 0.001	--
Monochlorobenzene (Chlorobenzene)	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Gord Murphy
Lab Supervisor

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REPORT No. B08-03004

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2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-4 SS3	MW08-5 SS4	MW08-6 SS4	MW08-7 SS1
			Sample I.D.:		B08-03004-9	B08-03004-10	B08-03004-11	B08-03004-12
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	29-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Naphthalene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Styrene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	< 0.001	--
Tetrachloroethane,1,1,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Tetrachloroethane,1,1,2,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Tetrachloroethylene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Toluene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	< 0.001	--
Trichlorobenzene,1,2,4-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Trichloroethane,1,1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Trichloroethane,1,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Trichloroethylene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Vinyl Chloride	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	--	< 0.001	--
Xylene, m,p-	µg/g	0.002	EPA 8260	31-Jan-08/O	< 0.002	< 0.002	< 0.002	--
Xylene, o-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	< 0.001	--
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	31-Jan-08/O	99	98	105	--
Toluene-d8 (SS)	%	10	EPA 8260	31-Jan-08/O	98	102	100	--

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-4 SS3	MW08-5 SS4	MW08-6 SS4	MW08-7 SS1
			Sample I.D.:		B08-03004-9	B08-03004-10	B08-03004-11	B08-03004-12
			Date Collected:		28-Jan-08	28-Jan-08	28-Jan-08	29-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Bromofluorobenzene,4(SS)	%	10	EPA 8260	31-Jan-08/O	96	100	97	--
PHC F1 (C6-C10)	µg/g	10	CWS Tier1	04-Feb-08/K	< 10	< 10	< 10	--
PHC F2 (>C10-C16)	µg/g	5	CWS Tier1	01-Feb-08/K	< 5	21	14	--
PHC F3 (>C16-C34)	µg/g	10	CWS Tier1	01-Feb-08/K	< 10	20	20	--
PHC F4 (>C34-C50)	µg/g	10	CWS Tier1	01-Feb-08/K	< 10	< 10	< 10	--
Comment-extractable	-			01-Feb-08	-	NDP	NDP	--

1 Note: Elevated MDL due to high % moisture.

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-7 SS2	MW08-7 SS3	MW08-8 SS1	MW08-8 SS2
			Sample I.D.:		B08-03004-13	B08-03004-14	B08-03004-15	B08-03004-16
			Date Collected:		29-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
pH	pH Units		EPA 150.1	31-Jan-08/O	8.02	--	7.05	--
Conductivity	µmho/cm	1	SM 2510	31-Jan-08/O	--	--	5180	--
Sodium Adsorption Ratio	units		SM 3120	31-Jan-08/O	--	--	128	--
Antimony	µg/g	0.1	HYDSWG-E3091	04-Feb-08/O	--	--	< 0.1	--
Arsenic	µg/g	1	HYDSWG-E3091	01-Feb-08/O	--	--	< 1	--
Selenium	µg/g	0.1	HYDSWG-E3091	31-Jan-08/O	--	--	0.4	--
Barium	µg/g	1	EPA 6010	31-Jan-08/O	--	--	372	--
Beryllium	µg/g	0.2	EPA 6010	31-Jan-08/O	--	--	0.8	--
Boron (Hot Water Ext.)	µg/g	0.1	EPA 200.7	31-Jan-08/O	--	--	0.1	--
Cadmium	µg/g	0.5	EPA 6010	31-Jan-08/O	--	--	< 0.5	--
Chromium	µg/g	1	EPA 6010	31-Jan-08/O	--	--	101	--
Chromium (VI)	µg/g	0.5	EPA7196	06-Feb-08/O	--	--	< 0.5	--

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-7 SS2	MW08-7 SS3	MW08-8 SS1	MW08-8 SS2
			Sample I.D.:		B08-03004-13	B08-03004-14	B08-03004-15	B08-03004-16
			Date Collected:		29-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Cobalt	µg/g	1	EPA 6010	31-Jan-08/O	--	--	24	--
Copper	µg/g	1	EPA 6010	31-Jan-08/O	--	--	27	--
Cyanide (Free)	ug/g	0.005	in house	01-Feb-08/K	--	--	< 0.005	--
Lead	µg/g	5	EPA 6010	31-Jan-08/O	--	--	12	--
Mercury	µg/g	0.005	EPA 7471A	01-Feb-08/O	--	--	0.023	--
Molybdenum	µg/g	1	EPA 6010	31-Jan-08/O	--	--	< 1	--
Nickel	µg/g	1	EPA 6010	31-Jan-08/O	--	--	49	--
Silver	µg/g	0.2	EPA 6010	31-Jan-08/O	--	--	< 0.2	--
Thallium	µg/g	0.2	EPA 6020	31-Jan-08/O	--	--	0.3	--
Vanadium	µg/g	1	EPA 6010	31-Jan-08/O	--	--	99	--
Zinc	µg/g	1	EPA 6010	31-Jan-08/O	--	--	134	--
Poly-Chlorinated Biphenyls (PCB's)	µg/g	0.2	EPA 8081	11-Feb-08/O	< 0.2	--	--	< 0.2
Arocior	-		EPA 8081	11-Feb-08/O	-	--	--	-
Acenaphthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42261 / 42262

REPORT No. B08-03004

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: t034220, Phase t00
WATERWORKS NO.

			Client I.D.:		MW08-7 SS2	MW08-7 SS3	MW08-8 SS1	MW08-8 SS2
			Sample I.D.:		B08-03004-t3	B08-03004-t4	B08-03004-t5	B08-03004-t6
			Date Collected:		29-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Acenaphthylene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Benzo(a)anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Benzo(a)pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Benzo(b)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Benzo(b+k)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Benzo(g,h,i)perylene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Benzo(k)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Chrysene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Dibenzo(a,h)anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Fluorene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Indeno(1,2,3,-cd)pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Methylnaphthalene,1-	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Methylnaphthalene,2-	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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REPORT No. B08-03004

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Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO

			Client I.D.:		MW08-7 SS2	MW08-7 SS3	MW08-8 SS1	MW08-8 SS2
			Sample I.D.:		B08-03004-13	B08-03004-14	B08-03004-15	B08-03004-16
			Date Collected:		29-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Naphthalene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Phenanthrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
Pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--	--	< 0.005	--
2-Fluorobiphenyl (SS)	% rec.	10	EPA 8270	04-Feb-08/K	--	--	72	--
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	04-Feb-08/K	--	--	72	--
Benzene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Bromodichloromethane	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Bromoform	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Bromomethane	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Carbon Tetrachloride	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Chloroform	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Dibromochloromethane	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Dibromoethane,1,2-(Ethylene Dibromide)	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Dichlorobenzene,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Gord Murphy
Lab Supervisor

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REPORT No. B08-03004

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Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-7 SS2	MW08-7 SS3	MW08-8 SS1	MW08-8 SS2
			Sample I.D.:		B08-03004-13	B08-03004-14	B08-03004-15	B08-03004-16
			Date Collected:		29-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Dichlorobenzene,1,3-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Dichlorobenzene,1,4-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Dichloroethane,1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Dichloroethane,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Dichloroethene, 1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Dichloroethene, cis-1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Dichloroethene, trans-1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Dichloromethane (Methylene Chloride)	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Dichloropropane,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Dichloropropene, cis-1,3-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Dichloropropene, trans-1,3-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Ethylbenzene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Monochlorobenzene (Chlorobenzene)	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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Tel: 613-526-0123
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DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-7 SS2	MW08-7 SS3	MW08-8 SS1	MW08-8 SS2
			Sample I.D.:		B08-03004-13	B08-03004-14	B08-03004-15	B08-03004-16
			Date Collected:		29-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Naphthalene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Styrene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Tetrachloroethane,1,1,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Tetrachloroethane,1,1,2,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Tetrachloroethylene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Toluene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Trichlorobenzene,1,2,4-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Trichloroethane,1,1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Trichloroethane,1,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Trichloroethylene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Vinyl Chloride	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Xylene, m,p-	µg/g	0.002	EPA 8260	31-Jan-08/O	< 0.002	< 0.002	--	< 0.002
Xylene, o-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001	< 0.001	--	< 0.001
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	31-Jan-08/O	101	96	--	93
Toluene-d8 (SS)	%	10	EPA 8260	31-Jan-08/O	98	99	--	99

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Gord Murphy
Lab Supervisor

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Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase t00
WATERWORKS NO.

	Client I.D.:	MW08-7 SS2	MW08-7 SS3	MW08-8 SS1	MW08-8 SS2
	Sample I.D.:	B08-03004-13	B08-03004-14	B08-03004-15	B08-03004-16
	Date Collected:	29-Jan-08	29-Jan-08	29-Jan-08	29-Jan-08

Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Bromofluorobenzene,4(SS)	%	10	EPA 8260	31-Jan-08/O	97	97	--	94
PHC F1 (C6-C10)	µg/g	10	CWS Tier1	04-Feb-08/K	< 10	< 10	--	< 10
PHC F2 (>C10-C16)	µg/g	5	CWS Tier1	01-Feb-08/K	< 5	< 5	--	< 6 [1]
PHC F3 (>C16-C34)	µg/g	10	CWS Tier1	01-Feb-08/K	< 10	< 10	--	10
PHC F4 (>C34-C50)	µg/g	10	CWS Tier1	01-Feb-08/K	< 10	< 10	--	10
Comment-extractable	-		-	01-Feb-08	-	-	--	-

1. Note: Elevated MDL due to high % moisture.

Gord Murphy
Lab Supervisor

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Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-8 SS3			
			Sample I.D.:		B08-03004-17			
			Date Collected:		29-Jan-08			
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
pH	pH Units		EPA 150.1	31-Jan-08/O	--			
Conductivity	µmho/cm	1	SM 2510	31-Jan-08/O	--			
Sodium Adsorption Ratio	units		SM 3120	31-Jan-08/O	--			
Antimony	µg/g	0.t	HYDSWG-E3091	04-Feb-08/O	--			
Arsenic	µg/g	t	HYDSWG-E3091	01-Feb-08/O	--			
Selenium	µg/g	0.1	HYDSWG-E3091	31-Jan-08/O	--			
Barium	µg/g	1	EPA 6010	31-Jan-08/O	--			
Beryllium	µg/g	0.2	EPA 6010	31-Jan-08/O	--			
Boron (Hot Water Ext.)	µg/g	0.1	EPA 200.7	31-Jan-08/O	--			
Cadmium	µg/g	0.5	EPA 6010	31-Jan-08/O	--			
Chromium	µg/g	1	EPA 6010	31-Jan-08/O	--			
Chromium (VI)	µg/g	0.5	EPA7196	06-Feb-08/O	--			

Gord Murphy
Lab Supervisor

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Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-8 SS3			
			Sample I.D.:		B08-03004-17			
			Date Collected:		29-Jan-08			
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Cobalt	µg/g	1	EPA 6010	31-Jan-08/O	--			
Copper	µg/g	1	EPA 6010	31-Jan-08/O	--			
Cyanide (Free)	ug/g	0.005	in house	01-Feb-08/K	--			
Lead	µg/g	5	EPA 6010	31-Jan-08/O	--			
Mercury	µg/g	0.005	EPA 7471A	01-Feb-08/O	--			
Molybdenum	µg/g	1	EPA 6010	31-Jan-08/O	--			
Nickel	µg/g	1	EPA 6010	31-Jan-08/O	--			
Silver	µg/g	0.2	EPA 6010	31-Jan-08/O	--			
Thallium	µg/g	0.2	EPA 6020	31-Jan-08/O	--			
Vanadium	µg/g	1	EPA 6010	31-Jan-08/O	--			
Zinc	µg/g	1	EPA 6010	31-Jan-08/O	--			
Poly-Chlorinated Biphenyls (PCB's)	µg/g	0.2	EPA 8081	11-Feb-08/O	--			
Aroclor	-		EPA 8081	11-Feb-08/O	--			
Acenaphthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			

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Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-8 SS3			
			Sample I.D.:		B08-03004-17			
			Date Collected:		29-Jan-08			
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Acenaphthylene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Benzo(a)anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Benzo(a)pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Benzo(b)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Benzo(b+k)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Benzo(g,h,i)perylene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Benzo(k)fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Chrysene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Dibenzo(a,h)anthracene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Fluoranthene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Fluorene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Indeno(1,2,3,-cd)pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Methylnaphthalene,1-	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Methylnaphthalene,2-	µg/g	0.005	EPA 8270	04-Feb-08/K	--			

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO : 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-8 SS3			
			Sample I.D.:		B08-03004-17			
			Date Collected:		29-Jan-08			
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Naphthalene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Phenanthrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
Pyrene	µg/g	0.005	EPA 8270	04-Feb-08/K	--			
2-Fluorobiphenyl (SS)	% rec.	10	EPA 8270	04-Feb-08/K	--			
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	04-Feb-08/K	--			
Benzene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Bromodichloromethane	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Bromoform	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Bromomethane	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Carbon Tetrachloride	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Chloroform	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Dibromochloromethane	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Dibromoethane,1,2- (Ethylene Dibromide)	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Dichlorobenzene,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed: K Kingston W Windsor O-Ottawa P-Peterborough M-Moncton

Accredited by the Standards Council of Canada and CAEAL for specific tests.
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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42261 / 42262

REPORT No. B08-03004

Report To:
Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B tA7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
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DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: t034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-8 SS3			
			Sample I.D.:		B08-03004-17			
			Date Collected:		29-Jan-08			
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Dichlorobenzene,1,3-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Dichlorobenzene,1,4-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Dichloroethane,1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Dichloroethane,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Dichloroethene, 1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Dichloroethene, cis-1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Dichloroethene, trans-1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Dichloromethane (Methylene Chloride)	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Dichloropropane,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Dichloropropene, cis-1,3-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Dichloropropene, trans-1,3-	µg/g	0.00t	EPA 8260	31-Jan-08/O	< 0.001			
Ethylbenzene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Monochlorobenzene (Chlorobenzene)	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.00t			

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42261 / 42262

REPORT No. B08-03004

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

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Fax: 613-526-1244

DATE RECEIVED: 30-Jan-08
DATE REPORTED: 11-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-8 SS3			
			Sample I.D.:		B08-03004-17			
			Date Collected:		29-Jan-08			
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Naphthalene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Styrene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Tetrachloroethane,1,1,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Tetrachloroethane,1,1,2,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Tetrachloroethylene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Toluene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Trichlorobenzene,1,2,4-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Trichloroethane,1,1,1-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Trichloroethane,1,1,2-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Trichloroethylene	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Vinyl Chloride	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Xylene, m,p-	µg/g	0.002	EPA 8260	31-Jan-08/O	< 0.002			
Xylene, o-	µg/g	0.001	EPA 8260	31-Jan-08/O	< 0.001			
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	31-Jan-08/O	100			
Toluene-d8 (SS)	%	10	EPA 8260	31-Jan-08/O	99			

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Gord Murphy
Lab Supervisor

Accredited by the Standards Council of Canada and CAEAL for specific tests.
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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42261 / 42262

REPORT No. B08-03004

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

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2378 Holly Lane
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DATE RECEIVED: 30-Jan-08
DATE REPORTED: t1-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: 01906-91843-S01-Ottawa
P.O. NUMBER: 1034220, Phase 100
WATERWORKS NO.

			Client I.D.:		MW08-8 SS3			
			Sample I.D.:		B08-03004-17			
			Date Collected:		29-Jan-08			
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Bromofluorobenzene,4(SS)	%	10	EPA 8260	31-Jan-08/O	97			
PHC F1 (C6-C10)	µg/g	10	CWS Tier1	04-Feb-08/K	< 10			
PHC F2 (>C10-C16)	µg/g	5	CWS Tier1	01-Feb-08/K	< 5			
PHC F3 (>C16-C34)	µg/g	10	CWS Tier1	01-Feb-08/K	< 10			
PHC F4 (>C34-C50)	µg/g	10	CWS Tier1	01-Feb-08/K	< 10			
Comment-extractable	-		-	01-Feb-08	-			

1 Note: Elevated MDL due to high % moisture.

µg/g = micrograms per gram (parts per million)
F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)
F2 C10-C16 hydrocarbons in µg/g, (F2-napth if requested)
F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)
F4 C34-C50 hydrocarbons in µg/g
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
Any deviations from the method are noted and reported for any particular sample.
nC6 and nC10 response factors are within 30% of response factor for toluene:
nC10,nC16 and nC34 response factors within 10% of each other:
C50 response factors within 70% of nC10+nC16+nC34 average:
Linearity is within 15%:
All results expressed on a dry weight basis.
Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.
Unless otherwise noted all extraction and analysis limits for holding time were met.
QC will be made available upon request.

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Gord Murphy
Lab Supervisor

Accredited by the Standards Council of Canada and CAEAL for specific tests.
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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42289

REPORT No. B08-05413

Report To:

Jacques Whitford - Lancaster
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DATE RECEIVED: 22-Feb-08
DATE REPORTED: 26-Feb-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: C. of Ottawa Work Yard-1034220
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

Parameter:			Conductivity	Sodium Adsorption Ratio	Boron (Hot Water Ext.)		
Units:			µmho/cm	units	µg/g		
M.D.L.:			1		0.1		
Reference Method:			SM 2510	SM 3120	EPA 200.7		
Date/Site Analyzed:			26-Feb-08/O	26-Feb-08/O	26-Feb-08/O		
Client I.D.	Sample I.D.	Date Collected					
TP08-51	B08-05413-1	30-Jan-08	1030	11.3	0.2		
TP08-61	B08-05413-2	30-Jan-08	1500	12.2	0.2		
TP08-42	B08-05413-3	30-Jan-08	12700	143	0.9		
TP08-153	B08-05413-4	30-Jan-08	3290	22.2	0.4		
MW08-2 SS2	B08-05413-5	28-Jan-08	1920	20.6	0.3		
MW08-7 SS2	B08-05413-6	29-Jan-08	1980	11.2	0.5		
MW08-7 SS3	B08-05413-7	29-Jan-08	6690	142	0.3		
MW08-8 SS2	B08-05413-8	29-Jan-08	4610	42.2	0.1		
MW08-8 SS3	B08-05413-9	29-Jan-08	4550	29.5	0.2		
MW08-3 SS3	B08-05413-10	28-Jan-08	280	1.33	0.2		

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

Accredited by the Standards Council of Canada and CAEAL for specific tests.
The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior written consent from Caduceon Environmental Laboratories.

CADUCEON™ CERTIFICATE OF ANALYSIS

ENVIRONMENTAL LABORATORIES

Final Report

C.O.C.: 42287 / 42288

REPORT No. B08-03243

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
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2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
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DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Solid / Leach

JOB/PROJECT NO.: City of Ottawa Works Yard - 1034
P.O NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		Reg 558 (leachate)			
			Sample I.D.:		B08-03243-1			
			Date Collected:		28-Jan-08			
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Arsenic	mg/L	0.03	SM 3120	04-Feb-08/O	< 0.03			
Boron	mg/L	0.005	SM 3120	04-Feb-08/O	0.024			
Barium	mg/L	0.001	SM 3120	04-Feb-08/O	0.367			
Cadmium	mg/L	0.005	SM 3120	04-Feb-08/O	< 0.005			
Chromium	mg/L	0.002	SM 3120	04-Feb-08/O	< 0.002			
Fluoride	mg/L	0.1	SM 4500FD	05-Feb-08/K	< 0.1			
Lead	mg/L	0.02	SM 3120	04-Feb-08/O	< 0.02			
Mercury	mg/L	0.00002	SM 3112	04-Feb-08/O	< 0.00002			
Nitrite (N)	mg/L	0.1	EPA 300.0	04-Feb-08/O	< 1			
Nitrate (N)	mg/L	0.1	EPA 300.0	04-Feb-08/O	< 1			
Selenium	mg/L	0.0002	EPA 200.8	04-Feb-08/O	0.0003			
Silver	mg/L	0.005	SM 3120	04-Feb-08/O	< 0.005			
Uranium	mg/L	0.00005	EPA 200.8	04-Feb-08/O	< 0.0005			
Benzene	mg/L	0.001	EPA 8260	03-Feb-08/O	< 0.001			
Carbon Tetrachloride	mg/L	0.001	EPA 8260	03-Feb-08/O	< 0.001			
Monochlorobenzene (Chlorobenzene)	mg/L	0.001	EPA 8260	03-Feb-08/O	< 0.001			
Chloroform	mg/L	0.001	EPA 8260	03-Feb-08/O	< 0.001			
Dichlorobenzene,1,2-	mg/L	0.001	EPA 8260	03-Feb-08/O	< 0.001			
Dichlorobenzene,1,4-	mg/L	0.001	EPA 8260	03-Feb-08/O	< 0.001			
Dichloroethane,1,2-	mg/L	0.001	EPA 8260	03-Feb-08/O	< 0.001			
Dichloroethene, 1,1-	mg/L	0.001	EPA 8260	03-Feb-08/O	< 0.001			
Dichloromethane (Methylene Chloride)	mg/L	0.001	EPA 8260	03-Feb-08/O	< 0.001			
Methyl Ethyl Ketone	mg/L	0.01	EPA 8260	03-Feb-08/O	< 0.01			
Tetrachloroethylene	mg/L	0.001	EPA 8260	03-Feb-08/O	< 0.001			
Trichloroethylene	mg/L	0.001	EPA 8260	03-Feb-08/O	< 0.001			

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42287 / 42288

REPORT No. B08-03243

Report To:
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Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 31-Jan-08
DATE REPORTED: 13-Feb-08
SAMPLE MATRIX: Solid / Leach

JOB/PROJECT NO.: City of Ottawa Works Yard - 1034
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		Reg 558 (leachate)			
			Sample I.D.:		B08-03243-1			
			Date Collected:		28-Jan-08			
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Vinyl Chloride	mg/L	0.002	EPA 8260	03-Feb-08/O	< 0.002			
Cresol, m,p,o-	mg/L	0.001	EPA 8270	08-Feb-08/K	< 0.001			
Dinitrotoluene, 2,4-	mg/L	0.0002	EPA 8270	08-Feb-08/K	< 0.0002			
Hexachlorobenzene	mg/L	0.0001	EPA 8270	08-Feb-08/K	< 0.0001			
Hexachlorobutadiene	mg/L	0.0001	EPA 8270	08-Feb-08/K	< 0.0001			
Hexachloroethane	mg/L	0.0002	EPA 8270	08-Feb-08/K	< 0.0002			
Nitrobenzene	mg/L	0.001	EPA 8270	08-Feb-08/K	< 0.001			
Dichlorophenol, 2,4-	mg/L	0.0002	EPA 8270	08-Feb-08/K	< 0.0002			
Trichlorophenol, 2,4,5-	mg/L	0.0002	EPA 8270	08-Feb-08/K	< 0.0002			
Trichlorophenol 2,4,6-	mg/L	0.0002	EPA 8270	08-Feb-08/K	< 0.0002			
Pentachlorophenol	mg/L	0.0002	EPA 8270	08-Feb-08/K	< 0.0002			
Tetrachlorophenol, 2,3,4,6-	mg/L	0.0002	EPA 8270	08-Feb-08/K	< 0.0002			
Benzo(a)pyrene	mg/L	0.00005	EPA 8270	08-Feb-08/K	< 0.00005			
Cyanide (Free)	mg/L	0.005	SM 4500CN	07-Feb-08/K	< 0.005			
Poly-Chlorinated Biphenyls (PCB's)	mg/L	0.001	EPA 8081	11-Feb-08/O	< 0.001			
Total Purgeables (Gasoline, C6-C10)	µg/g	10	EPA 8260	09-Feb-08/O	< 10			
Diesel Range Organics (C10-C24)	µg/g	5	MOE TPH-E3397A	06-Feb-08/K	8			
TPH (Light - Gasoline + Diesel Range)	µg/g	10	Calc.	11-Feb-08	< 10			
TPH (Heavy Oils)	µg/g	10	MOE TPH-E3397A	06-Feb-08/K	< 10			
Comment-extractable	-		-	06-Feb-08	FO/NDP			
Flashpoint	°C	20	ASTM D93	04-Feb-08/O	> 65			

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42263

REPORT No. B08-03599

Report To:
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2781 Lancaster Road Suite 200
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Attention: Jane Yaraskavitch

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Fax: 613-526-1244

DATE RECEIVED: 05-Feb-08
DATE REPORTED: 19-Feb-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: C. of Ottawa Work Yard-1034220
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		MW08-1	MW08-2	MW08-3	MW08-4
			Sample I.D.:		B08-03599-1	B08-03599-2	B08-03599-3	B08-03599-4
			Date Collected:		05-Feb-08	04-Feb-08	04-Feb-08	04-Feb-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
pH	pH Units		EPA 150.1	06-Feb-08/O	7.61	7.47	7.93	7.93
Conductivity	µmho/cm	1	SM 2510	07-Feb-08/O	4530	16800	2720	2060
Chloride	mg/L	0.5	EPA 300.0	07-Feb-08/O	1590	6650	759	570
Nitrite (N)	mg/L	0.1	EPA 300.0	06-Feb-08/O	< 3 [2]	< 10 [2]	< 0.1	< 0.1
Nitrate (N)	mg/L	0.1	EPA 300.0	06-Feb-08/O	< 0.1	0.1	0.1	< 0.1
Cyanide (Free)	mg/L	0.005	SM 4500CN	07-Feb-08/K	< 0.005	< 0.005	< 0.005	< 0.005
Antimony	µg/L	0.1	EPA 200.8	07-Feb-08/O	1	< 1	< 1	< 1
Arsenic	µg/L	0.1	EPA 200.8	07-Feb-08/O	4	12	3	2
Barium	µg/L	1	SM 3120	06-Feb-08/O	3100	3390	1870	597
Beryllium	µg/L	2	SM 3120	06-Feb-08/O	< 2	< 2	< 2	< 2
Boron	µg/L	5	SM 3120	06-Feb-08/O	647	259	251	320
Cadmium	µg/L	0.02	EPA 200.8	07-Feb-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Chromium	µg/L	2	SM 3120	06-Feb-08/O	< 2	< 2	< 2	< 2
Chromium (VI)	µg/L	2	EPA7196	07-Feb-08/O	< 2 [1]	< 2 [1]	< 2 [1]	< 2 [1]
Cobalt	µg/L	0.1	EPA 200.8	07-Feb-08/O	4	19	1	1
Copper	µg/L	2	SM 3120	06-Feb-08/O	< 2	< 2	< 2	< 2
Lead	µg/L	0.02	EPA 200.8	07-Feb-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Mercury	µg/L	0.02	SM 3112	06-Feb-08/O	< 0.02	< 0.02	< 0.02	< 0.02
Molybdenum	µg/L	10	SM 3120	06-Feb-08/O	< 10	< 10	< 10	< 10
Nickel	µg/L	10	SM 3120	06-Feb-08/O	< 10	< 10	< 10	< 10
Selenium	µg/L	0.2	EPA 200.8	07-Feb-08/O	3	17	4	4
Silver	µg/L	0.02	EPA 200.8	07-Feb-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Thallium	µg/L	0.05	EPA 200.8	07-Feb-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Vanadium	µg/L	5	SM 3120	06-Feb-08/O	< 5	< 5	< 5	< 5
Zinc	µg/L	5	SM 3120	06-Feb-08/O	< 5	8	9	< 5
Benzene	µg/L	0.5	EPA 8260	09-Feb-08/O	< 0.5	1.6	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1

FO = Fuel Oil, HO = Heavy Oil

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42263

REPORT No. B08-03599

Report To:
Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 05-Feb-08
DATE REPORTED: 19-Feb-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: C. of Ottawa Work Yard-1034220
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		MW08-1	MW08-2	MW08-3	MW08-4
			Sample I.D.:		B08-03599-1	B08-03599-2	B08-03599-3	B08-03599-4
			Date Collected:		05-Feb-08	04-Feb-08	04-Feb-08	04-Feb-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Bromomethane	µg/L	2	EPA 8260	09-Feb-08/O	< 2	< 2	< 2	< 2
Carbon Tetrachloride	µg/L	0.2	EPA 8260	09-Feb-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	09-Feb-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	09-Feb-08/O	< 0.3	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dibromoethane,1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,3-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,4-	µg/L	0.2	EPA 8260	09-Feb-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Dichloroethane,1,1-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethane,1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	0.6	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloropropane,1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	09-Feb-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	09-Feb-08/O	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	µg/L	0.7	EPA 8260	09-Feb-08/O	< 0.7	< 0.7	< 0.7	< 0.7
Styrene	µg/L	0.6	EPA 8260	09-Feb-08/O	< 0.6	< 0.6	< 0.6	< 0.6
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	09-Feb-08/O	< 0.4	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	09-Feb-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	09-Feb-08/O	< 0.5	< 0.5	< 0.5	1.0

FO = Fuel Oil, HO = Heavy Oil

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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DATE RECEIVED: 05-Feb-08
DATE REPORTED: 19-Feb-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: C. of Ottawa Work Yard-1034220
P.O. NUMBER: 01906-9t843-S0t-Ottawa
WATERWORKS NO.

			Client I.D.:		MW08-1	MW08-2	MW08-3	MW08-4
			Sample I.D.:		B08-03599-1	B08-03599-2	B08-03599-3	B08-03599-4
			Date Collected:		05-Feb-08	04-Feb-08	04-Feb-08	04-Feb-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Trichlorobenzene,1,2,4-	µg/L	0.2	EPA 8260	09-Feb-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethane,1,1,1-	µg/L	0.t	EPA 8260	09-Feb-08/O	< 0.1	< 0.t	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.t	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	09-Feb-08/O	< 0.2	< 0.2	0.7	< 0.2
Xylene, m,p-	µg/L	1.0	EPA 8260	09-Feb-08/O	< t.0	< 1.0	< 1.0	< 1.0
Xylene, o-	µg/L	0.5	EPA 8260	09-Feb-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	09-Feb-08/O	105	106	t07	102
Toluene-d8 (SS)	%	10	EPA 8260	09-Feb-08/O	102	103	t02	99
Bromofluorobenzene,4(SS)	%	10	EPA 8260	09-Feb-08/O	98	97	96	100
PHC F1 (C6-C10)	µg/L	50	EPA 8260	09-Feb-08/O	< 50	< 50	< 50	< 50
PHC F2 (>C10-C16)	µg/L	50	MOE TPH-E3397A	11-Feb-08/K	160	50	< 50	< 50
PHC F3 (>C16-C34)	µg/L	500	MOE TPH-E3397A	11-Feb-08/K	900	4400	< 500	< 500
PHC F4 (>C34-C50)	µg/L	500	MOE TPH-E3397A	1t-Feb-08/K	< 600	< 500	< 500	< 500
Comment-extractable	-		-	t1-Feb-08	FO/HO	HO	-	-
Acenaphthene	µg/L	0.05	EPA 8270	15-Feb-08/K	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/L	0.05	EPA 8270	15-Feb-08/K	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	µg/L	0.05	EPA 8270	15-Feb-08/K	< 0.05	0.11	< 0.05	< 0.05
Benzo(a)anthracene	µg/L	0.05	EPA 8270	15-Feb-08/K	0.08	0.46	< 0.05	< 0.05
Benzo(a)pyrene	µg/L	0.01	EPA 8270	15-Feb-08/K	< 0.01	0.61	< 0.01	< 0.0f
Benzo(b)fluoranthene	µg/L	0.05	EPA 8270	15-Feb-08/K	< 0.05	0.43	< 0.05	< 0.05
Benzo(b+k)fluoranthene	µg/L	0.05	EPA 8270	15-Feb-08/K	< 0.05	0.58	< 0.05	< 0.05
Benzo(g,h,i)perylene	µg/L	0.05	EPA 8270	15-Feb-08/K	< 0.05	0.19	< 0.05	< 0.05
Benzo(k)fluoranthene	µg/L	0.05	EPA 8270	15-Feb-08/K	< 0.05	0.16	< 0.05	< 0 05
Chrysene	µg/L	0.05	EPA 8270	15-Feb-08/K	< 0.05	0.4t	< 0.05	< 0.05

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Tel: 613-526-0123
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DATE RECEIVED: 05-Feb-08
DATE REPORTED: 19-Feb-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: C. of Ottawa Work Yard-1034220
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO

			Client I.D.:		MW08-1	MW08-2	MW08-3	MW08-4
			Sample I.D.:		B08-03599-1	B08-03599-2	B08-03599-3	B08-03599-4
			Date Collected:		05-Feb-08	04-Feb-08	04-Feb-08	04-Feb-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Dibenzo(a,h)anthracene	µg/L	0.05	EPA 8270	15-Feb-08/K	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/L	0.05	EPA 8270	15-Feb-08/K	0.18	0.90	< 0.05	< 0.05
Fluorene	µg/L	0.05	EPA 8270	15-Feb-08/K	0.14	0.18	< 0.05	< 0.05
Indeno(1,2,3,-cd)pyrene	µg/L	0.05	EPA 8270	15-Feb-08/K	< 0.05	0.25	< 0.05	< 0.05
Methylnaphthalene,1-	µg/L	0.05	EPA 8270	15-Feb-08/K	0.31	0.06	< 0.05	< 0.05
Methylnaphthalene,2-	µg/L	0.05	EPA 8270	15-Feb-08/K	< 0.05	0.08	< 0.05	< 0.05
Naphthalene	µg/L	0.05	EPA 8270	15-Feb-08/K	< 0.05	0.06	< 0.05	< 0.05
Phenanthrene	µg/L	0.05	EPA 8270	15-Feb-08/K	0.75	1.29	0.17	< 0.05
Pyrene	µg/L	0.05	EPA 8270	15-Feb-08/K	0.16	0.66	< 0.05	< 0.05
2-Fluorobiphenyl (SS)	% rec.	10	EPA 8270	15-Feb-08/K	70	75	81	79
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	15-Feb-08/K	75	70	82	72
Poly-Chlorinated Biphenyls (PCB's)	µg/L	0.05	EPA 8081	16-Feb-08/K	< 0.05	< 0.05	< 0.05	< 0.05
Aroclor	-		-	16-Feb-08	-	-	-	-

1. Chromium (VI) result is based on total chromium
2. elevated detection limit due to high chloride
3. Note: Elevated MDL due to low sample volume.

FO = Fuel Oil, HO = Heavy Oil

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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JOB/PROJECT NO.: C. of Ottawa Work Yard-1034220
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		MW08-5	MW08-6	MW08-7	MW08-9
			Sample I.D.:		B08-03599-5	B08-03599-6	B08-03599-7	B08-03599-8
			Date Collected:		04-Feb-08	04-Feb-08	05-Feb-08	05-Feb-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
pH	pH Units		EPA 150.1	06-Feb-08/O	--	--	7.36	7.61
Conductivity	µmho/cm	1	SM 2510	07-Feb-08/O	--	--	22200	4730
Chloride	mg/L	0.5	EPA 300.0	07-Feb-08/O	--	--	9320	1620
Nitrite (N)	mg/L	0.1	EPA 300.0	06-Feb-08/O	--	--	< 10	< 0.1
Nitrate (N)	mg/L	0.1	EPA 300.0	06-Feb-08/O	--	--	0.2	< 0.1
Cyanide (Free)	mg/L	0.005	SM 4500CN	07-Feb-08/K	--	--	< 0.005	< 0.005
Antimony	µg/L	0.1	EPA 200.8	07-Feb-08/O	--	--	< 1	< 1
Arsenic	µg/L	0.1	EPA 200.8	07-Feb-08/O	--	--	4	4
Barium	µg/L	1	SM 3120	06-Feb-08/O	--	--	704	162
Beryllium	µg/L	2	SM 3120	06-Feb-08/O	--	--	< 2	< 2
Boron	µg/L	5	SM 3120	06-Feb-08/O	--	--	188	621
Cadmium	µg/L	0.02	EPA 200.8	07-Feb-08/O	--	--	< 0.2	< 0.2
Chromium	µg/L	2	SM 3120	06-Feb-08/O	--	--	< 2	< 2
Chromium (VI)	µg/L	2	EPA7196	07-Feb-08/O	--	--	< 2	< 2
Cobalt	µg/L	0.1	EPA 200.8	07-Feb-08/O	--	--	5	3
Copper	µg/L	2	SM 3120	06-Feb-08/O	--	--	< 2	3
Lead	µg/L	0.02	EPA 200.8	07-Feb-08/O	< 0.2	--	< 0.2	< 0.2
Mercury	µg/L	0.02	SM 3112	06-Feb-08/O	--	--	< 0.02	< 0.02
Molybdenum	µg/L	10	SM 3120	06-Feb-08/O	--	--	< 10	< 10
Nickel	µg/L	10	SM 3120	06-Feb-08/O	--	--	< 10	< 10
Selenium	µg/L	0.2	EPA 200.8	07-Feb-08/O	--	--	10	< 2
Silver	µg/L	0.02	EPA 200.8	07-Feb-08/O	--	--	< 0.2	< 0.2
Thallium	µg/L	0.05	EPA 200.8	07-Feb-08/O	--	--	< 0.5	< 0.5
Vanadium	µg/L	5	SM 3120	06-Feb-08/O	--	--	< 5	< 5
Zinc	µg/L	5	SM 3120	06-Feb-08/O	--	--	8	6
Benzene	µg/L	0.5	EPA 8260	09-Feb-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1

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WATERWORKS NO.

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			Sample I.D.:		B08-03599-5	B08-03599-6	B08-03599-7	B08-03599-8
			Date Collected:		04-Feb-08	04-Feb-08	05-Feb-08	05-Feb-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Bromomethane	µg/L	2	EPA 8260	09-Feb-08/O	--	< 2	< 2	< 2
Carbon Tetrachloride	µg/L	0.2	EPA 8260	09-Feb-08/O	--	< 0.2	< 0.2	< 0.2
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	09-Feb-08/O	--	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	09-Feb-08/O	--	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Dibromoethane,1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,3-	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,4-	µg/L	0.2	EPA 8260	09-Feb-08/O	--	< 0.2	< 0.2	< 0.2
Dichloroethane,1,1-	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Dichloroethane,1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Dichloropropane,1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	09-Feb-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	09-Feb-08/O	--	< 0.3	< 0.3	< 0.3
Naphthalene	µg/L	0.7	EPA 8260	09-Feb-08/O	--	< 0.7	< 0.7	< 0.7
Styrene	µg/L	0.6	EPA 8260	09-Feb-08/O	--	< 0.6	< 0.6	< 0.6
Tetrachloroethane,t,t,t,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	09-Feb-08/O	--	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	09-Feb-08/O	--	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	09-Feb-08/O	< 0.5	< 0.5	< 0.5	< 0.5

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2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 05-Feb-08
DATE REPORTED: 19-Feb-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: C. of Ottawa Work Yard-1034220
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		MW08-5	MW08-6	MW08-7	MW08-9
			Sample I.D.:		B08-03599-5	B08-03599-6	B08-03599-7	B08-03599-8
			Date Collected:		04-Feb-08	04-Feb-08	05-Feb-08	05-Feb-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Trichlorobenzene,1,2,4-	µg/L	0.2	EPA 8260	09-Feb-08/O	--	< 0.2	< 0.2	< 0.2
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	09-Feb-08/O	--	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	09-Feb-08/O	--	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	1.0	EPA 8260	09-Feb-08/O	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, o-	µg/L	0.5	EPA 8260	09-Feb-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	09-Feb-08/O	106	99	103	100
Toluene-d8 (SS)	%	10	EPA 8260	09-Feb-08/O	101	99	102	102
Bromofluorobenzene,4(SS)	%	10	EPA 8260	09-Feb-08/O	98	99	99	98
PHC F1 (C6-C10)	µg/L	50	EPA 8260	09-Feb-08/O	< 50	< 50	< 50	< 50
PHC F2 (>C10-C16)	µg/L	50	MOE TPH-E3397A	11-Feb-08/K	90	80	60	90
PHC F3 (>C16-C34)	µg/L	500	MOE TPH-E3397A	11-Feb-08/K	< 500	< 500	< 500	1000
PHC F4 (>C34-C50)	µg/L	500	MOE TPH-E3397A	11-Feb-08/K	< 500	< 500	< 500	< 500
Comment-extractable	-		-	11-Feb-08	FO	FO	FO	FO/HO
Acenaphthene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
Acenaphthylene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
Anthracene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
Benzo(a)anthracene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
Benzo(a)pyrene	µg/L	0.01	EPA 8270	15-Feb-08/K	--	--	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
Benzo(b+k)fluoranthene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
Benzo(g,h,i)perylene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
Benzo(k)fluoranthene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
Chrysene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05

FO = Fuel Oil, HO = Heavy Oil

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 42263

REPORT No. B08-03599

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 05-Feb-08
DATE REPORTED: 19-Feb-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: C. of Ottawa Work Yard-1034220
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		MW08-5	MW08-6	MW08-7	MW08-9
			Sample I.D.:		B08-03599-5	B08-03599-6	B08-03599-7	B08-03599-8
			Date Collected:		04-Feb-08	04-Feb-08	05-Feb-08	05-Feb-08
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Dibenzo(a,h)anthracene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
Fluoranthene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
Fluorene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
Indeno(1,2,3,-cd)pyrene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
Methylnaphthalene,1-	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	0.08
Methylnaphthalene,2-	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
Naphthalene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
Phenanthrene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	0.16
Pyrene	µg/L	0.05	EPA 8270	15-Feb-08/K	--	--	< 0.05	< 0.05
2-Fluorobiphenyl (SS)	% rec.	10	EPA 8270	15-Feb-08/K	--	--	77	85
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	15-Feb-08/K	--	--	68	72
Poly-Chlorinated Biphenyls (PCB's)	µg/L	0.05	EPA 8081	16-Feb-08/K	--	--	< 0.05	< 0.05
Aroclor	-		-	16-Feb-08	--	--	-	-

1. Chromium (VI) result is based on total chromium
2. elevated detection limit due to high chloride
3. Note: Elevated MDL due to low sample volume.

FO = Fuel Oil, HO = Heavy Oil

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

REPORT No. B08-04098

C.O.C.: 128184

Report To:
Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 08-Feb-08
DATE REPORTED: 20-Feb-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: C. of Ottawa Work Yard-1034220
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		MW08-8	FB-1		
			Sample I.D.:		B08-04098-1	B08-04098-2		
			Date Collected:		08-Feb-08	08-Feb-08		
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
pH	pH Units		EPA 150.1	11-Feb-08/O	7.32	--		
Conductivity	µmho/cm	1	SM 2510	11-Feb-08/O	15200	--		
Chloride	mg/L	0.5	EPA 300.0	11-Feb-08/O	6350	--		
Nitrite (N)	mg/L	0.1	EPA 300.0	11-Feb-08/O	< 10 [2]	--		
Nitrate (N)	mg/L	0.1	EPA 300.0	08-Feb-08/O	< 0.1	--		
Cyanide (Free)	mg/L	0.005	SM 4500CN	11-Feb-08/K	< 0.005	--		
Antimony	µg/L	0.1	EPA 200.8	11-Feb-08/O	0.4	--		
Arsenic	µg/L	0.1	EPA 200.8	11-Feb-08/O	26.9	--		
Thallium	µg/L	0.05	EPA 200.8	11-Feb-08/O	< 0.05	--		
Barium	µg/L	1	SM 3120	11-Feb-08/O	1770	--		
Beryllium	µg/L	2	SM 3120	11-Feb-08/O	< 2	--		
Boron	µg/L	5	SM 3120	11-Feb-08/O	66	--		
Cadmium	µg/L	0.02	EPA 200.8	11-Feb-08/O	0.32	--		
Chromium	µg/L	2	SM 3120	11-Feb-08/O	< 2	--		
Chromium (VI)	µg/L	2	EPA7196	12-Feb-08/O	< 2 [1]	--		
Cobalt	µg/L	0.1	EPA 200.8	11-Feb-08/O	4.4	--		
Copper	µg/L	2	SM 3120	11-Feb-08/O	< 2	--		
Lead	µg/L	0.02	EPA 200.8	11-Feb-08/O	0.40	--		
Mercury	µg/L	0.02	SM 3112	11-Feb-08/O	< 0.02	--		
Molybdenum	µg/L	10	SM 3120	11-Feb-08/O	< 10	--		
Nickel	µg/L	10	SM 3120	11-Feb-08/O	< 10	--		
Selenium	µg/L	0.2	EPA 200.8	11-Feb-08/O	< 0.2	--		
Silver	µg/L	0.02	EPA 200.8	11-Feb-08/O	0.16	--		
Vanadium	µg/L	5	SM 3120	11-Feb-08/O	< 5	--		
Zinc	µg/L	5	SM 3120	11-Feb-08/O	7	--		
Benzene	µg/L	0.5	EPA 8260	09-Feb-08/O	< 0.5	< 0.5		
Bromodichloromethane	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Bromoform	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: t28184

REPORT No. B08-04098

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 08-Feb-08
DATE REPORTED: 20-Feb-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: C. of Ottawa Work Yard t034220
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		MW08-8	FB-1		
			Sample I.D.:		B08-04098-1	B08-04098-2		
			Date Collected:		08-Feb-08	08-Feb-08		
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Bromomethane	µg/L	2	EPA 8260	09-Feb-08/O	< 2	< 2		
Carbon Tetrachloride	µg/L	0.2	EPA 8260	09-Feb-08/O	< 0.2	< 0.2		
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	09-Feb-08/O	< 0.2	< 0.2		
Chloroform	µg/L	0.3	EPA 8260	09-Feb-08/O	< 0.3	1.8		
Dibromochloromethane	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Dibromoethane,1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Dichlorobenzene,1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Dichlorobenzene,1,3-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Dichlorobenzene,1,4-	µg/L	0.2	EPA 8260	09-Feb-08/O	< 0.2	< 0.2		
Dichloroethane,1,1-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Dichloroethane,1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Dichloropropane,1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Ethylbenzene	µg/L	0.5	EPA 8260	09-Feb-08/O	< 0.5	< 0.5		
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	09-Feb-08/O	< 0.3	< 0.3		
Naphthalene	µg/L	0.7	EPA 8260	09-Feb-08/O	< 0.7	< 0.7		
Styrene	µg/L	0.6	EPA 8260	09-Feb-08/O	< 0.6	< 0.6		
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	09-Feb-08/O	< 0.4	< 0.4		
Tetrachloroethylene	µg/L	0.2	EPA 8260	09-Feb-08/O	< 0.2	< 0.2		
Toluene	µg/L	0.5	EPA 8260	09-Feb-08/O	1.1	< 0.5		
Trichlorobenzene,1,2,4-	µg/L	0.2	EPA 8260	09-Feb-08/O	< 0.2	< 0.2		

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 128184

REPORT No. B08-04098

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 08-Feb-08
DATE REPORTED: 20-Feb-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: C. of Ottawa Work Yard 1034220
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		MW08-8	FB-1		
			Sample I.D.:		B08-04098-1	B08-04098-2		
			Date Collected:		08-Feb-08	08-Feb-08		
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Trichloroethylene	µg/L	0.1	EPA 8260	09-Feb-08/O	< 0.1	< 0.1		
Vinyl Chloride	µg/L	0.2	EPA 8260	09-Feb-08/O	< 0.2	< 0.2		
Xylene, m,p-	µg/L	1.0	EPA 8260	09-Feb-08/O	< 1.0	< 1.0		
Xylene, o-	µg/L	0.5	EPA 8260	09-Feb-08/O	< 0.5	< 0.5		
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	09-Feb-08/O	93	92		
Toluene-d8 (SS)	%	10	EPA 8260	09-Feb-08/O	91	91		
Bromofluorobenzene,4(SS)	%	10	EPA 8260	09-Feb-08/O	99	97		
PHC F1 (C6-C10)	µg/L	50	EPA 8260	09-Feb-08/O	< 50	--		
PHC F2 (>C10-C16)	µg/L	50	MOE TPH-E3397A	15-Feb-08/K	70	--		
PHC F3 (>C16-C34)	µg/L	500	MOE TPH-E3397A	15-Feb-08/K	< 500	--		
PHC F4 (>C34-C50)	µg/L	500	MOE TPH-E3397A	15-Feb-08/K	< 500	--		
Comment-extractable	-		-	15-Feb-08	NDP	--		
Acenaphthene	µg/L	0.05	EPA 8270	13-Feb-08/K	< 0.05	--		
Acenaphthylene	µg/L	0.05	EPA 8270	13-Feb-08/K	< 0.05	--		
Anthracene	µg/L	0.05	EPA 8270	13-Feb-08/K	< 0.05	--		
Benzo(a)anthracene	µg/L	0.05	EPA 8270	13-Feb-08/K	< 0.05	--		
Benzo(a)pyrene	µg/L	0.01	EPA 8270	13-Feb-08/K	0.04	--		
Benzo(b)fluoranthene	µg/L	0.05	EPA 8270	13-Feb-08/K	< 0.05	--		
Benzo(b+k)fluoranthene	µg/L	0.05	EPA 8270	13-Feb-08/K	< 0.05	--		
Benzo(g,h,i)perylene	µg/L	0.05	EPA 8270	13-Feb-08/K	< 0.05	--		
Benzo(k)fluoranthene	µg/L	0.05	EPA 8270	13-Feb-08/K	< 0.05	--		
Chrysene	µg/L	0.05	EPA 8270	13-Feb-08/K	0.07	--		
Dibenzo(a,h)anthracene	µg/L	0.05	EPA 8270	13-Feb-08/K	< 0.05	--		
Fluoranthene	µg/L	0.05	EPA 8270	13-Feb-08/K	0.07	--		

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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CADUCEON™ ENVIRONMENTAL LABORATORIES

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 128184

REPORT No. B08-04098

Report To:

Jacques Whitford - Lancaster
2781 Lancaster Road Suite 200
Ottawa, ON, K1B 1A7
Attention: Jane Yaraskavitch

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 08-Feb-08
DATE REPORTED: 20-Feb-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: C. of Ottawa Work Yard-1034220
P.O. NUMBER: 01906-91843-S01-Ottawa
WATERWORKS NO.

			Client I.D.:		MW08-8	FB-1		
			Sample I.D.:		B08-04098-1	B08-04098-2		
			Date Collected:		08-Feb-08	08-Feb-08		
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Fluorene	µg/L	0.05	EPA 8270	13-Feb-08/K	0.14	--		
Indeno(1,2,3,-cd)pyrene	µg/L	0.05	EPA 8270	13-Feb-08/K	< 0.05	--		
Methylnaphthalene,1-	µg/L	0.05	EPA 8270	13-Feb-08/K	< 0.05	--		
Methylnaphthalene,2-	µg/L	0.05	EPA 8270	13-Feb-08/K	0.08	--		
Naphthalene	µg/L	0.05	EPA 8270	13-Feb-08/K	< 0.05	--		
Phenanthrene	µg/L	0.05	EPA 8270	13-Feb-08/K	0.48	--		
Pyrene	µg/L	0.05	EPA 8270	13-Feb-08/K	0.07	--		
2-Fluorobiphenyl (SS)	% rec.	10	EPA 8270	13-Feb-08/K	91	--		
Terphenyl-d14 (SS)	% rec.	10	EPA 8270	13-Feb-08/K	71	--		
Poly-Chlorinated Biphenyls (PCB's)	µg/L	0.05	EPA 8081	16-Feb-08/K	< 0.4 [3]	--		
Aroclor	-		-	16-Feb-08	-	--		

1. Chromium (VI) result is based on total chromium
2. elevated detection limit due to high chloride
3. Note: Elevated MDL due to sample matrix.

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 11045,129973-76,130037-38 **REPORT No. B08-24568**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jul-08
DATE REPORTED: 11-Aug-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER: 46160825
WATERWORKS NO.

	Parameter:		pH	Conductivity	Sodium Adsorption Ratio		
	Units:		pH Units	µmho/cm	units		
	M.D.L.:			1			
	Reference Method:		EPA 150.1	SM 2510	SM 3120		
	Date/Site Analyzed:		05-Aug-08/O	08-Aug-08/O	07-Aug-08/O		
Client I.D.	**Sample I.D.**	**Date Collected**					
TP1A	B08-24568-1	29-Jul-08	--	700	51.4		
TP1B	B08-24568-2	29-Jul-08	--	1120	41.3		
TP1C	B08-24568-3	29-Jul-08	--	3270	184		
TP2A	B08-24568-4	29-Jul-08	--	145	6.82		
TP2B	B08-24568-5	29-Jul-08	--	1100	9.26		
TP2C	B08-24568-6	29-Jul-08	--	3330	89.4		
TP3A	B08-24568-7	29-Jul-08	--	325	10.6		
TP4A	B08-24568-8	29-Jul-08	--	67	1.63		
TP4B	B08-24568-9	29-Jul-08	--	59	1.33		
TP4C	B08-24568-10	29-Jul-08	--	1290	1.69		
TP5A	B08-24568-11	29-Jul-08	--	110	1.86		
TP5B	B08-24568-12	29-Jul-08	--	78	1.75		
TP5C	B08-24568-13	29-Jul-08	--	92	2.54		
TP6A	B08-24568-14	29-Jul-08	--	100	3.82		
TP6B	B08-24568-15	29-Jul-08	--	468	8.72		
TP6C	B08-24568-16	29-Jul-08	--	8680	139		
TP7A	B08-24568-17	29-Jul-08	--	77	3.78		
TP7B	B08-24568-18	29-Jul-08	--	182	5.23		
TP7C	B08-24568-19	29-Jul-08	--	681	18.8		
TP8A	B08-24568-20	29-Jul-08	--	59	7.41		
TP8B	B08-24568-21	29-Jul-08	--	360	11.8		

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 11045,129973-76,130037-38 **REPORT No. B08-24568**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jul-08
DATE REPORTED: 11-Aug-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER: 46160825
WATERWORKS NO.

	Parameter:		pH	Conductivity	Sodium Adsorption Ratio		
	Units:		pH Units	µmho/cm	units		
	M.D.L.:			1			
	Reference Method:		EPA 150.1	SM 2510	SM 3120		
	Date/Site Analyzed:		05-Aug-08/O	08-Aug-08/O	07-Aug-08/O		
Client I.D.	Sample I.D.	Date Collected					
TP8C	B08-24568-22	29-Jul-08	--	2460	147		
TP9A	B08-24568-23	29-Jul-08	--	308	6.92		
TP9B	B08-24568-24	29-Jul-08	--	607	11.5		
TP9C	B08-24568-25	29-Jul-08	--	1110	35.2		
TP10A	B08-24568-26	29-Jul-08	--	79	3.02		
TP10B	B08-24568-27	29-Jul-08	--	162	5.76		
TP10C	B08-24568-28	29-Jul-08	--	1420	34.4		
TP11A	B08-24568-29	29-Jul-08	--	918	26.6		
TP11B	B08-24568-30	29-Jul-08	--	1520	43.6		
TP11C	B08-24568-31	29-Jul-08	--	675	5.37		
TP12A	B08-24568-32	29-Jul-08	--	1300	45.2		
TP12B	B08-24568-33	29-Jul-08	--	1370	62.2		
TP12C	B08-24568-34	29-Jul-08	--	2340	80.3		
TP13A	B08-24568-35	29-Jul-08	--	1680	52.1		
TP13B	B08-24568-36	29-Jul-08	--	3360	141		
TP13C	B08-24568-37	29-Jul-08	--	7590	109		
TP14A	B08-24568-38	29-Jul-08	--	329	10.6		
TP14B	B08-24568-39	29-Jul-08	--	545	11.4		
TP14C	B08-24568-40	29-Jul-08	--	527	7.23		
TP15A	B08-24568-41	29-Jul-08	--	182	4.23		
TP15B	B08-24568-42	29-Jul-08	--	322	6.07		

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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Final Report

C.O.C.: 11045,129973-76,130037-38 **REPORT No. B08-24568**

Report To:

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Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jul-08
DATE REPORTED: 11-Aug-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER: 46160825
WATERWORKS NO.

	Parameter:		pH	Conductivity	Sodium Adsorption Ratio		
	Units:		pH Units	µmho/cm	units		
	M.D.L.:			1			
	Reference Method:		EPA 150.1	SM 2510	SM 3120		
	Date/Site Analyzed:		05-Aug-08/O	08-Aug-08/O	07-Aug-08/O		
Client I.D.	**Sample I.D.**	**Date Collected**					
TP16A	B08-24568-43	29-Jul-08	--	88	0.827		
TP16B	B08-24568-44	29-Jul-08	--	77	1.41		
TP16C	B08-24568-45	29-Jul-08	--	749	10.0		
TP17A	B08-24568-46	29-Jul-08	--	640	13.6		
TP17B	B08-24568-47	29-Jul-08	--	745	18.8		
TP17C	B08-24568-48	29-Jul-08	--	3250	75.1		
TP18A	B08-24568-49	29-Jul-08	--	3320	47.5		
TP18B	B08-24568-50	29-Jul-08	--	2250	12.3		
TP18C	B08-24568-51	29-Jul-08	--	5160	15.9		
TP19A	B08-24568-52	29-Jul-08	--	1570	24.5		
TP19B	B08-24568-53	29-Jul-08	7.15	2000	37.8		
TP19C	B08-24568-54	29-Jul-08	--	3250	34.5		
TP20A	B08-24568-55	29-Jul-08	--	1110	13.9		
TP20B	B08-24568-56	29-Jul-08	7.32	724	11.4		
TP20C	B08-24568-57	29-Jul-08	--	1780	40.8		
TP21A	B08-24568-58	29-Jul-08	--	228	6.49		
TP21B	B08-24568-59	29-Jul-08	--	453	10.1		
TP21C	B08-24568-60	29-Jul-08	--	1180	19.0		
TP22A	B08-24568-61	29-Jul-08	--	643	14.9		
TP22B	B08-24568-62	29-Jul-08	9.01	689	13.4		
TP22C	B08-24568-63	29-Jul-08	--	829	19.9		

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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Final Report

C.O.C.: 11045,129973-76,130037-38 **REPORT No. B08-24568**

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DATE RECEIVED: 30-Jul-08
DATE REPORTED: 11-Aug-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER: 46160825
WATERWORKS NO.

	Parameter:		pH	Conductivity	Sodium Adsorption Ratio		
	Units:		pH Units	µmho/cm	units		
	M.D.L.:			1			
	Reference Method:		EPA 150.1	SM 2510	SM 3120		
	Date/Site Analyzed:		05-Aug-08/O	08-Aug-08/O	07-Aug-08/O		
Client I.D.	Sample I.D.	Date Collected					
TP23A	B08-24568-64	29-Jul-08	--	448	8.84		
TP23B	B08-24568-65	29-Jul-08	8.80	1010	16.8		
TP23C	B08-24568-66	29-Jul-08	--	4790	31.3		
TP24A	B08-24568-67	29-Jul-08	--	348	10.7		
TP24B	B08-24568-68	29-Jul-08	--	1090	10.1		
TP24C	B08-24568-69	29-Jul-08	--	1990	15.9		
TP25A	B08-24568-70	29-Jul-08	--	739	10.3		
TP25B	B08-24568-71	29-Jul-08	--	530	4.31		
TP25C	B08-24568-72	29-Jul-08	--	584	7.29		
TP26A	B08-24568-73	29-Jul-08	--	316	15.6		
TP26B	B08-24568-74	29-Jul-08	--	981	24.2		
TP26C	B08-24568-75	29-Jul-08	--	3600	36.5		
TP27A	B08-24568-76	29-Jul-08	--	1420	42.1		
TP27B	B08-24568-77	29-Jul-08	8.35	2040	57.0		
TP27C	B08-24568-78	29-Jul-08	--	2730	45.1		
SS140	B08-24568-79	29-Jul-08	--	1710	25.1		
TP50B	B08-24568-80	29-Jul-08	--	93	1.60		
SS130	B08-24568-81	29-Jul-08	--	1490	16.5		
SS150	B08-24568-82	29-Jul-08	--	1350	36.8		
TP190C	B08-24568-83	29-Jul-08	--	1500	35.0		
TP240C	B08-24568-84	29-Jul-08	--	1410	17.5		

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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Final Report

C.O.C.: 11045,129973-76,130037-38 **REPORT No. B08-24568**

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2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 30-Jul-08
DATE REPORTED: 11-Aug-08
SAMPLE MATRIX: Soil

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER: 46160825
WATERWORKS NO.

	Parameter:		pH	Conductivity	Sodium Adsorption Ratio		
	Units:		pH Units	µmho/cm	units		
	M.D.L.:			1			
	Reference Method:		EPA 150.1	SM 2510	SM 3120		
	Date/Site Analyzed:		05-Aug-08/O	08-Aug-08/O	07-Aug-08/O		
Client I.D.	**Sample I.D.**	**Date Collected**					
TP110C	B08-24568-85	29-Jul-08	--	986	32.2		
TP270B	B08-24568-86	29-Jul-08	8.24	2080	62.3		
TP230C	B08-24568-87	29-Jul-08	--	2570	32.9		
TP220C	B08-24568-88	29-Jul-08	--	1430	46.9		
SS1	B08-24568-89	29-Jul-08	--	317	5.56		
SS2	B08-24568-90	29-Jul-08	--	79	1.83		
SS3	B08-24568-91	29-Jul-08	--	66	1.45		
SS4	B08-24568-92	29-Jul-08	--	76	2.71		
SS5	B08-24568-93	29-Jul-08	--	92	3.76		
SS6	B08-24568-94	29-Jul-08	--	148	5.82		
SS7	B08-24568-95	29-Jul-08	--	119	8.23		
SS8	B08-24568-96	29-Jul-08	--	513	28.7		
SS9	B08-24568-97	29-Jul-08	--	75	2.25		
SS10	B08-24568-98	29-Jul-08	--	100	5.04		
SS11	B08-24568-99	29-Jul-08	--	209	2.44		
SS12	B08-24568-10	29-Jul-08	--	69	1.59		
SS13	B08-24568-10	29-Jul-08	--	1010	14.2		
SS14	B08-24568-10	29-Jul-08	--	1020	23.8		
SS15	B08-24568-10	29-Jul-08	--	1500	37.7		
TP15C	B08-24568-10	29-Jul-08	--	589	3.97		

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 130040 **REPORT No. B08-25502 (i)**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Eric Sly

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 06-Aug-08
DATE REPORTED: 15-Aug-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: OTEN000182935
P.O. NUMBER: 46160825
WATERWORKS NO.

	Parameter:		Boron (Hot Water Ext.)				
	Units:		µg/g				
	M.D.L.:		0.1				
	Reference Method:		EPA 200.7				
	Date/Site Analyzed:		14-Aug-08/O				
Client I.D.	**Sample I.D.**	**Date Collected**					
MW08-16 SS5	B08-25502-1	06-Aug-08	0.4				
MW08-15 SS5	B08-25502-2	06-Aug-08	0.8				
MW08-14 SS5	B08-25502-3	06-Aug-08	0.2				
MW08-17 SS6	B08-25502-4	06-Aug-08	0.2				
MW08-17 SS16	B08-25502-5	06-Aug-08	0.2				

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 130040 **REPORT No. B08-25502 (ii)**

Report To:

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154 Colonnade Rd South
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Attention: Eric Sly

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
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DATE RECEIVED: 06-Aug-08
DATE REPORTED: 15-Aug-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: OTEN000182935
P.O. NUMBER: 46160825
WATERWORKS NO.

			Client I.D.:		MW08-16 SS5	MW08-15 SS5	MW08-14 SS5	MW08-17 SS8
			Sample I.D.:		B08-25502-1	B08-25502-2	B08-25502-3	B08-25502-6
			Date Collected:		06-Aug-08	06-Aug-08	06-Aug-08	06-Aug-08
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Benzene	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Bromoform	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Bromodichloromethane	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Bromomethane	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Carbon Tetrachloride	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Monochlorobenzene (Chlorobenzene)	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Chloroform	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Dibromochloromethane	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Dibromoethane,1,2- (Ethylene Dibromide)	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorobenzene,1,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorobenzene,1,3-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Dichlorobenzene,1,4-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Dichloroethane,1,1-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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DATE RECEIVED: 06-Aug-08
DATE REPORTED: 15-Aug-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: OTEN000182935
P.O. NUMBER: 46160825
WATERWORKS NO.

	Client I.D.:	MW08-16 SS5	MW08-15 SS5	MW08-14 SS5	MW08-17 SS8
	Sample I.D.:	B08-25502-1	B08-25502-2	B08-25502-3	B08-25502-6
	Date Collected:	06-Aug-08	06-Aug-08	06-Aug-08	06-Aug-08

Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Dichloroethane,1,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Dichloroethene, cis-1,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Dichloroethene, 1,1-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Dichloroethene, trans-1,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Dichloropropane,1,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Dichloropropene, trans-1,3-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Dichloropropene, cis-1,3-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Dichloromethane (Methylene Chloride)	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Styrene	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethane,1,1,1,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethane,1,1,2,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Tetrachloroethylene	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001

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Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

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SAMPLE MATRIX: Solid

JOB/PROJECT NO.: OTEN000182935
P.O. NUMBER: 46160825
WATERWORKS NO.

			Client I.D.:		MW08-16 SS5	MW08-15 SS5	MW08-14 SS5	MW08-17 SS8
			Sample I.D.:		B08-25502-1	B08-25502-2	B08-25502-3	B08-25502-6
			Date Collected:		06-Aug-08	06-Aug-08	06-Aug-08	06-Aug-08
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Toluene	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Trichlorobenzene,1,2,4-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethane,1,1,1-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethane,1,1,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Trichloroethylene	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Vinyl Chloride	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Xylene, m,p-	µg/g	0.002	EPA 8260	09-Aug-08/O	< 0.002	< 0.002	< 0.002	< 0.002
Xylene, o-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001	< 0.001	< 0.001	< 0.001
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	09-Aug-08/O	96	101	96	103
Toluene-d8 (SS)	%	10	EPA 8260	09-Aug-08/O	97	98	98	102
Bromofluorobenzene,4(SS)	%	10	EPA 8260	09-Aug-08/O	105	109	99	106
PHC F1 (C6-C10)	µg/g	10	CWS Tier 1	11-Aug-08/O	40	< 10	< 10	< 10
PHC F2 (>C10-C16)	µg/g	3	CWS Tier 1	08-Aug-08/O	8	5	14	23
PHC F3 (>C16-C34)	µg/g	9	CWS Tier 1	08-Aug-08/O	55	49	49	54
PHC F4 (>C34-C50)	µg/g	8	CWS Tier 1	08-Aug-08/O	78	60	27	17

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

Accredited by CAEAL for specific tests.
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CADUCEON ENVIRONMENTAL LABORATORIES
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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 130040 **REPORT No. B08-25502 (ii)**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Eric Sly

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 06-Aug-08
DATE REPORTED: 15-Aug-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: OTEN000182935
P.O. NUMBER: 46160825
WATERWORKS NO.

	Client I.D.:				MW08-16 SS5	MW08-15 SS5	MW08-14 SS5	MW08-17 SS8
	Sample I.D.:				B08-25502-1	B08-25502-2	B08-25502-3	B08-25502-6
	Date Collected:				06-Aug-08	06-Aug-08	06-Aug-08	06-Aug-08
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Comment-extractable	-		-	08-Aug-08	NDP/HO	NDP	FO	FO

1 . FO = Fuel Oil #2/Diesel, HO = Heavy Oil, NDP = No Distinct Pattern

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 06-Aug-08
DATE REPORTED: 15-Aug-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: OTEN000182935
P.O. NUMBER: 46160825
WATERWORKS NO.

			Client I.D.:		MW08-16 SS15			
			Sample I.D.:		B08-25502-7			
			Date Collected:		06-Aug-08			
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Benzene	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Bromoform	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Bromodichloromethane	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Bromomethane	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Carbon Tetrachloride	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Monochlorobenzene (Chlorobenzene)	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Chloroform	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Dibromochloromethane	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Dibromoethane,1,2- (Ethylene Dibromide)	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Dichlorobenzene,1,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Dichlorobenzene,1,3-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Dichlorobenzene,1,4-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Dichloroethane,1,1-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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Caduceon Environmental Laboratories
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Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 06-Aug-08
DATE REPORTED: 15-Aug-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: OTEN000182935
P.O. NUMBER: 46160825
WATERWORKS NO.

			Client I.D.:		MW08-16 SS15			
			Sample I.D.:		B08-25502-7			
			Date Collected:		06-Aug-08			
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Dichloroethane,1,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Dichloroethene, cis-1,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Dichloroethene, 1,1-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Dichloroethene, trans-1,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Dichloropropane,1,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Dichloropropene, trans-1,3-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Dichloropropene, cis-1,3-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Ethylbenzene	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Dichloromethane (Methylene Chloride)	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Naphthalene	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Styrene	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Tetrachloroethane,1,1,1,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Tetrachloroethane,1,1,2,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Tetrachloroethylene	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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CERTIFICATE OF ANALYSIS

Final Report

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Report To:

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154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Eric Sly

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 06-Aug-08
DATE REPORTED: 15-Aug-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: OTEN000182935
P.O. NUMBER: 46160825
WATERWORKS NO.

			Client I.D.:		MW08-16 SS15			
			Sample I.D.:		B08-25502-7			
			Date Collected:		06-Aug-08			
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Toluene	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Trichlorobenzene,1,2,4-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Trichloroethane,1,1,1-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Trichloroethane,1,1,2-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Trichloroethylene	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Vinyl Chloride	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Xylene, m,p-	µg/g	0.002	EPA 8260	09-Aug-08/O	< 0.002			
Xylene, o-	µg/g	0.001	EPA 8260	09-Aug-08/O	< 0.001			
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	09-Aug-08/O	97			
Toluene-d8 (SS)	%	10	EPA 8260	09-Aug-08/O	99			
Bromofluorobenzene,4(SS)	%	10	EPA 8260	09-Aug-08/O	100			
PHC F1 (C6-C10)	µg/g	10	CWS Tier 1	11-Aug-08/O	< 10			
PHC F2 (>C10-C16)	µg/g	3	CWS Tier 1	08-Aug-08/O	20			
PHC F3 (>C16-C34)	µg/g	9	CWS Tier 1	08-Aug-08/O	51			
PHC F4 (>C34-C50)	µg/g	8	CWS Tier 1	08-Aug-08/O	17			

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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Final Report

C.O.C.: 130040 **REPORT No. B08-25502 (ii)**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Eric Sly

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 06-Aug-08
DATE REPORTED: 15-Aug-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: OTEN000182935
P.O. NUMBER: 46160825
WATERWORKS NO.

			Client I.D.:		MW08-16 SS15			
			Sample I.D.:		B08-25502-7			
			Date Collected:		06-Aug-08			
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Comment-extractable	-		-	08-Aug-08	FO			

1 FO = Fuel Oil #2/Diesel, HO = Heavy Oil, NDP = No Distinct Pattern

µg/g = micrograms per gram (parts per million)
F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)
F2 C10-C16 hydrocarbons in µg/g, (F2-napth if requested)
F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)
F4 C34-C50 hydrocarbons in µg/g
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
Any deviations from the method are noted and reported for any particular sample.
nC6 and nC10 response factor is within 30% of response factor for toluene:
nC10,nC16 and nC34 response factors within 10% of each other:
C50 response factors within 70% of nC10+nC16+nC34 average:
Linearity is within 15%:
All results expressed on a dry weight basis.
Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.
Unless otherwise noted all extraction and analysis limits for holding time were met.
QC will be made available upon request.

M.D.L. = Method Detection Limit
Site Analyzed: K-Kingston W-Windsor O-Ottawa P-Peterborough M-Moncton

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

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Final Report

C.O.C.: 130041 **REPORT No. B08-25506**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 06-Aug-08
DATE REPORTED: 12-Aug-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER: 46160825
WATERWORKS NO.

	Parameter:		Sulphate				
	Units:		µg/g				
	M.D.L.:		10				
	Reference Method:		EPA 300.0				
	Date/Site Analyzed:		11-Aug-08/O				
Client I.D.	**Sample I.D.**	**Date Collected**					
MW08-13 SS2	B08-25506-1	05-Aug-08	250				
MW08-13 SS3	B08-25506-2	05-Aug-08	230				
MW08-12 SS3	B08-25506-3	05-Aug-08	350				
MW08-12 SS4	B08-25506-4	05-Aug-08	150				
MW08-12 SS5	B08-25506-5	05-Aug-08	240				
MW08-12 SS6	B08-25506-6	05-Aug-08	170				
MW08-12 SS33	B08-25506-7	05-Aug-08	250				
MW08-9 SS2	B08-25506-8	05-Aug-08	420				
MW08-9 SS3	B08-25506-9	05-Aug-08	270				
MW08-9 SS4	B08-25506-10	05-Aug-08	160				
MW08-9 SS5	B08-25506-11	05-Aug-08	210				

K. Pipin

Krystyna Pipin , M. Sc.
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 17856 **REPORT No. B08-25876**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Chris Kimmerly

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 12-Aug-08
DATE REPORTED: 20-Aug-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER:
WATERWORKS NO.

			Client I.D.:		MW 08-2	MW 08-1	MW 08-100	MW 08-14
			Sample I.D.:		B08-25876-1	B08-25876-2	B08-25876-3	B08-25876-4
			Date Collected:		11-Aug-08	11-Aug-08	11-Aug-08	11-Aug-08
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Sodium Adsorption Ratio	units		SM 3120	12-Aug-08/O	22.5	7.34	7.28	42.8
Conductivity	µmho/cm	1	SM 2510	19-Aug-08/O	1980	5290	5270	13300
Sodium	mg/L	0.2	SM 3120	12-Aug-08/O	2110	576	566	1560
Calcium	mg/L	0.02	SM 3120	12-Aug-08/O	478	270	265	67.6
Magnesium	mg/L	0.01	SM 3120	12-Aug-08/O	116	120	117	20.2
Copper	mg/L	0.002	SM 3120	12-Aug-08/O	0.003	< 0.002	< 0.002	0.003
Lead	mg/L	0.00002	EPA 200.8	20-Aug-08/O	0.00019	0.00021	0.00016	0.00193
Benzene	µg/L	0.5	EPA 8260	13-Aug-08/O	1.3	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	13-Aug-08/O	< 0.3	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	13-Aug-08/O	< 0.3	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dibromoethane,1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,3-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,4-	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Dichloroethane,1,1-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethane,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	1.2
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	13-Aug-08/O	< 0.3	< 0.3	< 0.3	< 0.3
Dichloropropane,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1

Note: FO = Fuel Oil #2, HO = Heavy Oil.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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C.O.C.: 17856 **REPORT No. B08-25876**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Chris Kimmerly

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 12-Aug-08
DATE REPORTED: 20-Aug-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER:
WATERWORKS NO.

			Client I.D.:		MW 08-2	MW 08-1	MW 08-100	MW 08-14
			Sample I.D.:		B08-25876-1	B08-25876-2	B08-25876-3	B08-25876-4
			Date Collected:		11-Aug-08	11-Aug-08	11-Aug-08	11-Aug-08
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	13-Aug-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Naphthalene	µg/L	0.7	EPA 8260	13-Aug-08/O	< 0.7	< 0.7	< 0.7	< 0.7
Styrene	µg/L	0.6	EPA 8260	13-Aug-08/O	< 0.6	< 0.6	< 0.6	< 0.6
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	13-Aug-08/O	< 0.4	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	13-Aug-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorobenzene,1,2,4-	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2	< 0.2	1.5
Xylene, m,p-	µg/L	1.0	EPA 8260	13-Aug-08/O	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, o-	µg/L	0.5	EPA 8260	13-Aug-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	13-Aug-08/O	102	103	109	102
Toluene-d8 (SS)	%	10	EPA 8260	13-Aug-08/O	101	105	108	103
Bromofluorobenzene,4(SS)	%	10	EPA 8260	13-Aug-08/O	105	101	103	102
PHC F1 (C6-C10)	µg/L	50	MOE E3421	13-Aug-08/O	< 50	< 50	< 50	< 50
PHC F2 (>C10-C16)	µg/L	40	MOE E3421	14-Aug-08/O	< 50	< 50	< 50	60
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	14-Aug-08/O	< 500	600	700	900
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	14-Aug-08/O	< 500	< 500	< 500	< 500
Comment-extractable	-		-	14-Aug-08	-	HO	HO	HO

Note: FO = Fuel Oil #2, HO = Heavy Oil.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Accredited by CAEAL for specific tests.
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CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 17856 **REPORT No. B08-25876**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Chris Kimmerly

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 12-Aug-08
DATE REPORTED: 20-Aug-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER:
WATERWORKS NO.

			Client I.D.:		MW 08-17	MW 08-15	MW 08-9	MW 08-16
			Sample I.D.:		B08-25876-5	B08-25876-6	B08-25876-7	B08-25876-8
			Date Collected:		11-Aug-08	11-Aug-08	11-Aug-08	11-Aug-08
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Sodium Adsorption Ratio	units		SM 3120	12-Aug-08/O	6.10	8.21	14.0	11.6
Conductivity	µmho/cm	1	SM 2510	19-Aug-08/O	1770	3210	11600	5320
Sodium	mg/L	0.2	SM 3120	12-Aug-08/O	260	436	1240	737
Calcium	mg/L	0.02	SM 3120	12-Aug-08/O	102	109	423	205
Magnesium	mg/L	0.01	SM 3120	12-Aug-08/O	21.3	63.3	99.7	62.3
Copper	mg/L	0.002	SM 3120	12-Aug-08/O	< 0.002	0.003	0.002	0.002
Lead	mg/L	0.00002	EPA 200.8	20-Aug-08/O	0.00029	0.00023	0.00032	0.00027
Benzene	µg/L	0.5	EPA 8260	13-Aug-08/O	< 0.5	< 0.5	< 0.5	1.0
Bromodichloromethane	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	13-Aug-08/O	< 0.3	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	13-Aug-08/O	< 0.3	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dibromoethane,1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,3-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,4-	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Dichloroethane,1,1-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethane,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	13-Aug-08/O	< 0.3	< 0.3	< 0.3	< 0.3
Dichloropropane,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1

Note: FO = Fuel Oil #2, HO = Heavy Oil.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 17856 **REPORT No. B08-25876**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Chris Kimmerly

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 12-Aug-08
DATE REPORTED: 20-Aug-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER:
WATERWORKS NO.

			Client I.D.:		MW 08-17	MW 08-15	MW 08-9	MW 08-16
			Sample I.D.:		B08-25876-5	B08-25876-6	B08-25876-7	B08-25876-8
			Date Collected:		11-Aug-08	11-Aug-08	11-Aug-08	11-Aug-08
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	13-Aug-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Naphthalene	µg/L	0.7	EPA 8260	13-Aug-08/O	< 0.7	< 0.7	< 0.7	< 0.7
Styrene	µg/L	0.6	EPA 8260	13-Aug-08/O	< 0.6	< 0.6	< 0.6	< 0.6
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	13-Aug-08/O	< 0.4	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	13-Aug-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorobenzene,1,2,4-	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	1.0	EPA 8260	13-Aug-08/O	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, o-	µg/L	0.5	EPA 8260	13-Aug-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	13-Aug-08/O	107	103	106	104
Toluene-d8 (SS)	%	10	EPA 8260	13-Aug-08/O	109	103	109	106
Bromofluorobenzene,4(SS)	%	10	EPA 8260	13-Aug-08/O	95	102	95	102
PHC F1 (C6-C10)	µg/L	50	MOE E3421	13-Aug-08/O	< 50	< 50	< 50	< 50
PHC F2 (>C10-C16)	µg/L	40	MOE E3421	14-Aug-08/O	< 50	< 50	90	< 50
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	14-Aug-08/O	< 500	1000	900	2200
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	14-Aug-08/O	< 500	500	< 500	1700
Comment-extractable	-		-	14-Aug-08	-	FO/HO	FO/HO	FO/HO

Note: FO = Fuel Oil #2, HO = Heavy Oil.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Accredited by CAEAL for specific tests.
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CADUCEON ENVIRONMENTAL LABORATORIES
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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 17856 **REPORT No. B08-25876**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Chris Kimmerly

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 12-Aug-08
DATE REPORTED: 20-Aug-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER:
WATERWORKS NO.

			Client I.D.:		MW 08-13	Trip Blank		
			Sample I.D.:		B08-25876-9	B08-25876-10		
			Date Collected:		11-Aug-08	11-Aug-08		
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Sodium Adsorption Ratio	units		SM 3120	12-Aug-08/O	15.7	--		
Conductivity	µmho/cm	1	SM 2510	19-Aug-08/O	9650	--		
Sodium	mg/L	0.2	SM 3120	12-Aug-08/O	1510	--		
Calcium	mg/L	0.02	SM 3120	12-Aug-08/O	430	--		
Magnesium	mg/L	0.01	SM 3120	12-Aug-08/O	164	--		
Copper	mg/L	0.002	SM 3120	12-Aug-08/O	< 0.002	--		
Lead	mg/L	0.00002	EPA 200.8	20-Aug-08/O	0.00016	--		
Benzene	µg/L	0.5	EPA 8260	13-Aug-08/O	< 0.5	< 0.5		
Bromodichloromethane	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Bromoform	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Bromomethane	µg/L	0.3	EPA 8260	13-Aug-08/O	< 0.3	< 0.3		
Carbon Tetrachloride	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2		
Chloroform	µg/L	0.3	EPA 8260	13-Aug-08/O	< 0.3	< 0.3		
Dibromochloromethane	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Dibromoethane,1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Dichlorobenzene,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Dichlorobenzene,1,3-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Dichlorobenzene,1,4-	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2		
Dichloroethane,1,1-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Dichloroethane,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	13-Aug-08/O	< 0.3	< 0.3		
Dichloropropane,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		

Note: FO = Fuel Oil #2, HO = Heavy Oil.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Accredited by CAEAL for specific tests.
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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 17856 **REPORT No. B08-25876**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Chris Kimmerly

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 12-Aug-08
DATE REPORTED: 20-Aug-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER:
WATERWORKS NO.

			Client I.D.:		MW 08-13	Trip Blank		
			Sample I.D.:		B08-25876-9	B08-25876-10		
			Date Collected:		11-Aug-08	11-Aug-08		
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Ethylbenzene	µg/L	0.5	EPA 8260	13-Aug-08/O	< 0.5	< 0.5		
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2		
Naphthalene	µg/L	0.7	EPA 8260	13-Aug-08/O	< 0.7	< 0.7		
Styrene	µg/L	0.6	EPA 8260	13-Aug-08/O	< 0.6	< 0.6		
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	13-Aug-08/O	< 0.4	< 0.4		
Tetrachloroethylene	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2		
Toluene	µg/L	0.5	EPA 8260	13-Aug-08/O	< 0.5	< 0.5		
Trichlorobenzene,1,2,4-	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2		
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Trichloroethylene	µg/L	0.1	EPA 8260	13-Aug-08/O	< 0.1	< 0.1		
Vinyl Chloride	µg/L	0.2	EPA 8260	13-Aug-08/O	< 0.2	< 0.2		
Xylene, m,p-	µg/L	1.0	EPA 8260	13-Aug-08/O	< 1.0	< 1.0		
Xylene, o-	µg/L	0.5	EPA 8260	13-Aug-08/O	< 0.5	< 0.5		
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	13-Aug-08/O	104	106		
Toluene-d8 (SS)	%	10	EPA 8260	13-Aug-08/O	103	107		
Bromofluorobenzene,4(SS)	%	10	EPA 8260	13-Aug-08/O	101	101		
PHC F1 (C6-C10)	µg/L	50	MOE E3421	13-Aug-08/O	< 50	< 50		
PHC F2 (>C10-C16)	µg/L	40	MOE E3421	14-Aug-08/O	180	< 50		
PHC F3 (>C16-C34)	µg/L	400	MOE E3421	14-Aug-08/O	1300	< 500		
PHC F4 (>C34-C50)	µg/L	400	MOE E3421	14-Aug-08/O	600	< 500		
Comment-extractable	-		-	14-Aug-08	FO/HO	-		

Note: FO = Fuel Oil #2, HO = Heavy Oil.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Accredited by CAEAL for specific tests.
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CADUCEON ENVIRONMENTAL LABORATORIES
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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 17031 **REPORT No. B08-27461**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Chris Kimmerly

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 22-Aug-08
DATE REPORTED: 25-Aug-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: OTEN00018293J-1770 Heatherin
P.O. NUMBER: Ottawa - 01906-91843-S01
WATERWORKS NO.

	Parameter:		Boron (Hot Water Ext.)				
	Units:		µg/g				
	M.D.L.:		0.1				
	Reference Method:		EPA 200.7				
	Date/Site Analyzed:		25-Aug-08/O				
Client I.D.	**Sample I.D.**	**Date Collected**					
MW08-17 SS1	B08-27461-1	06-Aug-08	0.5				
MW08-17 SS2	B08-27461-2	06-Aug-08	0.4				
MW08-17 SS3	B08-27461-3	06-Aug-08	0.3				
MW08-15 SS2	B08-27461-4	06-Aug-08	0.4				
MW08-14 SS1	B08-27461-5	06-Aug-08	0.7				
MW08-14 SS2	B08-27461-6	06-Aug-08	0.6				
MW08-16 SS1	B08-27461-7	06-Aug-08	0.4				
MW08-16 SS2	B08-27461-8	06-Aug-08	0.4				

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

Accredited by CAEAL for specific tests.
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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 18268 **REPORT No. B08-34124**

Report To:

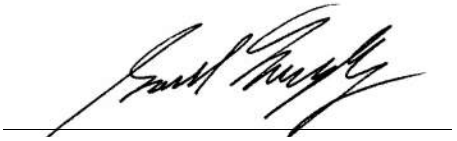
Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 14-Oct-08
DATE REPORTED: 20-Oct-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER:
WATERWORKS NO.

			Client I.D.:		MW08-14			
			Sample I.D.:		B08-34124-1			
			Date Collected:		14-Oct-08			
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Benzene	µg/L	0.5	EPA 8260	19-Oct-08/O	0.5			
Bromodichloromethane	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Bromoform	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Bromomethane	µg/L	0.3	EPA 8260	19-Oct-08/O	< 0.3			
Carbon Tetrachloride	µg/L	0.2	EPA 8260	19-Oct-08/O	< 0.2			
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	19-Oct-08/O	< 0.2			
Chloroform	µg/L	0.3	EPA 8260	19-Oct-08/O	< 0.3			
Dibromochloromethane	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Dibromoethane,1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Dichlorobenzene,1,2-	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Dichlorobenzene,1,3-	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Dichlorobenzene,1,4-	µg/L	0.2	EPA 8260	19-Oct-08/O	< 0.2			
Dichloroethane,1,1-	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Dichloroethane,1,2-	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	19-Oct-08/O	23.2			
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Dichloropropane,1,2-	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Ethylbenzene	µg/L	0.5	EPA 8260	19-Oct-08/O	< 0.5			
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	19-Oct-08/O	< 0.3			
Naphthalene	µg/L	0.7	EPA 8260	19-Oct-08/O	< 0.7			
Styrene	µg/L	0.6	EPA 8260	19-Oct-08/O	< 0.6			
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			



Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 18268 **REPORT No. B08-34124**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 14-Oct-08
DATE REPORTED: 20-Oct-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER:
WATERWORKS NO.

			Client I.D.:		MW08-14			
			Sample I.D.:		B08-34124-1			
			Date Collected:		14-Oct-08			
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	19-Oct-08/O	< 0.4			
Tetrachloroethylene	µg/L	0.2	EPA 8260	19-Oct-08/O	< 0.2			
Toluene	µg/L	0.5	EPA 8260	19-Oct-08/O	< 0.5			
Trichlorobenzene,1,2,4-	µg/L	0.2	EPA 8260	19-Oct-08/O	< 0.2			
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Trichloroethylene	µg/L	0.1	EPA 8260	19-Oct-08/O	< 0.1			
Vinyl Chloride	µg/L	0.2	EPA 8260	19-Oct-08/O	16.7			
Xylene, m,p-	µg/L	1.0	EPA 8260	19-Oct-08/O	< 1.0			
Xylene, o-	µg/L	0.5	EPA 8260	19-Oct-08/O	< 0.5			
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	19-Oct-08/O	106			
Toluene-d8 (SS)	%	10	EPA 8260	19-Oct-08/O	103			
Bromofluorobenzene,4(SS)	%	10	EPA 8260	19-Oct-08/O	102			

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 18302 **REPORT No. B08-34579**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 16-Oct-08
DATE REPORTED: 22-Oct-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER:
WATERWORKS NO.

	Parameter:		pH				
	Units:		pH Units				
	M.D.L.:						
	Reference Method:		EPA 150.1				
	Date/Site Analyzed:		22-Oct-08/O				
Client I.D.	**Sample I.D.**	**Date Collected**					
TP20A-S3	B08-34579-1	16-Oct-08	6.55				
TP20B-S3	B08-34579-2	16-Oct-08	7.38				
TP20C-S3	B08-34579-3	16-Oct-08	6.91				
TP20D-S3	B08-34579-4	16-Oct-08	7.04				
TP20E-S3	B08-34579-5	16-Oct-08	6.94				
TP20F-S3	B08-34579-6	16-Oct-08	7.35				
TP22A-S3	B08-34579-7	16-Oct-08	7.50				
TP22B-S3	B08-34579-8	16-Oct-08	8.38				
TP22C-S3	B08-34579-9	16-Oct-08	7.30				
TP22D-S3	B08-34579-10	16-Oct-08	7.18				
TP22E-S3	B08-34579-11	16-Oct-08	7.39				
TP22F-S3	B08-34579-12	16-Oct-08	7.13				
TP220B-S3	B08-34579-13	16-Oct-08	8.35				

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: 18267 **REPORT No. B08-35405**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 23-Oct-08
DATE REPORTED: 29-Oct-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER:
WATERWORKS NO.

	Parameter:		pH				
	Units:		pH Units				
	M.D.L.:						
	Reference Method:		EPA 150.1				
	Date/Site Analyzed:		29-Oct-08/O				
Client I.D.	**Sample I.D.**	**Date Collected**					
TP20A	B08-35405-1	16-Oct-08	8.17				
TP20B	B08-35405-2	16-Oct-08	8.98				
TP20C	B08-35405-3	16-Oct-08	8.88				
TP20D	B08-35405-4	16-Oct-08	8.70				

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: C08504

REPORT No. B08-37354

Rev. 1

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 11-Nov-08
DATE REPORTED: 14-Nov-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: Hearington Yard
P.O. NUMBER: OTEN00018293J
WATERWORKS NO.

			Client I.D.:		MW-18 SS-5 (16'-18')	MW-19 SS-5 (16'-18')		
			Sample I.D.:		B08-37354-1	B08-37354-2		
			Date Collected:		10-Nov-08	10-Nov-08		
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
pH	pH Units		EPA 150.1	14-Nov-08/O	9.38	9.41		
Benzene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Bromodichloromethane	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Bromoform	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Bromomethane	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Carbon Tetrachloride	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Chloroform	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dibromochloromethane	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dibromoethane,1,2- (Ethylene Dibromide)	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichlorobenzene,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichlorobenzene,1,3-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichlorobenzene,1,4-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethane,1,1-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethane,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethene, 1,1-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethene, cis-1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethene, trans-1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloromethane (Methylene Chloride)	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloropropane,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloropropene, cis-1,3-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloropropene, trans-1,3-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Ethylbenzene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Monochlorobenzene (Chlorobenzene)	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Naphthalene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		

Note: Revision created to correct sample ID.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: C08504

REPORT No. B08-37354

Rev. 1

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 11-Nov-08
DATE REPORTED: 14-Nov-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: Hearington Yard
P.O. NUMBER: OTEN00018293J
WATERWORKS NO.

			Client I.D.:		MW-18 SS-5 (16'-18')	MW-19 SS-5 (16'-18')		
			Sample I.D.:		B08-37354-1	B08-37354-2		
			Date Collected:		10-Nov-08	10-Nov-08		
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Styrene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Tetrachloroethane,1,1,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Tetrachloroethane,1,1,2,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Tetrachloroethylene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Toluene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Trichlorobenzene,1,2,4-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Trichloroethane,1,1,1-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Trichloroethane,1,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Trichloroethylene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Vinyl Chloride	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Xylene, m,p-	µg/g	0.002	EPA 8260	13-Nov-08/O	< 0.002	< 0.002		
Xylene, o-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	13-Nov-08/O	104	102		
Toluene-d8 (SS)	%	10	EPA 8260	13-Nov-08/O	102	102		
Bromofluorobenzene,4(SS)	%	10	EPA 8260	13-Nov-08/O	97	103		

Note: Revision created to correct sample ID.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: C08504

REPORT No. B08-37354

Rev. 2

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 11-Nov-08
DATE REPORTED: 19-Nov-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: Heatherington Yard
P.O. NUMBER: OTEN00018293J
WATERWORKS NO.

			Client I.D.:		MW-18 SS-5 (16'-18')	MW-19 SS-5 (16'-18')		
			Sample I.D.:		B08-37354-1	B08-37354-2		
			Date Collected:		10-Nov-08	10-Nov-08		
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
pH	pH Units		EPA 150.1	14-Nov-08/O	9.38	9.41		
Benzene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Bromodichloromethane	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Bromoform	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Bromomethane	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Carbon Tetrachloride	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Chloroform	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dibromochloromethane	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dibromoethane,1,2-(Ethylene Dibromide)	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichlorobenzene,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichlorobenzene,1,3-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichlorobenzene,1,4-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethane,1,1-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethane,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethene, 1,1-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethene, cis-1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethene, trans-1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloromethane (Methylene Chloride)	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloropropane,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloropropene, cis-1,3-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloropropene, trans-1,3-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Ethylbenzene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Monochlorobenzene (Chlorobenzene)	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Naphthalene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		

Note: Revision created to correct Project Name.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: C08504

REPORT No. B08-37354

Rev. 2

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 11-Nov-08
DATE REPORTED: 19-Nov-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: Heatherington Yard
P.O. NUMBER: OTEN00018293J
WATERWORKS NO.

			Client I.D.:		MW-18 SS-5 (16'-18')	MW-19 SS-5 (16'-18')		
			Sample I.D.:		B08-37354-1	B08-37354-2		
			Date Collected:		10-Nov-08	10-Nov-08		
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Styrene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Tetrachloroethane,1,1,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Tetrachloroethane,1,1,2,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Tetrachloroethylene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Toluene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Trichlorobenzene,1,2,4-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Trichloroethane,1,1,1-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Trichloroethane,1,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Trichloroethylene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Vinyl Chloride	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Xylene, m,p-	µg/g	0.002	EPA 8260	13-Nov-08/O	< 0.002	< 0.002		
Xylene, o-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	13-Nov-08/O	104	102		
Toluene-d8 (SS)	%	10	EPA 8260	13-Nov-08/O	102	102		
Bromofluorobenzene,4(SS)	%	10	EPA 8260	13-Nov-08/O	97	103		

Note: Revision created to correct Project Name.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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Final Report

C.O.C.: C08504

REPORT No. B08-37354

Rev. 2

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 11-Nov-08
DATE REPORTED: 19-Nov-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: Heatherington Yard
P.O. NUMBER: OTEN00018293J
WATERWORKS NO.

			Client I.D.:		MW-18 SS-5 (16'-18')	MW-19 SS-5 (16'-18')		
			Sample I.D.:		B08-37354-1	B08-37354-2		
			Date Collected:		10-Nov-08	10-Nov-08		
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
pH	pH Units		EPA 150.1	14-Nov-08/O	9.38	9.41		
Benzene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Bromodichloromethane	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Bromoform	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Bromomethane	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Carbon Tetrachloride	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Chloroform	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dibromochloromethane	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dibromoethane,1,2- (Ethylene Dibromide)	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichlorobenzene,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichlorobenzene,1,3-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichlorobenzene,1,4-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethane,1,1-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethane,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethene, 1,1-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethene, cis-1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethene, trans-1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloromethane (Methylene Chloride)	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloropropane,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloropropene, cis-1,3-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloropropene, trans-1,3-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Ethylbenzene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Monochlorobenzene (Chlorobenzene)	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Naphthalene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		

Note: Revision created to correct Project Name.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: C08504

REPORT No. B08-37354

Rev. 2

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 11-Nov-08
DATE REPORTED: 19-Nov-08
SAMPLE MATRIX: Solid

JOB/PROJECT NO.: Heatherington Yard
P.O. NUMBER: OTEN00018293J
WATERWORKS NO.

			Client I.D.:		MW-18 SS-5 (16'-18')	MW-19 SS-5 (16'-18')		
			Sample I.D.:		B08-37354-1	B08-37354-2		
			Date Collected:		10-Nov-08	10-Nov-08		
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Styrene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Tetrachloroethane,1,1,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Tetrachloroethane,1,1,2,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Tetrachloroethylene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Toluene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Trichlorobenzene,1,2,4-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Trichloroethane,1,1,1-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Trichloroethane,1,1,2-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Trichloroethylene	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Vinyl Chloride	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Xylene, m,p-	µg/g	0.002	EPA 8260	13-Nov-08/O	< 0.002	< 0.002		
Xylene, o-	µg/g	0.001	EPA 8260	13-Nov-08/O	< 0.001	< 0.001		
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	13-Nov-08/O	104	102		
Toluene-d8 (SS)	%	10	EPA 8260	13-Nov-08/O	102	102		
Bromofluorobenzene,4(SS)	%	10	EPA 8260	13-Nov-08/O	97	103		

Note: Revision created to correct Project Name.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: C08539 **REPORT No. B08-37764**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

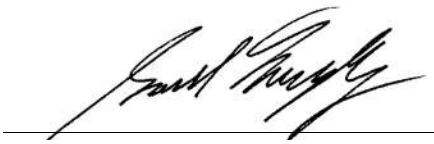
Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 14-Nov-08
DATE REPORTED: 28-Nov-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: 1770 Heatherington Ave.(OTEN00
P.O. NUMBER: Ottawa - 01906-91843-S01
WATERWORKS NO.

			Client I.D.:		MW08-1	MW08-2	MW08-3	MW08-14
			Sample I.D.:		B08-37764-1	B08-37764-2	B08-37764-3	B08-37764-4
			Date Collected:		14-Nov-08	14-Nov-08	14-Nov-08	14-Nov-08
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
pH	pH Units		EPA 150.1	17-Nov-08/O	7.03	6.75	7.21	7.71
Benzene	µg/L	0.5	EPA 8260	24-Nov-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	24-Nov-08/O	< 0.3	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	24-Nov-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	24-Nov-08/O	< 0.3	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dibromoethane,1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,2-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,3-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,4-	µg/L	0.2	EPA 8260	24-Nov-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Dichloroethane,1,1-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethane,1,2-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	18.8
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	1.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	24-Nov-08/O	< 0.3	< 0.3	< 0.3	< 0.3
Dichloropropane,1,2-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	24-Nov-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	24-Nov-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Naphthalene	µg/L	0.7	EPA 8260	24-Nov-08/O	< 0.7	< 0.7	< 0.7	< 0.7
Styrene	µg/L	0.6	EPA 8260	24-Nov-08/O	< 0.6	< 0.6	< 0.6	< 0.6

Note: Sample MW08-2 has Methyl-t-Butyl Etherat 184 µg/L.



Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: C08539 **REPORT No. B08-37764**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Bruce Campbell

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 14-Nov-08
DATE REPORTED: 28-Nov-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: 1770 Heatherington Ave.(OTEN00
P.O. NUMBER: Ottawa - 01906-91843-S01
WATERWORKS NO.

			Client I.D.:		MW08-1	MW08-2	MW08-3	MW08-14
			Sample I.D.:		B08-37764-1	B08-37764-2	B08-37764-3	B08-37764-4
			Date Collected:		14-Nov-08	14-Nov-08	14-Nov-08	14-Nov-08
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	24-Nov-08/O	< 0.4	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	24-Nov-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	24-Nov-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorobenzene,1,2,4-	µg/L	0.2	EPA 8260	24-Nov-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	24-Nov-08/O	< 0.2	< 0.2	< 0.2	6.1
Xylene, m,p-	µg/L	1.0	EPA 8260	24-Nov-08/O	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, o-	µg/L	0.5	EPA 8260	24-Nov-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	24-Nov-08/O	108	100	1000	102
Toluene-d8 (SS)	%	10	EPA 8260	24-Nov-08/O	96	93	93	107
Bromofluorobenzene,4(SS)	%	10	EPA 8260	24-Nov-08/O	101	95	100	103

Note: Sample MW08-2 has Methyl-t-Butyl Etherat 184 µg/L.

Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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Final Report

C.O.C.: C08539 **REPORT No. B08-37764**

Report To:

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Ottawa, ON, K2E 7J5
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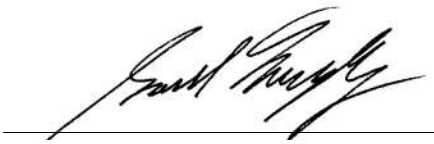
Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 14-Nov-08
DATE REPORTED: 28-Nov-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: 1770 Heatherington Ave.(OTEN00
P.O. NUMBER: Ottawa - 01906-91843-S01
WATERWORKS NO.

			Client I.D.:		MW08-17	MW18	MW19	MW190
			Sample I.D.:		B08-37764-5	B08-37764-6	B08-37764-7	B08-37764-8
			Date Collected:		14-Nov-08	14-Nov-08	14-Nov-08	14-Nov-08
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
pH	pH Units		EPA 150.1	17-Nov-08/O	7.22	7.33	7.29	7.31
Benzene	µg/L	0.5	EPA 8260	24-Nov-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	24-Nov-08/O	< 0.3	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	24-Nov-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	24-Nov-08/O	< 0.3	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dibromoethane,1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,2-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,3-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene,1,4-	µg/L	0.2	EPA 8260	24-Nov-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Dichloroethane,1,1-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethane,1,2-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	1.6	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	24-Nov-08/O	< 0.3	< 0.3	< 0.3	< 0.3
Dichloropropane,1,2-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	24-Nov-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	24-Nov-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Naphthalene	µg/L	0.7	EPA 8260	24-Nov-08/O	< 0.7	< 0.7	< 0.7	< 0.7
Styrene	µg/L	0.6	EPA 8260	24-Nov-08/O	< 0.6	< 0.6	< 0.6	< 0.6

Note: Sample MW08-2 has Methyl-t-Butyl Etherat 184 µg/L.



Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: C08539 **REPORT No. B08-37764**

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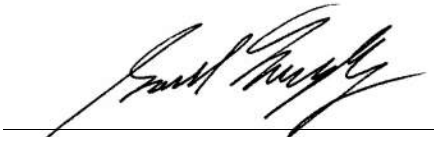
Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 14-Nov-08
DATE REPORTED: 28-Nov-08
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: 1770 Heatherington Ave.(OTEN00
P.O. NUMBER: Ottawa - 01906-91843-S01
WATERWORKS NO.

			Client I.D.:		MW08-17	MW18	MW19	MW190
			Sample I.D.:		B08-37764-5	B08-37764-6	B08-37764-7	B08-37764-8
			Date Collected:		14-Nov-08	14-Nov-08	14-Nov-08	14-Nov-08
Parameter	**Units**	**M.D.L.**	**Reference Method**	**Date/Site Analyzed**				
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	24-Nov-08/O	< 0.4	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	24-Nov-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	24-Nov-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorobenzene,1,2,4-	µg/L	0.2	EPA 8260	24-Nov-08/O	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	24-Nov-08/O	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	24-Nov-08/O	< 0.2	< 0.2	1.5	< 0.2
Xylene, m,p-	µg/L	1.0	EPA 8260	24-Nov-08/O	< 1.0	< 1.0	< 1.0	< 1.0
Xylene, o-	µg/L	0.5	EPA 8260	24-Nov-08/O	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane-d4,1,2-(SS)	%	10	EPA 8260	24-Nov-08/O	103	101	103	97
Toluene-d8 (SS)	%	10	EPA 8260	24-Nov-08/O	96	97	100	100
Bromofluorobenzene,4(SS)	%	10	EPA 8260	24-Nov-08/O	103	108	105	109

Note: Sample MW08-2 has Methyl-t-Butyl Etherat 184 µg/L.



Gord Murphy
Lab Supervisor

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

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CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: C18429 **REPORT No. B09-31678**

Report To:

Trow Consulting Engineers Ltd.
154 Colonnade Rd South
Ottawa, ON, K2E 7J5
Attention: Chris Kimmerly

Caduceon Environmental Laboratories
2378 Holly Lane
Ottawa, Ontario, K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 07-Oct-09
DATE REPORTED: 14-Oct-09
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: OTEN00018293J
P.O. NUMBER: Ottawa - 01906-91843-S01
WATERWORKS NO.

	Parameter:		Sodium	Chloride	Sodium Chloride	Nitrite (N)	
	Units:		mg/L	mg/L	%	mg/L	
	M.D.L.:		0.2	0.5	0.001	0.1	
	Reference Method:		SM 3120	EPA 300.0	SM 3120	EPA 300.0	
	Date/Site Analyzed:		10-Oct-09/O	13-Oct-09/O	14-Oct-09/O	09-Oct-09/O	
Client I.D.	Sample I.D.	Date Collected					
MW08-9	B09-31678-1	05-Oct-09	2230	5050	0.566	< 3 [1]	
MW08-19	B09-31678-2	05-Oct-09	869	1790	0.221	< 3 [1]	
MW08-18	B09-31678-3	05-Oct-09	151	222	0.038	< 0.1	
MW08-15	B09-31678-4	05-Oct-09	633	1080	0.161	< 3 [1]	
MW08-4	B09-31678-5	05-Oct-09	417	793	0.106	< 3 [1]	
MW08-5	B09-31678-6	05-Oct-09	710	1020	0.180	< 3 [1]	
MW08-13	B09-31678-7	05-Oct-09	2650	6220	0.674	< 3 [1]	
MW08-11	B09-31678-8	05-Oct-09	6480	19300	1.65	< 10 [1]	
MW08-10	B09-31678-9	05-Oct-09	2150	7050	0.547	< 3 [1]	
MW08-8	B09-31678-10	05-Oct-09	4390	12200	1.11	< 10 [1]	
MW08-150	B09-31678-11	05-Oct-09	636	1070	0.161	< 3	

1. elevated detection limit due to high chloride

Greg Clarkin , BSc., C. Chem
Lab Manager - Ottawa District

M.D.L. = Method Detection Limit
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,P-Peterborough,M-Moncton

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Certificate of Analysis

Trow Associates Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 225-9940
Fax: (613) 225-7337

Client PO: 45064625
Project: OTEN00018293J 1770 Heatherington
Custody: 76234

Report Date: 9-Sep-2010
Order Date: 30-Aug-2010
Revised Report **Order #: 1036019**

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

Paracel ID	Client ID
1036019-01	MW08-19
1036019-02	MW08-18
1036019-03	MW08-3
1036019-04	MW08-14
1036019-05	MW08-17
1036019-06	MW08-15
1036019-07	MW08-2
1036019-08	MW08-170
1036019-09	Trip Blank

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-Sep-2010

Client: **Trow Associates Inc. (Ottawa)**

Order Date:30-Aug-2010

Client PO: 45064625

Project Description: OTEN00018293J 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	31-Aug-10	2-Sep-10
CCME PHC F1 - F4	[CALC]	31-Aug-10	2-Sep-10
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	31-Aug-10	1-Sep-10
VOCs	EPA 624 - P&T GC-MS	31-Aug-10	2-Sep-10

Certificate of Analysis

Report Date: 09-Sep-2010

Client: **Trow Associates Inc. (Ottawa)**

Order Date:30-Aug-2010

Client PO: 45064625

Project Description: OTEN00018293J 1770 Heatherington

	Client ID:	MW08-19	MW08-18	MW08-3	MW08-14
	Sample Date:	30-Aug-10	30-Aug-10	30-Aug-10	30-Aug-10
	Sample ID:	1036019-01	1036019-02	1036019-03	1036019-04
	MDL/Units	Water	Water	Water	Water
Volatiles					
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.7 ug/L	<0.7	<0.7	<0.7	<0.7
Carbon Tetrachloride	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
Chloroethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloromethane	3.0 ug/L	<3.0	<3.0	<3.0	<3.0
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dibromoethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
1,3-Dichlorobenzene	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
1,4-Dichlorobenzene	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
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	0.4 ug/L	16.6	<0.4	0.7	15.8
trans-1,2-Dichloroethylene	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethylene, total	1.4 ug/L	16.8	<1.4	<1.4	16.3
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropene, total	0.9 ug/L	<0.9	<0.9	<0.9	<0.9
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Methylene Chloride	4.0 ug/L	<4.0	<4.0	<4.0	<4.0
Styrene	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.6 ug/L	<0.6	<0.6	<0.6	<0.6
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	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
1,1,2-Trichloroethane	0.6 ug/L	<0.6	<0.6	<0.6	<0.6

Certificate of Analysis

Report Date: 09-Sep-2010

Client: **Trow Associates Inc. (Ottawa)**

Order Date:30-Aug-2010

Client PO: 45064625

Project Description: OTEN00018293J 1770 Heatherington

	Client ID:	MW08-19	MW08-18	MW08-3	MW08-14
	Sample Date:	30-Aug-10	30-Aug-10	30-Aug-10	30-Aug-10
	Sample ID:	1036019-01	1036019-02	1036019-03	1036019-04
	MDL/Units	Water	Water	Water	Water
Trichloroethylene	0.4 ug/L	0.6	<0.4	<0.4	<0.4
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	0.4 ug/L	0.8	<0.4	<0.4	3.8
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	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
4-Bromofluorobenzene	Surrogate	98.7%	96.0%	97.9%	95.5%
Dibromofluoromethane	Surrogate	96.7%	96.4%	97.6%	97.2%
Toluene-d8	Surrogate	110%	111%	110%	112%

Certificate of Analysis

Report Date: 09-Sep-2010

Client: **Trow Associates Inc. (Ottawa)**

Order Date:30-Aug-2010

Client PO: 45064625

Project Description: OTEN00018293J 1770 Heatherington

	Client ID:	MW08-17	MW08-15	MW08-2	MW08-170
	Sample Date:	30-Aug-10	30-Aug-10	30-Aug-10	30-Aug-10
	Sample ID:	1036019-05	1036019-06	1036019-07	1036019-08
	MDL/Units	Water	Water	Water	Water
Volatiles					
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.7 ug/L	<0.7	<0.7	<0.7	<0.7
Carbon Tetrachloride	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
Chloroethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloromethane	3.0 ug/L	<3.0	<3.0	<3.0	<3.0
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dibromoethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
1,3-Dichlorobenzene	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
1,4-Dichlorobenzene	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
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	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
trans-1,2-Dichloroethylene	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethylene, total	1.4 ug/L	<1.4	<1.4	<1.4	<1.4
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropene, total	0.9 ug/L	<0.9	<0.9	<0.9	<0.9
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Methylene Chloride	4.0 ug/L	<4.0	<4.0	<4.0	<4.0
Styrene	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.6 ug/L	<0.6	<0.6	<0.6	<0.6
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	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
1,1,2-Trichloroethane	0.6 ug/L	<0.6	<0.6	<0.6	<0.6

Certificate of Analysis

Report Date: 09-Sep-2010

Client: **Trow Associates Inc. (Ottawa)**

Order Date:30-Aug-2010

Client PO: 45064625

Project Description: OTEN00018293J 1770 Heatherington

	Client ID:	MW08-17	MW08-15	MW08-2	MW08-170
	Sample Date:	30-Aug-10	30-Aug-10	30-Aug-10	30-Aug-10
	Sample ID:	1036019-05	1036019-06	1036019-07	1036019-08
	MDL/Units	Water	Water	Water	Water
Trichloroethylene	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	0.4 ug/L	<0.4	<0.4	<0.4	<0.4
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	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
4-Bromofluorobenzene	Surrogate	96.8%	97.9%	95.1%	98.2%
Dibromofluoromethane	Surrogate	98.1%	97.6%	97.8%	96.6%
Toluene-d8	Surrogate	113%	110%	111%	111%
Hydrocarbons					
F1 PHCs (C6-C10)	200 ug/L	-	-	<200	-
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	300 ug/L	-	-	<300	-
F3 + F4 PHCs	200 ug/L	-	-	<200	-

Certificate of Analysis

Report Date: 09-Sep-2010

Client: **Trow Associates Inc. (Ottawa)**

Order Date:30-Aug-2010

Client PO: 45064625

Project Description: OTEN00018293J 1770 Heatherington

	MDL/Units				
Client ID:		Trip Blank	-	-	-
Sample Date:		30-Aug-10	-	-	-
Sample ID:		1036019-09	-	-	-
		Water	-	-	-
Volatiles					
Benzene	0.5 ug/L	<0.5	-	-	-
Bromodichloromethane	0.4 ug/L	<0.4	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-
Bromomethane	0.7 ug/L	<0.7	-	-	-
Carbon Tetrachloride	0.5 ug/L	<0.5	-	-	-
Chlorobenzene	0.4 ug/L	<0.4	-	-	-
Chloroethane	1.0 ug/L	<1.0	-	-	-
Chloroform	0.5 ug/L	<0.5	-	-	-
Chloromethane	3.0 ug/L	<3.0	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-
1,2-Dibromoethane	1.0 ug/L	<1.0	-	-	-
1,2-Dichlorobenzene	0.4 ug/L	<0.4	-	-	-
1,3-Dichlorobenzene	0.4 ug/L	<0.4	-	-	-
1,4-Dichlorobenzene	0.4 ug/L	<0.4	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
cis-1,2-Dichloroethylene	0.4 ug/L	<0.4	-	-	-
trans-1,2-Dichloroethylene	1.0 ug/L	<1.0	-	-	-
1,2-Dichloroethylene, total	1.4 ug/L	<1.4	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-
cis-1,3-Dichloropropylene	0.4 ug/L	<0.4	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
1,3-Dichloropropene, total	0.9 ug/L	<0.9	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Methylene Chloride	4.0 ug/L	<4.0	-	-	-
Styrene	0.4 ug/L	<0.4	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2,2-Tetrachloroethane	0.6 ug/L	<0.6	-	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
1,1,1-Trichloroethane	0.4 ug/L	<0.4	-	-	-
1,1,2-Trichloroethane	0.6 ug/L	<0.6	-	-	-

Certificate of Analysis

Report Date: 09-Sep-2010

Client: **Trow Associates Inc. (Ottawa)**

Order Date:30-Aug-2010

Client PO: 45064625

Project Description: OTEN00018293J 1770 Heatherington

	Client ID:	Trip Blank	-	-	-
	Sample Date:	30-Aug-10	-	-	-
	Sample ID:	1036019-09	-	-	-
	MDL/Units	Water	-	-	-
Trichloroethylene	0.4 ug/L	<0.4	-	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	-	-	-
Vinyl chloride	0.4 ug/L	<0.4	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	1.0 ug/L	<1.0	-	-	-
4-Bromofluorobenzene	Surrogate	97.4%	-	-	-
Dibromofluoromethane	Surrogate	92.8%	-	-	-
Toluene-d8	Surrogate	111%	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	200	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						
Volatiles									
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.4	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.7	ug/L						
Carbon Tetrachloride	ND	0.5	ug/L						
Chlorobenzene	ND	0.4	ug/L						
Chloroethane	ND	1.0	ug/L						
Chloroform	ND	0.5	ug/L						
Chloromethane	ND	3.0	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
1,2-Dibromoethane	ND	1.0	ug/L						
1,2-Dichlorobenzene	ND	0.4	ug/L						
1,3-Dichlorobenzene	ND	0.4	ug/L						
1,4-Dichlorobenzene	ND	0.4	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	0.4	ug/L						
trans-1,2-Dichloroethylene	ND	1.0	ug/L						
1,2-Dichloroethylene, total	ND	1.4	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.4	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.9	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Methylene Chloride	ND	4.0	ug/L						
Styrene	ND	0.4	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.6	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.4	ug/L						
1,1,2-Trichloroethane	ND	0.6	ug/L						
Trichloroethylene	ND	0.4	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
1,3,5-Trimethylbenzene	ND	0.5	ug/L						
Vinyl chloride	ND	0.4	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	1.0	ug/L						
Surrogate: 4-Bromofluorobenzene	*78.2*		*ug/L*		*97.8*	*83-134*			
Surrogate: Dibromofluoromethane	*72.2*		*ug/L*		*90.3*	*78-124*			
Surrogate: Toluene-d8	*74.6*		*ug/L*		*93.2*	*76-118*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	200	ug/L	ND				32	
Volatiles									
Benzene	ND	0.5	ug/L	ND				20	
Bromodichloromethane	ND	0.4	ug/L	ND				25	
Bromoform	ND	0.5	ug/L	ND				25	
Bromomethane	ND	0.7	ug/L	ND				25	
Carbon Tetrachloride	ND	0.5	ug/L	ND				25	
Chlorobenzene	ND	0.4	ug/L	ND				25	
Chloroethane	ND	1.0	ug/L	ND				25	
Chloroform	ND	0.5	ug/L	ND				19	
Chloromethane	ND	3.0	ug/L	ND				25	
Dibromochloromethane	ND	0.5	ug/L	ND				25	
1,2-Dibromoethane	ND	1.0	ug/L	ND				25	
1,2-Dichlorobenzene	ND	0.4	ug/L	ND				25	
1,3-Dichlorobenzene	ND	0.4	ug/L	ND				25	
1,4-Dichlorobenzene	ND	0.4	ug/L	ND				25	
1,1-Dichloroethane	ND	0.5	ug/L	ND				21	
1,2-Dichloroethane	ND	0.5	ug/L	ND				25	
1,1-Dichloroethylene	ND	0.5	ug/L	ND				21	
cis-1,2-Dichloroethylene	16.2	0.4	ug/L	16.6			3.0	20	
trans-1,2-Dichloroethylene	ND	1.0	ug/L	ND				25	
1,2-Dichloropropane	ND	0.5	ug/L	ND				25	
cis-1,3-Dichloropropylene	ND	0.4	ug/L	ND				25	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND				25	
Ethylbenzene	ND	0.5	ug/L	ND				35	
Methylene Chloride	ND	4.0	ug/L	ND				25	
Styrene	ND	0.4	ug/L	ND				25	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND				25	
1,1,2,2-Tetrachloroethane	ND	0.6	ug/L	ND				25	
Tetrachloroethylene	ND	0.5	ug/L	ND				31	
Toluene	ND	0.5	ug/L	ND				30	
1,1,1-Trichloroethane	ND	0.4	ug/L	ND				25	
1,1,2-Trichloroethane	ND	0.6	ug/L	ND				25	
Trichloroethylene	0.55	0.4	ug/L	0.62			12.0	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND				25	
1,3,5-Trimethylbenzene	ND	0.5	ug/L	ND				20	
Vinyl chloride	0.88	0.4	ug/L	0.79			10.8	25	
m,p-Xylenes	ND	0.5	ug/L	ND				34	
o-Xylene	ND	0.5	ug/L	ND				32	
Surrogate: 4-Bromofluorobenzene	*78.5*		*ug/L*	*ND*	*98.1*	*83-134*			
Surrogate: Dibromofluoromethane	*77.9*		*ug/L*	*ND*	*97.4*	*78-124*			
Surrogate: Toluene-d8	*89.0*		*ug/L*	*ND*	*111*	*76-118*			

Certificate of Analysis

Report Date: 09-Sep-2010

Client: **Trow Associates Inc. (Ottawa)**

Order Date:30-Aug-2010

Client PO: 45064625

Project Description: OTEN00018293J 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1780	200	ug/L	ND	89.1	68-117			
F2 PHCs (C10-C16)	1390	100	ug/L	ND	86.6	61-129			
F3 PHCs (C16-C34)	3560	100	ug/L	ND	89.0	61-129			
F4 PHCs (C34-C50)	2680	100	ug/L	ND	112	61-129			
Volatiles									
Benzene	26.5	0.5	ug/L	ND	66.4	55-141			
Bromodichloromethane	26.0	0.4	ug/L	ND	65.0	52-139			
Bromoform	24.2	0.5	ug/L	ND	60.4	52-170			
Bromomethane	29.1	0.7	ug/L	ND	72.8	32-138			
Carbon Tetrachloride	36.4	0.5	ug/L	ND	91.0	49-149			
Chlorobenzene	27.4	0.4	ug/L	ND	68.4	64-137			
Chloroethane	25.5	1.0	ug/L	ND	63.8	39-152			
Chloroform	26.1	0.5	ug/L	ND	65.2	58-138			
Chloromethane	37.5	3.0	ug/L	ND	93.7	24-163			
Dibromochloromethane	25.7	0.5	ug/L	ND	64.2	61-153			
1,2-Dibromoethane	27.4	1.0	ug/L	ND	68.6	61-145			
1,2-Dichlorobenzene	25.6	0.4	ug/L	ND	63.9	60-150			
1,3-Dichlorobenzene	26.3	0.4	ug/L	ND	65.7	62-149			
1,4-Dichlorobenzene	26.8	0.4	ug/L	ND	67.0	63-132			
1,1-Dichloroethane	27.3	0.5	ug/L	ND	68.2	51-156			
1,2-Dichloroethane	27.1	0.5	ug/L	ND	67.8	50-140			
1,1-Dichloroethylene	25.9	0.5	ug/L	ND	64.7	43-153			
cis-1,2-Dichloroethylene	27.3	0.4	ug/L	ND	68.2	58-145			
trans-1,2-Dichloroethylene	34.8	1.0	ug/L	ND	86.9	51-145			
1,2-Dichloropropane	24.5	0.5	ug/L	ND	61.3	56-136			
cis-1,3-Dichloropropylene	25.0	0.4	ug/L	ND	62.5	54-141			
trans-1,3-Dichloropropylene	31.1	0.5	ug/L	ND	77.7	61-140			
Ethylbenzene	27.1	0.5	ug/L	ND	67.8	61-139			
Methylene Chloride	27.3	4.0	ug/L	ND	68.2	58-149			
Styrene	26.4	0.4	ug/L	ND	66.0	63-143			
1,1,1,2-Tetrachloroethane	29.2	0.5	ug/L	ND	73.1	61-148			
1,1,2,2-Tetrachloroethane	25.6	0.6	ug/L	ND	63.9	50-157			
Tetrachloroethylene	28.8	0.5	ug/L	ND	72.0	51-145			
Toluene	28.7	0.5	ug/L	ND	71.6	54-136			
1,1,1-Trichloroethane	26.4	0.4	ug/L	ND	66.0	55-140			
1,1,2-Trichloroethane	27.7	0.6	ug/L	ND	69.2	63-144			
Trichloroethylene	27.9	0.4	ug/L	ND	69.8	52-135			
Trichlorofluoromethane	25.0	1.0	ug/L	ND	62.5	37-155			
1,3,5-Trimethylbenzene	27.6	0.5	ug/L	ND	69.0	61-151			
Vinyl chloride	39.2	0.4	ug/L	ND	98.0	31-159			
m,p-Xylenes	53.8	0.5	ug/L	ND	67.3	61-139			
o-Xylene	26.8	0.5	ug/L	ND	66.9	60-142			
Surrogate: 4-Bromofluorobenzene	*76.3*		*ug/L*		*95.4*	*83-134*			
Surrogate: Dibromofluoromethane	*73.1*		*ug/L*		*91.4*	*78-124*			
Surrogate: Toluene-d8	*83.9*		*ug/L*		*105*	*76-118*			

Sample and QC Qualifiers Notes

None

Sample Data Revisions

None

Work Order Revisions/Comments:

Revision 1 - This report includes an updated client Project Reference.

Other Report Notes:

n/a: not applicable
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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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293JO
Custody: 0204

Report Date: 31-Jan-2012
Order Date: 26-Jan-2012
Order #: 1204178

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

Paracel ID	Client ID
1204178-01	MW08-1
1204178-02	MW08-2
1204178-03	MW08-14
1204178-04	MW08-19
1204178-05	MW08-20
1204178-06	MW08-190
1204178-07	Trip Blank
1204178-08	Field Blank

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: 31-Jan-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Jan-2012

Client PO: 45064625

Project Description: OTT00018293JO

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	29-Jan-12	31-Jan-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	27-Jan-12	27-Jan-12
VOCs	EPA 624 - P&T GC-MS	29-Jan-12	31-Jan-12

Certificate of Analysis

Report Date: 31-Jan-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Jan-2012

Client PO: 45064625

Project Description: OTT00018293JO

	Client ID:	MW08-1	MW08-2	MW08-14	MW08-19
	Sample Date:	25-Jan-12	26-Jan-12	25-Jan-12	25-Jan-12
	Sample ID:	1204178-01	1204178-02	1204178-03	1204178-04
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<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
Chloroethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloromethane	3.0 ug/L	<3.0	<3.0	<3.0	<3.0
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-Dibromoethane	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
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	29.5	20.4
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	0.7	<0.5
1,2-Dichloroethylene, total	0.5 ug/L	<0.5	<0.5	30.2	20.6
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	<0.5	<0.5
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 Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	<10.0	<10.0	<10.0
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	166	<2.0	<2.0
Methylene Chloride	5.0 ug/L	<5.0	<5.0	<5.0	<5.0

Certificate of Analysis

Report Date: 31-Jan-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Jan-2012

Client PO: 45064625

Project Description: OTT00018293JO

	Client ID:	MW08-1	MW08-2	MW08-14	MW08-19
	Sample Date:	25-Jan-12	26-Jan-12	25-Jan-12	25-Jan-12
	Sample ID:	1204178-01	1204178-02	1204178-03	1204178-04
	MDL/Units	Water	Water	Water	Water
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
1,2,4-Trichlorobenzene	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
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	0.6	1.6
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	0.5 ug/L	<0.5	<0.5	11.2	2.8
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
4-Bromofluorobenzene	Surrogate	93.5%	94.0%	95.4%	94.5%
Dibromofluoromethane	Surrogate	107%	107%	108%	106%
Toluene-d8	Surrogate	90.8%	90.2%	91.6%	89.4%
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	-
F1 + F2 PHCs	125 ug/L	<125	<125	-	-
F3 + F4 PHCs	200 ug/L	<200	<200	-	-

Certificate of Analysis

Report Date: 31-Jan-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Jan-2012

Client PO: 45064625

Project Description: OTT00018293JO

	Client ID:	MW08-20	MW08-190	Trip Blank	Field Blank
	Sample Date:	26-Jan-12	25-Jan-12	26-Jan-12	26-Jan-12
	Sample ID:	1204178-05	1204178-06	1204178-07	1204178-08
	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
Chloroethane	1.0 ug/L	-	<1.0	<1.0	<1.0
Chloroform	0.5 ug/L	-	<0.5	<0.5	<0.5
Chloromethane	3.0 ug/L	-	<3.0	<3.0	<3.0
Dibromochloromethane	0.5 ug/L	-	<0.5	<0.5	<0.5
Dichlorodifluoromethane	1.0 ug/L	-	<1.0	<1.0	<1.0
1,2-Dibromoethane	0.2 ug/L	-	<0.2	<0.2	<0.2
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	-	17.8	<0.5	<0.5
trans-1,2-Dichloroethylene	0.5 ug/L	-	<0.5	<0.5	<0.5
1,2-Dichloroethylene, total	0.5 ug/L	-	17.9	<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
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 Butyl Ketone (2-Hexanone)	10.0 ug/L	-	<10.0	<10.0	<10.0
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

Certificate of Analysis

Report Date: 31-Jan-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Jan-2012

Client PO: 45064625

Project Description: OTT00018293JO

	Client ID:	MW08-20	MW08-190	Trip Blank	Field Blank
	Sample Date:	26-Jan-12	25-Jan-12	26-Jan-12	26-Jan-12
	Sample ID:	1204178-05	1204178-06	1204178-07	1204178-08
	MDL/Units	Water	Water	Water	Water
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
1,2,4-Trichlorobenzene	0.5 ug/L	-	<0.5	<0.5	<0.5
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	-	1.5	<0.5	<0.5
Trichlorofluoromethane	1.0 ug/L	-	<1.0	<1.0	<1.0
1,3,5-Trimethylbenzene	0.5 ug/L	-	<0.5	<0.5	<0.5
Vinyl chloride	0.5 ug/L	-	2.6	<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	-	95.6%	95.0%	94.4%
Dibromofluoromethane	Surrogate	-	105%	103%	104%
Toluene-d8	Surrogate	-	89.9%	89.6%	90.5%
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	-	<25	<25
F2 PHCs (C10-C16)	100 ug/L	<100	-	<100	<100
F3 PHCs (C16-C34)	100 ug/L	<100	-	<100	<100
F4 PHCs (C34-C50)	100 ug/L	<100	-	<100	<100
F1 + F2 PHCs	125 ug/L	<125	-	-	-
F1 + F2 PHCs	125 ug/L	-	-	<125	<125
F3 + F4 PHCs	200 ug/L	<200	-	-	-
F3 + F4 PHCs	200 ug/L	-	-	<200	<200

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293JO

Report Date: 31-Jan-2012

Order Date:26-Jan-2012

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						
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						
Chloroethane	ND	1.0	ug/L						
Chloroform	ND	0.5	ug/L						
Chloromethane	ND	3.0	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dibromoethane	ND	0.2	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-Dichloroethylene, total	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						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Butyl Ketone (2-Hexanone)	ND	10.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	ND	0.5	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	*76.9*		*ug/L*		*96.1*	*50-140*			
Surrogate: Dibromofluoromethane	*82.6*		*ug/L*		*103*	*50-140*			
Surrogate: Toluene-d8	*84.6*		*ug/L*		*106*	*50-140*			

Certificate of Analysis
Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Report Date: 31-Jan-2012
Order Date:26-Jan-2012
Project Description: OTT00018293JO

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	4.43	0.5	ug/L	2.19			67.7	30	QR-05
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	
Chloroethane	ND	1.0	ug/L	ND				30	
Chloroform	6.62	0.5	ug/L	4.18			45.2	30	QR-05
Chloromethane	ND	3.0	ug/L	ND				30	
Dibromochloromethane	4.17	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dibromoethane	ND	0.2	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	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Butyl Ketone (2-Hexanone)	ND	10.0	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	
1,2,4-Trichlorobenzene	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	
1,3,5-Trimethylbenzene	ND	0.5	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	*75.8*		*ug/L*	*ND*	*94.8*	*50-140*			
Surrogate: Dibromofluoromethane	*85.9*		*ug/L*	*ND*	*107*	*50-140*			
Surrogate: Toluene-d8	*83.5*		*ug/L*	*ND*	*104*	*50-140*			

Certificate of Analysis
Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Report Date: 31-Jan-2012
Order Date:26-Jan-2012

Project Description: OTT00018293JO

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1860	25	ug/L	ND	92.9	68-117			
F2 PHCs (C10-C16)	1430	100	ug/L	ND	89.1	60-140			
F3 PHCs (C16-C34)	3640	100	ug/L	ND	91.1	60-140			
F4 PHCs (C34-C50)	2470	100	ug/L	ND	103	60-140			
Volatiles									
Acetone	79.6	5.0	ug/L	ND	79.6	50-140			
Benzene	38.2	0.5	ug/L	ND	95.4	60-130			
Bromodichloromethane	37.4	0.5	ug/L	ND	93.6	60-130			
Bromoform	40.2	0.5	ug/L	ND	100	60-130			
Bromomethane	46.4	0.5	ug/L	ND	116	50-140			
Carbon Tetrachloride	39.7	0.2	ug/L	ND	99.3	60-130			
Chlorobenzene	37.8	0.5	ug/L	ND	94.4	60-130			
Chloroethane	40.6	1.0	ug/L	ND	101	50-140			
Chloroform	37.3	0.5	ug/L	ND	93.2	60-130			
Chloromethane	34.2	3.0	ug/L	ND	85.6	50-140			
Dibromochloromethane	42.7	0.5	ug/L	ND	107	60-130			
Dichlorodifluoromethane	40.5	1.0	ug/L	ND	101	50-140			
1,2-Dibromoethane	39.7	0.2	ug/L	ND	99.2	60-130			
1,2-Dichlorobenzene	39.0	0.5	ug/L	ND	97.4	60-130			
1,3-Dichlorobenzene	41.8	0.5	ug/L	ND	104	60-130			
1,4-Dichlorobenzene	39.7	0.5	ug/L	ND	99.3	60-130			
1,1-Dichloroethane	34.2	0.5	ug/L	ND	85.4	60-130			
1,2-Dichloroethane	44.1	0.5	ug/L	ND	110	60-130			
1,1-Dichloroethylene	35.1	0.5	ug/L	ND	87.7	60-130			
cis-1,2-Dichloroethylene	33.2	0.5	ug/L	ND	83.0	60-130			
trans-1,2-Dichloroethylene	32.7	0.5	ug/L	ND	81.8	60-130			
1,2-Dichloropropane	33.4	0.5	ug/L	ND	83.6	60-130			
cis-1,3-Dichloropropylene	38.1	0.5	ug/L	ND	95.2	60-130			
trans-1,3-Dichloropropylene	33.2	0.5	ug/L	ND	82.9	60-130			
Ethylbenzene	39.8	0.5	ug/L	ND	99.4	60-130			
Hexane	35.9	1.0	ug/L	ND	89.7	60-130			
Methyl Ethyl Ketone (2-Butanone)	75.7	5.0	ug/L	ND	75.7	50-140			
Methyl Butyl Ketone (2-Hexanone)	79.3	10.0	ug/L	ND	79.3	50-140			
Methyl Isobutyl Ketone	85.2	5.0	ug/L	ND	85.2	50-140			
Methyl tert-butyl ether	99.0	2.0	ug/L	ND	99.0	50-140			
Methylene Chloride	27.1	5.0	ug/L	ND	67.8	60-130			
Styrene	37.3	0.5	ug/L	ND	93.3	60-130			
1,1,1,2-Tetrachloroethane	43.5	0.5	ug/L	ND	109	60-130			
1,1,2,2-Tetrachloroethane	36.6	0.5	ug/L	ND	91.5	60-130			
Tetrachloroethylene	41.4	0.5	ug/L	ND	103	60-130			
Toluene	41.4	0.5	ug/L	ND	104	60-130			
1,2,4-Trichlorobenzene	26.9	0.5	ug/L	ND	67.2	60-130			
1,1,1-Trichloroethane	38.5	0.5	ug/L	ND	96.2	60-130			
1,1,2-Trichloroethane	35.9	0.5	ug/L	ND	89.6	60-130			
Trichloroethylene	39.8	0.5	ug/L	ND	99.5	60-130			
Trichlorofluoromethane	42.2	1.0	ug/L	ND	106	60-130			
1,3,5-Trimethylbenzene	40.5	0.5	ug/L	ND	101	60-130			
Vinyl chloride	39.8	0.5	ug/L	ND	99.5	50-140			
m,p-Xylenes	79.7	0.5	ug/L	ND	99.6	60-130			

Certificate of Analysis

Report Date: 31-Jan-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Jan-2012

Client PO: 45064625

Project Description: OTT00018293JO

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	44.8	0.5	ug/L	ND	112	60-130			
Surrogate: 4-Bromofluorobenzene	*83.4*		*ug/L*		*104*	*50-140*			

Certificate of Analysis

Report Date: 31-Jan-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Jan-2012

Client PO: 45064625 Project Description: OTT00018293JO

Sample and QC Qualifiers Notes

1- QR-05 : Duplicate RPDs higher than normally accepted. Remaing batch QA\QC was acceptable. May be sample effect.

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable

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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Chain of Custody
(Lab Use Only)
№ 0204

Page 1 of 1

Client Name: EXP
Contact Name: Chris Kimmerly
Address: 2650 Queensview Drive.
Telephone: 613-688-1899

Project Reference: OTT-00018293-J0.
Quote #: City of Ottawa
PO #: 01910-91843-501
Email Address: Chris.kimmerly@exp.com

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

Criteria: [ ] O. Reg. 153/04 Table _ [X] O. Reg. 153/11 (Current) 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: 1204178

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analyses: PHC (F1-F4)	Required Analyses: VOC
1	MW08-1 AWC596	GW		3	25 Jan 12		X	X
2	MW08-2 AWC597	↓		↓	26 Jan 12		X	X
3	MW08-14 AWC598			2	25 Jan 12			X
4	MW08-19 AWC599			↓	↓			X
5	MW08-20 AWC600				26 Jan 12		X	
6	MW08-190 AWC601	↓		↓	25 Jan 12			X
7	Trip blank AWC602	O		3	24 Jan 12		X	X
8	Field blank AWC603	↓		↓	26 Jan 12		X	X
9								
10								

Comments: City of Ottawa Job See Standing offer no. above.

Method of Delivery: Walk-in

Relinquished By (Print & Sign): DARRAGH KILROY
Date/Time: 26 Jan 12 11:01 am

Received by Driver/Depot:
Date/Time:
Temperature: _____ °C

Received at Lab:
Date/Time: Jan 26/12 11:02a
Temperature: 5.8 °C

Verified By: MC
Date/Time: Jan 26/12 11:32
pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J0/ 1770 Heatherington
Custody: 1974/5

Report Date: 1-May-2012
Order Date: 18-Apr-2012
Order #: 1216186

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

Paracel ID	Client ID
1216186-01	MW08-3-A1
1216186-02	MW08-3-B2
1216186-03	MW08-3-C1
1216186-05	MW08-8-A2
1216186-06	MW08-8-B1
1216186-07	MW08-8-C2
1216186-08	MW08-8-D1
1216186-09	TP08-1-A1
1216186-10	TP08-1-B1
1216186-11	TP08-1-C1
1216186-12	TP08-1-D2
1216186-13	TP08-15-A1
1216186-14	TP08-15-B1
1216186-15	TP08-15-C1
1216186-16	TP08-1-D20

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: 01-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	24-Apr-12	25-Apr-12
Metals	EPA 6020 - Digestion - ICP-MS	1-May-12	1-May-12
PAHs by GC-MS, standard scan	EPA 8270 - GC-MS, extraction	20-Apr-12	27-Apr-12
Solids, %	Gravimetric, calculation	24-Apr-12	24-Apr-12

Certificate of Analysis

Report Date: 01-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

	Client ID:	MW08-3-A1	MW08-3-B2	MW08-3-C1	MW08-8-A2
	Sample Date:	17-Apr-12	17-Apr-12	17-Apr-12	17-Apr-12
	Sample ID:	1216186-01	1216186-02	1216186-03	1216186-05
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	86.5	77.2	81.3	70.2
Metals					
Cobalt	1 ug/g dry	-	-	-	14
Vanadium	10 ug/g dry	-	-	-	70
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	0.31	-
Acenaphthylene	0.02 ug/g dry	0.03	<0.02	0.04	-
Anthracene	0.02 ug/g dry	0.04	<0.02	0.89	-
Benzo [a] anthracene	0.02 ug/g dry	0.08	<0.02	0.79	-
Benzo [a] pyrene	0.02 ug/g dry	0.07	<0.02	0.59	-
Benzo [b] fluoranthene	0.02 ug/g dry	0.10	<0.02	0.90	-
Benzo [g,h,i] perylene	0.02 ug/g dry	0.05	<0.02	0.34	-
Benzo [k] fluoranthene	0.02 ug/g dry	0.08	<0.02	0.60	-
Biphenyl	0.02 ug/g dry	<0.02	<0.02	0.06	-
Chrysene	0.02 ug/g dry	0.09	<0.02	0.77	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	0.13	-
Fluoranthene	0.02 ug/g dry	0.17	<0.02	2.07	-
Fluorene	0.02 ug/g dry	<0.02	<0.02	0.57	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.05	<0.02	0.33	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	0.17	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	0.27	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	0.44	-
Naphthalene	0.01 ug/g dry	<0.01	<0.01	0.73	-
Phenanthrene	0.02 ug/g dry	0.09	<0.02	2.60	-
Pyrene	0.02 ug/g dry	0.15	<0.02	1.60	-
2-Fluorobiphenyl	Surrogate	85.9%	80.6%	88.4%	-
Terphenyl-d14	Surrogate	89.5%	84.5%	88.4%	-

Certificate of Analysis

Report Date: 01-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

	Client ID:	MW08-8-B1	MW08-8-C2	MW08-8-D1	TP08-1-A1
	Sample Date:	17-Apr-12	17-Apr-12	17-Apr-12	17-Apr-12
	Sample ID:	1216186-06	1216186-07	1216186-08	1216186-09
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	79.4	68.0	92.2	80.6
Metals					
Cobalt	1 ug/g dry	6	20	9	-
Vanadium	10 ug/g dry	36	93	21	-
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
Biphenyl	0.02 ug/g dry	-	-	-	<0.02
Chrysene	0.02 ug/g dry	-	-	-	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	-	-	<0.02
Fluoranthene	0.02 ug/g dry	-	-	-	<0.02
Fluorene	0.02 ug/g dry	-	-	-	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	-	-	<0.02
1-Methylnaphthalene	0.02 ug/g dry	-	-	-	<0.02
2-Methylnaphthalene	0.02 ug/g dry	-	-	-	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	-	-	-	<0.04
Naphthalene	0.01 ug/g dry	-	-	-	<0.01
Phenanthrene	0.02 ug/g dry	-	-	-	<0.02
Pyrene	0.02 ug/g dry	-	-	-	<0.02
2-Fluorobiphenyl	Surrogate	-	-	-	55.8%
Terphenyl-d14	Surrogate	-	-	-	51.6%

Certificate of Analysis

Report Date: 01-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

	Client ID:	TP08-1-B1	TP08-1-C1	TP08-1-D2	TP08-15-A1
	Sample Date:	17-Apr-12	17-Apr-12	17-Apr-12	17-Apr-12
	Sample ID:	1216186-10	1216186-11	1216186-12	1216186-13
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	76.6	72.8	79.3	96.3
Hydrocarbons					
F2 PHCs (C10-C16)	4 ug/g dry	-	-	-	1740
F3 PHCs (C16-C34)	8 ug/g dry	-	-	-	668
F4 PHCs (C34-C50)	6 ug/g dry	-	-	-	1410
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.04 [1]
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.04 [1]
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.04 [1]
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	0.07	<0.04 [1]
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	0.05	<0.04 [1]
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.08	<0.04 [1]
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	0.03	<0.04 [1]
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.05	<0.04 [1]
Biphenyl	0.02 ug/g dry	<0.02	<0.02	<0.02	1.54
Chrysene	0.02 ug/g dry	<0.02	<0.02	0.06	<0.04 [1]
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.04 [1]
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.12	0.04
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	1.17
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	0.03	<0.04 [1]
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	8.81
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	12.6
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	21.4
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	2.13
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	0.02	0.64
Pyrene	0.02 ug/g dry	<0.02	<0.02	0.10	0.06
2-Fluorobiphenyl	Surrogate	70.8%	70.1%	85.7%	118%
Terphenyl-d14	Surrogate	71.3%	72.6%	92.8%	83.0%

Certificate of Analysis

Report Date: 01-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

	Client ID:	TP08-15-B1	TP08-15-C1	TP08-1-D20	-
	Sample Date:	17-Apr-12	17-Apr-12	17-Apr-12	-
	Sample ID:	1216186-14	1216186-15	1216186-16	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	92.6	89.4	80.3	-
Hydrocarbons					
F2 PHCs (C10-C16)	4 ug/g dry	61	18	-	-
F3 PHCs (C16-C34)	8 ug/g dry	253	163	-	-
F4 PHCs (C34-C50)	6 ug/g dry	191	353	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.04 [1]	0.02	<0.02	-
Acenaphthylene	0.02 ug/g dry	<0.04 [1]	0.09	<0.02	-
Anthracene	0.02 ug/g dry	<0.04 [1]	0.09	<0.02	-
Benzo [a] anthracene	0.02 ug/g dry	<0.04 [1]	0.11	<0.02	-
Benzo [a] pyrene	0.02 ug/g dry	<0.04	0.14	<0.02	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.04 [1]	0.22	<0.02	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.04	0.08	<0.02	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.04 [1]	0.13	<0.02	-
Biphenyl	0.02 ug/g dry	0.43	<0.02	<0.02	-
Chrysene	0.02 ug/g dry	<0.04 [1]	0.15	<0.02	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.04 [1]	0.02	<0.02	-
Fluoranthene	0.02 ug/g dry	0.07	0.28	<0.02	-
Fluorene	0.02 ug/g dry	0.40	0.04	<0.02	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.04 [1]	0.07	<0.02	-
1-Methylnaphthalene	0.02 ug/g dry	3.63	0.02	<0.02	-
2-Methylnaphthalene	0.02 ug/g dry	4.71	0.03	<0.02	-
Methylnaphthalene (1&2)	0.04 ug/g dry	8.35	0.05	<0.04	-
Naphthalene	0.01 ug/g dry	1.09	0.04	<0.01	-
Phenanthrene	0.02 ug/g dry	0.42	0.17	<0.02	-
Pyrene	0.02 ug/g dry	0.09	0.25	<0.02	-
2-Fluorobiphenyl	Surrogate	112%	86.1%	73.5%	-
Terphenyl-d14	Surrogate	103%	86.0%	93.4%	-

Certificate of Analysis

Report Date: 01-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Cobalt	ND	1	ug/g						
Vanadium	ND	10	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						
Biphenyl	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.09*		*ug/g*		*81.5*	*50-140*			
Surrogate: Terphenyl-d14	*1.30*		*ug/g*		*97.5*	*50-140*			

Certificate of Analysis

Report Date: 01-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F2 PHCs (C10-C16)	1950	40	ug/g dry	1740			10.9	30	
F3 PHCs (C16-C34)	803	80	ug/g dry	668			18.4	30	
F4 PHCs (C34-C50)	1810	60	ug/g dry	1410			24.3	30	
Metals									
Cobalt	4.2	1	ug/g dry	4.3			4.1	30	
Vanadium	14.2	10	ug/g dry	14.7			3.7	30	
Physical Characteristics									
% Solids	83.3	0.1	% by Wt.	83.0			0.4	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND			0.0	40	
Acenaphthylene	0.022	0.02	ug/g dry	0.026			14.6	40	
Anthracene	0.104	0.02	ug/g dry	0.038			93.1	40	QR-01
Benzo [a] anthracene	0.085	0.02	ug/g dry	0.081			4.7	40	
Benzo [a] pyrene	0.072	0.02	ug/g dry	0.067			7.8	40	
Benzo [b] fluoranthene	0.117	0.02	ug/g dry	0.102			13.7	40	
Benzo [g,h,i] perylene	0.055	0.02	ug/g dry	0.053			2.7	40	
Benzo [k] fluoranthene	0.093	0.02	ug/g dry	0.077			19.4	40	
Biphenyl	ND	0.02	ug/g dry	ND				40	
Chrysene	0.095	0.02	ug/g dry	0.088			7.5	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND			0.0	40	
Fluoranthene	0.186	0.02	ug/g dry	0.166			11.0	40	
Fluorene	ND	0.02	ug/g dry	ND			0.0	40	
Indeno [1,2,3-cd] pyrene	0.049	0.02	ug/g dry	0.048			2.2	40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND			0.0	40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND			0.0	40	
Naphthalene	ND	0.01	ug/g dry	ND			0.0	40	
Phenanthrene	0.095	0.02	ug/g dry	0.086			10.2	40	
Pyrene	0.166	0.02	ug/g dry	0.149			10.8	40	
Surrogate: 2-Fluorobiphenyl	*1.61*		*ug/g dry*	*ND*	*105*	*50-140*			
Surrogate: Terphenyl-d14	*1.66*		*ug/g dry*	*ND*	*108*	*50-140*			

Certificate of Analysis

Report Date: 01-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F2 PHCs (C10-C16)	132	4	ug/g	61	81.7	60-140			
F3 PHCs (C16-C34)	443	8	ug/g	253	88.0	60-140			
F4 PHCs (C34-C50)	311	6	ug/g	191	92.3	60-140			
Metals									
Cobalt	44.5		ug/L	1.7	85.5	70-130			
Vanadium	48.6		ug/L	5.9	85.5	70-130			
Semi-Volatiles									
Acenaphthene	0.172	0.02	ug/g	ND	79.7	50-140			
Acenaphthylene	0.172	0.02	ug/g	ND	79.5	50-140			
Anthracene	0.183	0.02	ug/g	ND	84.7	50-140			
Benzo [a] anthracene	0.184	0.02	ug/g	ND	85.1	50-140			
Benzo [a] pyrene	0.167	0.02	ug/g	ND	77.3	50-140			
Benzo [b] fluoranthene	0.192	0.02	ug/g	ND	89.1	50-140			
Benzo [g,h,i] perylene	0.180	0.02	ug/g	ND	83.4	50-140			
Benzo [k] fluoranthene	0.245	0.02	ug/g	ND	113	50-140			
Biphenyl	0.146	0.02	ug/g	ND	67.7	50-140			
Chrysene	0.201	0.02	ug/g	ND	93.1	50-140			
Dibenzo [a,h] anthracene	0.158	0.02	ug/g	ND	73.0	50-140			
Fluoranthene	0.237	0.02	ug/g	ND	110	50-140			
Fluorene	0.171	0.02	ug/g	ND	79.0	50-140			
Indeno [1,2,3-cd] pyrene	0.168	0.02	ug/g	ND	77.7	50-140			
1-Methylnaphthalene	0.157	0.02	ug/g	ND	72.5	50-140			
2-Methylnaphthalene	0.144	0.02	ug/g	ND	66.7	50-140			
Naphthalene	0.156	0.01	ug/g	ND	72.3	50-140			
Phenanthrene	0.216	0.02	ug/g	ND	100	50-140			
Pyrene	0.239	0.02	ug/g	ND	110	50-140			
Surrogate: 2-Fluorobiphenyl	*1.39*		*ug/g*		*80.6*	*50-140*			

Certificate of Analysis

Report Date: 01-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625 Project Description: OTT00018293J0/ 1770 Heatherington

Sample and QC Qualifiers Notes

1- GEN07 : Elevated detection limit because of dilution required due to high target analyte concentration.

3- 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

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.

Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

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

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J0/ 1770 Heatherington
Custody: 1975

Report Date: 25-Apr-2012
Order Date: 18-Apr-2012
Order #: 1216187

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

Paracel ID	Client ID
1216187-01	MW08-9
1216187-02	MW08-13
1216187-03	MW08-15
1216187-04	MW08-150

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: 25-Apr-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	20-Apr-12	22-Apr-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	24-Apr-12	24-Apr-12

Certificate of Analysis

Report Date: 25-Apr-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

	Client ID:	MW08-9	MW08-13	MW08-15	MW08-150
	Sample Date:	17-Apr-12	17-Apr-12	17-Apr-12	17-Apr-12
	Sample ID:	1216187-01	1216187-02	1216187-03	1216187-04
	MDL/Units	Water	Water	Water	Water
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

Certificate of Analysis

Report Date: 25-Apr-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

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						

Certificate of Analysis

Report Date: 25-Apr-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

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	

Certificate of Analysis

Report Date: 25-Apr-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1950	25	ug/L	ND	97.6	68-117			
F2 PHCs (C10-C16)	1540	100	ug/L	ND	96.2	60-140			
F3 PHCs (C16-C34)	3350	100	ug/L	ND	83.8	60-140			
F4 PHCs (C34-C50)	2230	100	ug/L	ND	92.7	60-140			

Certificate of Analysis

Report Date: 25-Apr-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

Sample and QC Qualifiers Notes

None

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable

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 2 of 2

Client Name: EXP SERVICES	Project Reference: OTT-00018293-51	TAT: [X] Regular [ ] 3 Day
Contact Name: CHRIS KIMMERLY	Quote #	[ ] 2 Day [ ] 1 Day
Address: QUEENSVIEW DRIVE.	PO # RFSO # 01910-91843-501	Date Required:
Telephone:	Email Address:	

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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:
1216186 - soil
1216187 - water

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PAH	PHC (F1-F4)	VOC									
1	TP08-1-C1		S		1	17 Apr 12		X					120 ml						
2	TP08-1-D2				1			X					"						
3	TP08-15-A1				2			X	X				~~250ml~~ 3x120ml						
4	TP08-15-B1				2			X	X				250ml + 120ml						
5	TP08-15-C1				2			X	X				2x 120ml						
6	TP08-1-D20				1			X					120ml						
7	MW08-9	AWP037	GW		3				X										
8	MW08-13	AWP038							X										
9	MW08-15	AWP039							X										
10	MW08-15D	AWP040							X										

Comments:
City of Ottawa See RFSO above

Method of Delivery:
Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
DANRAGHI LALROY	Kevin Wiggins	MC	MC
Date/Time: 18th April 2012 1:20pm	Date/Time: 04/18/12 1:19	Date/Time: Apr 18/12 4:30	Date/Time: Apr 19/12 12:40
	Temperature: 7.3 °C	Temperature: 5.3 °C	pH Verified [X] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J1/1770 Hetherington
Custody: 2214

Report Date: 25-Apr-2012
Order Date: 20-Apr-2012
Order #: 1216263

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

Paracel ID	Client ID
1216263-01	MW08-3-A2
1216263-02	MW08-3-B1
1216263-03	MW08-3-C2
1216263-04	MW08-3-D2

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: 25-Apr-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:20-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J1/1770 Hetherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PAHs by GC-MS, standard scan	EPA 8270 - GC-MS, extraction	24-Apr-12	25-Apr-12
Solids, %	Gravimetric, calculation	24-Apr-12	24-Apr-12

Certificate of Analysis

Report Date: 25-Apr-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:20-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J1/1770 Hetherington

	Client ID:	MW08-3-A2	MW08-3-B1	MW08-3-C2	MW08-3-D2
	Sample Date:	17-Apr-12	17-Apr-12	17-Apr-12	17-Apr-12
	Sample ID:	1216263-01	1216263-02	1216263-03	1216263-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	76.7	86.2	78.2	79.5
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	0.04	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	0.03	<0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	0.05	<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	0.03	<0.02	<0.02
Biphenyl	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	0.04	<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	0.08	<0.02	<0.02
Fluorene	0.02 ug/g dry	<0.02	<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
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	0.04	<0.02	<0.02
Pyrene	0.02 ug/g dry	<0.02	0.07	<0.02	<0.02
2-Fluorobiphenyl	Surrogate	87.4%	67.2%	72.1%	67.8%
Terphenyl-d14	Surrogate	109%	72.7%	72.2%	64.4%

Certificate of Analysis
Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Report Date: 25-Apr-2012
Order Date:20-Apr-2012
Project Description: OTT00018293J1/1770 Hetherington

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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						
Biphenyl	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.08*		*ug/g*		*81.1*	*50-140*			
Surrogate: Terphenyl-d14	*1.15*		*ug/g*		*86.0*	*50-140*			

Certificate of Analysis

Report Date: 25-Apr-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:20-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J1/1770 Hetherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Physical Characteristics									
% Solids	83.3	0.1	% by Wt.	83.0			0.4	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	
Biphenyl	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	*1.14*		*ug/g dry*	*ND*	*70.7*	*50-140*			
Surrogate: Terphenyl-d14	*1.02*		*ug/g dry*	*ND*	*63.4*	*50-140*			

Certificate of Analysis
Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Report Date: 25-Apr-2012
Order Date:20-Apr-2012
Project Description: OTT00018293J1/1770 Hetherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Semi-Volatiles									
Acenaphthene	0.155	0.02	ug/g	ND	80.6	50-140			
Acenaphthylene	0.169	0.02	ug/g	ND	87.6	50-140			
Anthracene	0.151	0.02	ug/g	ND	78.5	50-140			
Benzo [a] anthracene	0.149	0.02	ug/g	ND	77.2	50-140			
Benzo [a] pyrene	0.178	0.02	ug/g	ND	92.3	50-140			
Benzo [b] fluoranthene	0.139	0.02	ug/g	ND	72.3	50-140			
Benzo [g,h,i] perylene	0.127	0.02	ug/g	ND	65.7	50-140			
Benzo [k] fluoranthene	0.208	0.02	ug/g	ND	108	50-140			
Biphenyl	0.145	0.02	ug/g	ND	75.0	50-140			
Chrysene	0.169	0.02	ug/g	ND	87.6	50-140			
Dibenzo [a,h] anthracene	0.114	0.02	ug/g	ND	59.1	50-140			
Fluoranthene	0.155	0.02	ug/g	ND	80.3	50-140			
Fluorene	0.152	0.02	ug/g	ND	79.1	50-140			
Indeno [1,2,3-cd] pyrene	0.121	0.02	ug/g	ND	62.8	50-140			
1-Methylnaphthalene	0.151	0.02	ug/g	ND	78.2	50-140			
2-Methylnaphthalene	0.152	0.02	ug/g	ND	78.9	50-140			
Naphthalene	0.145	0.01	ug/g	ND	75.3	50-140			
Phenanthrene	0.146	0.02	ug/g	ND	75.6	50-140			
Pyrene	0.164	0.02	ug/g	ND	85.2	50-140			
Surrogate: 2-Fluorobiphenyl	*0.971*		*ug/g*		*63.0*	*50-140*			

Certificate of Analysis

Report Date: 25-Apr-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:20-Apr-2012

Client PO: 45064625

Project Description: OTT00018293J1/1770 Hetherington

Sample and QC Qualifiers Notes

None

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable
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
(Lab Use Only)
Nº 2214

Page 1 of 1

Client Name: EXP services	Project Reference: OTT-00018293-J1	TAT: [✓] Regular [ ] 3 Day [ ] 2 Day [ ] 1 Day
Contact Name: Chris Kinnerty	Quote #	
Address: Queensview Dr.	PO # RFSO # 0910-91843-501	Date Required:
Telephone:	Email Address:	

Criteria: [ ] O. Reg. 153/04 Table _ [✓] O. Reg. 153/11 (Current) 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: 1216263

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analyses: PAH
1	MW08-3-A2 PWP083	S		1	17.Apr.2012		X
2	MW08-3-B1 PWP084	S		1			X
3	MW08-3-C2 PWP085	S		1			X
4	MW08-3-D2 PWP086	S		1			X
5							
6							
7							
8							
9							
10							

250ml

Comments: City of Ottawa. See RFSO above

Method of Delivery:

Relinquished By (Print & Sign): Alex Roblin	Received by Driver/Depot: M. Elouse	Received at Lab:	Verified By:
Date/Time: 20.April.2012	Date/Time: 20/04/12 9:22am	Date/Time: 20 Apr 12 10:24a	Date/Time: Apr 20/12
	Temperature: ____ °C	Temperature: 3.8 °C	pH Verified [ ] By: NH

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J0/ 1770 Heatherington
Custody: 3306

Report Date: 10-May-2012
Order Date: 9-May-2012
Order #: 1219153

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

Paracel ID	Client ID
1219153-01	NW 2-2
1219153-02	NW 4-3
1219153-03	NW 8-2

Approved By:

Dale Robertson, BSc
Laboratory Director

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

Certificate of Analysis

Report Date: 10-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:9-May-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX	EPA 8260 - P&T GC-MS	9-May-12	10-May-12
CCME PHC F1	CWS Tier 1 - P&T GC-FID	9-May-12	10-May-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	10-May-12	10-May-12
Solids, %	Gravimetric, calculation	9-May-12	10-May-12
VOCs	EPA 8260 - P&T GC-MS	9-May-12	10-May-12

Certificate of Analysis

Report Date: 10-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:9-May-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

	Client ID:	NW 2-2	NW 4-3	NW 8-2	-
	Sample Date:	09-May-12	09-May-12	09-May-12	-
	Sample ID:	1219153-01	1219153-02	1219153-03	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	68.4	69.4	65.6	-
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	-
Chloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	-	<0.05	<0.05	-
Chloromethane	0.20 ug/g dry	-	<0.20	<0.20	-
Dibromochloromethane	0.05 ug/g dry	-	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,2-Dibromoethane	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-Dichloroethylene, total	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	-
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 Butyl Ketone (2-Hexanone)	2.00 ug/g dry	-	<2.00	<2.00	-
Methyl Isobutyl Ketone	0.50 ug/g dry	-	<0.50	<0.50	-

Certificate of Analysis

Report Date: 10-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:9-May-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

	Client ID:	NW 2-2	NW 4-3	NW 8-2	-
	Sample Date:	09-May-12	09-May-12	09-May-12	-
	Sample ID:	1219153-01	1219153-02	1219153-03	-
	MDL/Units	Soil	Soil	Soil	-
Methyl tert-butyl ether	0.05 ug/g dry	-	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	-	<0.05	<0.05	-
Styrene	0.05 ug/g dry	-	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
Toluene	0.05 ug/g dry	-	<0.05	<0.05	-
1,2,4-Trichlorobenzene	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	-
1,3,5-Trimethylbenzene	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	-	86.9%	87.5%	-
Dibromofluoromethane	Surrogate	-	105%	105%	-
Toluene-d8	Surrogate	-	107%	104%	-
Benzene	0.02 ug/g dry	<0.02	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Toluene	0.05 ug/g dry	<0.05	-	-	-
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	-	-	-
Toluene-d8	Surrogate	109%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	107	99	-
F2 PHCs (C10-C16)	4 ug/g dry	53	1090	1530	-
F3 PHCs (C16-C34)	8 ug/g dry	38	709	941	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	-

Certificate of Analysis

Report Date: 10-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:9-May-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

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						
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						
Chloroethane	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Chloromethane	ND	0.20	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dibromoethane	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-Dichloroethylene, total	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						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	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	*7.22*		*ug/g*		*90.2*	*50-140*			
Surrogate: Dibromofluoromethane	*7.89*		*ug/g*		*98.6*	*50-140*			
Surrogate: Toluene-d8	*8.97*		*ug/g*		*112*	*50-140*			
Benzene	ND	0.02	ug/g						

Certificate of Analysis

Report Date: 10-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:9-May-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	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: Toluene-d8	*8.97*		*ug/g*		*112*	*50-140*			

Certificate of Analysis

Report Date: 10-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:9-May-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	40	7	ug/g dry	37			7.6	40	
F2 PHCs (C10-C16)	91	4	ug/g dry	53			53.1	30	QR-04
F3 PHCs (C16-C34)	55	8	ug/g dry	38			36.7	30	QR-04
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	81.4	0.1	% by Wt.	81.7			0.4	25	
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	
Chloroethane	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Chloromethane	ND	0.20	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-Dibromoethane	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	
Hexane	ND	0.05	ug/g dry	ND				50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND				50	
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
1,2,4-Trichlorobenzene	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	
1,3,5-Trimethylbenzene	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	*8.98*		*ug/g dry*	*ND*	*94.1*	*50-140*			
Surrogate: Dibromofluoromethane	*9.50*		*ug/g dry*	*ND*	*99.6*	*50-140*			
Surrogate: Toluene-d8	*9.56*		*ug/g dry*	*ND*	*100*	*50-140*			

Certificate of Analysis

Report Date: 10-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:9-May-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzene	ND	0.02	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	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: Toluene-d8	*9.56*		*ug/g dry*	*ND*	*100*	*50-140*			

Certificate of Analysis

Report Date: 10-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:9-May-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	179	7	ug/g	ND	89.4	80-120			
F2 PHCs (C10-C16)	199	4	ug/g	53	125	60-140			
F3 PHCs (C16-C34)	353	8	ug/g	38	108	60-140			
F4 PHCs (C34-C50)	164	6	ug/g	ND	93.3	60-140			
Volatiles									
Acetone	11.7	0.50	ug/g	ND	117	50-140			
Benzene	4.01	0.02	ug/g	ND	100	60-130			
Bromodichloromethane	3.97	0.05	ug/g	ND	99.3	60-130			
Bromoform	3.87	0.05	ug/g	ND	96.9	60-130			
Bromomethane	3.65	0.05	ug/g	ND	91.2	50-140			
Carbon Tetrachloride	4.18	0.05	ug/g	ND	104	60-130			
Chlorobenzene	3.38	0.05	ug/g	ND	84.4	60-130			
Chloroethane	4.61	0.05	ug/g	ND	115	50-140			
Chloroform	4.02	0.05	ug/g	ND	101	60-130			
Chloromethane	3.12	0.20	ug/g	ND	78.0	50-140			
Dibromochloromethane	3.81	0.05	ug/g	ND	95.2	60-130			
Dichlorodifluoromethane	3.80	0.05	ug/g	ND	94.9	50-140			
1,2-Dibromoethane	3.71	0.05	ug/g	ND	92.8	60-130			
1,2-Dichlorobenzene	3.60	0.05	ug/g	ND	90.1	60-130			
1,3-Dichlorobenzene	3.26	0.05	ug/g	ND	81.5	60-130			
1,4-Dichlorobenzene	3.29	0.05	ug/g	ND	82.1	60-130			
1,1-Dichloroethane	3.64	0.05	ug/g	ND	90.9	60-130			
1,2-Dichloroethane	3.80	0.05	ug/g	ND	95.0	60-130			
1,1-Dichloroethylene	4.45	0.05	ug/g	ND	111	60-130			
cis-1,2-Dichloroethylene	3.67	0.05	ug/g	ND	91.7	60-130			
trans-1,2-Dichloroethylene	3.99	0.05	ug/g	ND	99.7	60-130			
1,2-Dichloropropane	3.89	0.05	ug/g	ND	97.2	60-130			
cis-1,3-Dichloropropylene	4.19	0.05	ug/g	ND	105	60-130			
trans-1,3-Dichloropropylene	3.94	0.05	ug/g	ND	98.6	60-130			
Ethylbenzene	3.73	0.05	ug/g	ND	93.3	60-130			
Hexane	3.40	0.05	ug/g	ND	85.0	60-130			
Methyl Ethyl Ketone (2-Butanone)	12.0	0.50	ug/g	ND	120	50-140			
Methyl Butyl Ketone (2-Hexanone)	10.5	2.00	ug/g	ND	105	50-140			
Methyl Isobutyl Ketone	8.79	0.50	ug/g	ND	87.9	50-140			
Methyl tert-butyl ether	10.0	0.05	ug/g	ND	100	50-140			
Methylene Chloride	5.02	0.05	ug/g	ND	126	60-130			
Styrene	3.96	0.05	ug/g	ND	99.0	60-130			
1,1,1,2-Tetrachloroethane	3.74	0.05	ug/g	ND	93.4	60-130			
1,1,2,2-Tetrachloroethane	3.68	0.05	ug/g	ND	92.0	60-130			
Tetrachloroethylene	3.58	0.05	ug/g	ND	89.4	60-130			
Toluene	3.91	0.05	ug/g	ND	97.7	60-130			
1,2,4-Trichlorobenzene	2.65	0.05	ug/g	ND	66.3	60-130			
1,1,1-Trichloroethane	4.06	0.05	ug/g	ND	101	60-130			
1,1,2-Trichloroethane	3.77	0.05	ug/g	ND	94.3	60-130			
Trichloroethylene	3.90	0.05	ug/g	ND	97.4	60-130			
Trichlorofluoromethane	4.12	0.05	ug/g	ND	103	50-140			
1,3,5-Trimethylbenzene	3.36	0.05	ug/g	ND	83.9	60-130			
Vinyl chloride	4.09	0.02	ug/g	ND	102	50-140			
m,p-Xylenes	6.75	0.05	ug/g	ND	84.4	60-130			

Certificate of Analysis

Report Date: 10-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:9-May-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	4.12	0.05	ug/g	ND	103	60-130			
Surrogate: 4-Bromofluorobenzene	*7.19*		*ug/g*		*89.9*	*50-140*			
Benzene	0.907	0.02	ug/g	ND	81.4	50-140			
Ethylbenzene	1.94	0.05	ug/g	ND	73.3	50-140			
Toluene	10.9	0.05	ug/g	ND	84.3	50-140			
m,p-Xylenes	5.62	0.05	ug/g	ND	70.0	50-140			
o-Xylene	2.74	0.05	ug/g	ND	85.0	50-140			

Certificate of Analysis

Report Date: 10-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:9-May-2012

Client PO: 45064625

Project Description: OTT00018293J0/ 1770 Heatherington

Sample and QC Qualifiers Notes

1- 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

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)
Nº 3306

Page 1 of 1

Client Name: EXP SERVICES
Project Reference: OTT-00018293-J1
Contact Name: CHRIS KIMMERLY / DARRAGH KILROY
Quote #
Address: 100-2650 QUEENSVIEW DRIVE, OTTAWA
PO #
Email Address: Contacts. f.i.t. last@exp.com.
Telephone:
TAT: [ ] Regular [ ] 3 Day [ ] 2 Day [X] 1 Day
Date Required:

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 1219153

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHC (F1-F4)	BTEX	VOC									
	Required Analyses																		
1	NW 2-2	AWP 373	S		2	9 MAY 12	4:00pm	X	X					250	ml	+ vial			
2	NW 4-3	AWP 374	↓		↓	↓	4:30pm	X		X					↓				
3	NW 8-2	AWP 375	↓		↓	↓	5:00pm	X		X					↓				
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Comments: City of Ottawa job for Brad Corew

Method of Delivery: Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
DARRAGH KILROY		MJC	MJC
Date/Time: 9th May 2012 5:25 pm	Date/Time:	Date/Time: May 9/12 5:25	Date/Time: May 9/12 5:35
	Temperature: ____ °C	Temperature: 17.5 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J1/ 1770 Heatherington
Custody: 3313

Report Date: 14-May-2012
Order Date: 11-May-2012
Order #: 1219275

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

Paracel ID	Client ID
1219275-01	NW8A-3
1219275-02	NW10-3
1219275-03	EW2-2
1219275-04	SW2-3

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: 14-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:11-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	11-May-12	14-May-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	11-May-12	14-May-12
Solids, %	Gravimetric, calculation	12-May-12	12-May-12
VOCs	EPA 8260 - P&T GC-MS	11-May-12	14-May-12

Certificate of Analysis

Report Date: 14-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:11-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

	Client ID:	NW8A-3	NW10-3	EW2-2	SW2-3
	Sample Date:	11-May-12	11-May-12	11-May-12	11-May-12
	Sample ID:	1219275-01	1219275-02	1219275-03	1219275-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	66.1	66.0	67.2	74.9
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
Chloroethane	0.05 ug/g dry	-	-	<0.05	<0.05
Chloroform	0.05 ug/g dry	-	-	<0.05	<0.05
Chloromethane	0.20 ug/g dry	-	-	<0.20	<0.20
Dibromochloromethane	0.05 ug/g dry	-	-	<0.05	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	-	-	<0.05	<0.05
1,2-Dibromoethane	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-Dichloroethylene, total	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
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 Butyl Ketone (2-Hexanone)	2.00 ug/g dry	-	-	<2.00	<2.00
Methyl Isobutyl Ketone	0.50 ug/g dry	-	-	<0.50	<0.50

Certificate of Analysis

Report Date: 14-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:11-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

	Client ID:	NW8A-3	NW10-3	EW2-2	SW2-3
	Sample Date:	11-May-12	11-May-12	11-May-12	11-May-12
	Sample ID:	1219275-01	1219275-02	1219275-03	1219275-04
	MDL/Units	Soil	Soil	Soil	Soil
Methyl tert-butyl ether	0.05 ug/g dry	-	-	<0.05	<0.05
Methylene Chloride	0.05 ug/g dry	-	-	<0.05	<0.05
Styrene	0.05 ug/g dry	-	-	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	-	-	<0.05	<0.05
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	-	-	<0.05	<0.05
Tetrachloroethylene	0.05 ug/g dry	-	-	<0.05	<0.05
Toluene	0.05 ug/g dry	-	-	<0.05	<0.05
1,2,4-Trichlorobenzene	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
1,3,5-Trimethylbenzene	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	-	-	92.9%	93.7%
Dibromofluoromethane	Surrogate	-	-	78.1%	75.7%
Toluene-d8	Surrogate	-	-	105%	103%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	19	12	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	1120	266	671	<4
F3 PHCs (C16-C34)	8 ug/g dry	487	132	418	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6

Certificate of Analysis

Report Date: 14-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:11-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

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						
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						
Chloroethane	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Chloromethane	ND	0.20	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dibromoethane	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-Dichloroethylene, total	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						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	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	*8.80*		*ug/g*		*110*	*50-140*			
Surrogate: Dibromofluoromethane	*7.25*		*ug/g*		*90.6*	*50-140*			
Surrogate: Toluene-d8	*7.07*		*ug/g*		*88.3*	*50-140*			

Certificate of Analysis

Report Date: 14-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:11-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

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)	1130	4	ug/g dry	1460			25.2	30	
F3 PHCs (C16-C34)	328	8	ug/g dry	421			24.7	30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	80.9	0.1	% by Wt.	80.8			0.1	25	
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	
Chloroethane	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Chloromethane	ND	0.20	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-Dibromoethane	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	
Hexane	ND	0.05	ug/g dry	ND				50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND				50	
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
1,2,4-Trichlorobenzene	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	
1,3,5-Trimethylbenzene	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	*9.92*		*ug/g dry*	*ND*	*104*	*50-140*			
Surrogate: Dibromofluoromethane	*8.69*		*ug/g dry*	*ND*	*91.5*	*50-140*			
Surrogate: Toluene-d8	*8.52*		*ug/g dry*	*ND*	*89.8*	*50-140*			

Certificate of Analysis

Report Date: 14-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:11-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	198	7	ug/g	ND	99.1	80-120			
F2 PHCs (C10-C16)	1500	4	ug/g	1460	47.3	60-140			QR-04
F3 PHCs (C16-C34)	690	8	ug/g	421	117	60-140			
F4 PHCs (C34-C50)	186	6	ug/g	ND	135	60-140			
Volatiles									
Acetone	7.36	0.50	ug/g	ND	73.6	50-140			
Benzene	2.53	0.02	ug/g	ND	63.3	60-130			
Bromodichloromethane	2.98	0.05	ug/g	ND	74.5	60-130			
Bromoform	5.02	0.05	ug/g	ND	126	60-130			
Bromomethane	4.64	0.05	ug/g	ND	116	50-140			
Carbon Tetrachloride	4.01	0.05	ug/g	ND	100	60-130			
Chlorobenzene	3.14	0.05	ug/g	ND	78.4	60-130			
Chloroethane	3.69	0.05	ug/g	ND	92.2	50-140			
Chloroform	2.98	0.05	ug/g	ND	74.6	60-130			
Chloromethane	2.62	0.20	ug/g	ND	65.5	50-140			
Dibromochloromethane	4.36	0.05	ug/g	ND	109	60-130			
Dichlorodifluoromethane	2.76	0.05	ug/g	ND	69.1	50-140			
1,2-Dibromoethane	3.66	0.05	ug/g	ND	91.4	60-130			
1,2-Dichlorobenzene	3.07	0.05	ug/g	ND	76.6	60-130			
1,3-Dichlorobenzene	3.12	0.05	ug/g	ND	78.1	60-130			
1,4-Dichlorobenzene	2.88	0.05	ug/g	ND	72.1	60-130			
1,1-Dichloroethane	2.71	0.05	ug/g	ND	67.8	60-130			
1,2-Dichloroethane	2.90	0.05	ug/g	ND	72.6	60-130			
1,1-Dichloroethylene	4.13	0.05	ug/g	ND	103	60-130			
cis-1,2-Dichloroethylene	3.22	0.05	ug/g	ND	80.4	60-130			
trans-1,2-Dichloroethylene	3.13	0.05	ug/g	ND	78.2	60-130			
1,2-Dichloropropane	4.64	0.05	ug/g	ND	116	60-130			
cis-1,3-Dichloropropylene	2.66	0.05	ug/g	ND	66.4	60-130			
trans-1,3-Dichloropropylene	3.04	0.05	ug/g	ND	76.1	60-130			
Ethylbenzene	2.71	0.05	ug/g	ND	67.7	60-130			
Hexane	3.61	0.05	ug/g	ND	90.3	60-130			
Methyl Ethyl Ketone (2-Butanone)	7.76	0.50	ug/g	ND	77.6	50-140			
Methyl Butyl Ketone (2-Hexanone)	7.97	2.00	ug/g	ND	79.7	50-140			
Methyl Isobutyl Ketone	7.39	0.50	ug/g	ND	73.9	50-140			
Methyl tert-butyl ether	6.35	0.05	ug/g	ND	63.5	50-140			
Methylene Chloride	3.83	0.05	ug/g	ND	95.7	60-130			
Styrene	3.28	0.05	ug/g	ND	82.0	60-130			
1,1,1,2-Tetrachloroethane	4.72	0.05	ug/g	ND	118	60-130			
1,1,2,2-Tetrachloroethane	2.71	0.05	ug/g	ND	67.7	60-130			
Tetrachloroethylene	4.31	0.05	ug/g	ND	108	60-130			
Toluene	2.49	0.05	ug/g	ND	62.2	60-130			
1,2,4-Trichlorobenzene	2.45	0.05	ug/g	ND	61.4	60-130			
1,1,1-Trichloroethane	3.45	0.05	ug/g	ND	86.2	60-130			
1,1,2-Trichloroethane	2.55	0.05	ug/g	ND	63.7	60-130			
Trichloroethylene	2.92	0.05	ug/g	ND	72.9	60-130			
Trichlorofluoromethane	5.20	0.05	ug/g	ND	130	50-140			
1,3,5-Trimethylbenzene	2.80	0.05	ug/g	ND	70.0	60-130			
Vinyl chloride	2.50	0.02	ug/g	ND	62.4	50-140			
m,p-Xylenes	5.82	0.05	ug/g	ND	72.8	60-130			

Certificate of Analysis

Report Date: 14-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:11-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	2.95	0.05	ug/g	ND	73.8	60-130			
Surrogate: 4-Bromofluorobenzene	*8.12*		*ug/g*		*101*	*50-140*			

Certificate of Analysis

Report Date: 14-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:11-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Sample and QC Qualifiers Notes

1- 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

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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Nº 3313

Page 1 of 1

Client Name: EXP SERVICES
Contact Name: Chris Kimmerly / Darragh Kilroy
Address: 100-2650 Queensview Drive
Telephone: 613-688-1899

Project Reference: OTT-00018293-51
Quote #
PO #
Email Address: Contacts first.last@exp.com

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

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 1219275

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHC (F1-F4)	VOC	Required Analyses									
1	NW8A-3	AWP 412	S		2	11 May 12	12:00pm	X						250ml + vial					✓
2	NW10-3	AWP 413	↓		↓	↓	12:30pm	X						↓					✓
3	EW2-2	AWP 414	↓		↓	↓	11:30am	X	X					↓					✓
4	SW2-3	AWP 415	↓		↓	↓	2:00pm	X	X					↓					✓
5																			
6																			
7																			
8																			
9																			
10																			

Comments: City of Ottawa job for Brad Carew.

Method of Delivery: Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
DARRAGH KILROY		MC	MC
Date/Time: 11 May 12 4:15pm	Date/Time:	Date/Time: May 11/12 4:13	Date/Time: May 11/12 4:25
	Temperature: ____ °C	Temperature: 10.9 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J1/ 1770 Heatherington
Custody:

Report Date: 17-May-2012
Order Date: 16-May-2012

Order #: 1220185

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

Paracel ID	Client ID
1220185-01	NW12-3
1220185-02	WW-5-3
1220185-03	SW8-3
1220185-04	F6
1220185-05	F17

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: 17-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:16-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	17-May-12	17-May-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	17-May-12	17-May-12
Solids, %	Gravimetric, calculation	17-May-12	17-May-12

Certificate of Analysis

Report Date: 17-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:16-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

	Client ID:	NW12-3	WW-5-3	SW8-3	F6
	Sample Date:	16-May-12	16-May-12	16-May-12	16-May-12
	Sample ID:	1220185-01	1220185-02	1220185-03	1220185-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	69.2	84.0	89.8	86.6
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<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

	Client ID:	F17	-	-	-
	Sample Date:	16-May-12	-	-	-
	Sample ID:	1220185-05	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	90.2	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	-	-	-

Certificate of Analysis

Report Date: 17-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:16-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

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						

Certificate of Analysis

Report Date: 17-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:16-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	83.6	0.1	% by Wt.	67.7			21.0	25	

Certificate of Analysis

Report Date: 17-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:16-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	167	7	ug/g	ND	83.3	80-120			
F2 PHCs (C10-C16)	87	4	ug/g	ND	108	80-120			
F3 PHCs (C16-C34)	194	8	ug/g	ND	97.1	80-120			
F4 PHCs (C34-C50)	96	6	ug/g	ND	80.0	80-120			

Certificate of Analysis

Report Date: 17-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:16-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Sample and QC Qualifiers Notes

None

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable

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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Nº 3818

Page 1 of 1

Client Name: EXP
Contact Name: Chris Kimmerly / Darragh Kilroy
Address: Queensview Drive
Telephone:

Project Reference: OTT-00018293-51
Quote #
PO #
Email Address: Contacts

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

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 122185

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analyses: PHC (F1-F4)									
1	NW12-3 AWP462	S		2	16 May 12		X				250 ml + vial					✓
2	[redacted] WWS-3 AWP463						X									✓
3	SW8-3 AWP464						X									✓
4	F6 AWP465						X									✓
5	F17 AWP466						X									✓
6																
7																
8																
9																
10																

Comments: City of Ottawa job for Brad Corew.

Method of Delivery: Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
DARRAGH KILROY		MC	MC
Date/Time: 16 May 12 4:55pm	Date/Time:	Date/Time: May 16/12 4:54	Date/Time: May 16/12 5:21
	Temperature: ____ °C	Temperature: 13.1 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J1/ 1770 Heatherington
Custody:

Report Date: 5-Jul-2012
Order Date: 16-May-2012
Revised Report **Order #: 1220185**

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

Paracel ID	Client ID
1220185-01	NW12-3
1220185-02	WW-5-3
1220185-03	SW8-3
1220185-04	F6
1220185-05	F17

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

Client: **exp Services Inc. (Ottawa)**

Report Date: 05-Jul-2012

Order Date:16-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.8 - ICP-MS	27-Jun-12	27-Jun-12
CCME PHC F1	CWS Tier 1 - P&T GC-FID	17-May-12	17-May-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	17-May-12	17-May-12
Metals	EPA 6020 - Digestion - ICP-MS	27-Jun-12	27-Jun-12
Solids, %	Gravimetric, calculation	17-May-12	17-May-12

Certificate of Analysis

Report Date: 05-Jul-2012
Order Date:16-May-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

	Client ID:	NW12-3	WW-5-3	SW8-3	F6
	Sample Date:	16-May-12	16-May-12	16-May-12	16-May-12
	Sample ID:	1220185-01	1220185-02	1220185-03	1220185-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	69.2	84.0	89.8	86.6
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<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

	Client ID:	F17	-	-	-
	Sample Date:	16-May-12	-	-	-
	Sample ID:	1220185-05	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	90.2	-	-	-
Metals					
Boron, available	0.5 ug/g dry	0.6	-	-	-
Lead	1 ug/g dry	11	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	-	-	-

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 05-Jul-2012
Order Date:16-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Boron, available	ND	0.5	ug/g						
Lead	ND	1	ug/g						

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 05-Jul-2012
Order Date:16-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Metals									
Boron, available	ND	0.5	ug/g dry	0.60			0.0	35	
Lead	11.9	1	ug/g dry	11.4			4.7	30	
Physical Characteristics									
% Solids	83.6	0.1	% by Wt.	67.7			21.0	25	

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Report Date: 05-Jul-2012

Order Date:16-May-2012

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	167	7	ug/g	ND	83.3	80-120			
F2 PHCs (C10-C16)	87	4	ug/g	ND	108	80-120			
F3 PHCs (C16-C34)	194	8	ug/g	ND	97.1	80-120			
F4 PHCs (C34-C50)	96	6	ug/g	ND	80.0	80-120			
Metals									
Boron, available	4.71	0.5	ug/g	0.60	82.1	70-122			
Lead	50.2		ug/L	4.5	91.3	70-130			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 05-Jul-2012
Order Date:16-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

Revision 1 - This report includes additional HWE Boron and Lead data.

Other Report Notes:

n/a: not applicable
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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(Lab Use Only)
Nº 3818

Page 1 of 1

Client Name: EXP
Contact Name: Chris Kimmerly / Darragh Kilroy
Address: Queensview Drive
Telephone:

Project Reference: OTT-00018293-51
Quote #
PO #
Email Address: Contacts

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

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 122185

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analyses: PHC (F1-F4)									
1	NW12-3 AWP462	S		2	16 May 12		X				250 ml + vial					✓
2	[redacted] WWS-3 AWP463						X									✓
3	SW8-3 AWP464						X									✓
4	F6 AWP465						X									✓
5	F17 AWP466						X									✓
6																
7																
8																
9																
10																

Comments: City of Ottawa job for Brad Corew.

Method of Delivery: Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
DARRAGH KILROY		MC	MC
Date/Time: 16 May 12 4:55pm	Date/Time:	Date/Time: May 16/12 4:54	Date/Time: May 16/12 5:21
	Temperature: ____ °C	Temperature: 13.1 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J1/ 1770 Heatherington
Custody: 3857

Report Date: 22-May-2012
Order Date: 18-May-2012
Order #: 1220309

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

Paracel ID	Client ID
1220309-01	EW8-3
1220309-02	F29
1220309-03	F54-B
1220309-04	F2 (Pit2)

Approved By: Mark Foto

Mark Foto, M.Sc. For Dale Robertson, BSc
Laboratory Director

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Certificate of Analysis

Report Date: 22-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	18-May-12	22-May-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	22-May-12	22-May-12
PAHs by GC-MS, standard scan	EPA 8270 - GC-MS, extraction	22-May-12	22-May-12
Solids, %	Gravimetric, calculation	22-May-12	22-May-12

Certificate of Analysis

Report Date: 22-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

	Client ID:	EW8-3	F29	F54-B	F2 (Pit2)
	Sample Date:	18-May-12	18-May-12	18-May-12	18-May-12
	Sample ID:	1220309-01	1220309-02	1220309-03	1220309-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	75.1	87.7	89.5	76.1
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	26	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	19	20	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	33	20	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	-	-	-	<0.02
Acenaphthylene	0.02 ug/g dry	-	-	-	<0.02
Anthracene	0.02 ug/g dry	-	-	-	<0.02
Benzo [a] anthracene	0.02 ug/g dry	-	-	-	<0.02
Benzo [a] pyrene	0.02 ug/g dry	-	-	-	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	-	-	-	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	-	-	-	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	-	-	-	<0.02
Biphenyl	0.02 ug/g dry	-	-	-	<0.02
Chrysene	0.02 ug/g dry	-	-	-	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	-	-	<0.02
Fluoranthene	0.02 ug/g dry	-	-	-	<0.02
Fluorene	0.02 ug/g dry	-	-	-	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	-	-	<0.02
1-Methylnaphthalene	0.02 ug/g dry	-	-	-	<0.02
2-Methylnaphthalene	0.02 ug/g dry	-	-	-	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	-	-	-	<0.04
Naphthalene	0.01 ug/g dry	-	-	-	<0.01
Phenanthrene	0.02 ug/g dry	-	-	-	<0.02
Pyrene	0.02 ug/g dry	-	-	-	<0.02
2-Fluorobiphenyl	Surrogate	-	-	-	76.3%
Terphenyl-d14	Surrogate	-	-	-	91.7%

Certificate of Analysis

Report Date: 22-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

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						
Biphenyl	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.25*		*ug/g*		*93.9*	*50-140*			
Surrogate: Terphenyl-d14	*1.30*		*ug/g*		*97.7*	*50-140*			

Certificate of Analysis
Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Report Date: 22-May-2012
Order Date:18-May-2012
Project Description: OTT00018293J1/ 1770 Heatherington

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)	18	4	ug/g dry	ND			0.0	30	
F3 PHCs (C16-C34)	19	8	ug/g dry	ND			0.0	30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND			0.0	30	
Physical Characteristics									
% Solids	98.0	0.1	% by Wt.	98.0			0.0	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND				40	
Acenaphthylene	ND	0.02	ug/g dry	ND			0.0	40	
Anthracene	ND	0.02	ug/g dry	ND			0.0	40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND			0.0	40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND			0.0	40	
Benzo [b] fluoranthene	0.027	0.02	ug/g dry	0.024			11.5	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND			0.0	40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND			0.0	40	
Biphenyl	0.036	0.02	ug/g dry	0.036			1.2	40	
Chrysene	0.027	0.02	ug/g dry	0.022			22.9	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND				40	
Fluoranthene	0.036	0.02	ug/g dry	0.029			21.6	40	
Fluorene	ND	0.02	ug/g dry	ND				40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND			0.0	40	
1-Methylnaphthalene	0.024	0.02	ug/g dry	0.024			0.5	40	
2-Methylnaphthalene	0.026	0.02	ug/g dry	0.029			10.8	40	
Naphthalene	0.215	0.01	ug/g dry	0.228			5.9	40	
Phenanthrene	0.032	0.02	ug/g dry	0.025			26.2	40	
Pyrene	0.028	0.02	ug/g dry	0.023			20.0	40	
Surrogate: 2-Fluorobiphenyl	*1.15*		*ug/g dry*	*ND*	*84.0*	*50-140*			
Surrogate: Terphenyl-d14	*1.19*		*ug/g dry*	*ND*	*87.3*	*50-140*			

Certificate of Analysis
Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Report Date: 22-May-2012
Order Date:18-May-2012
Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	184	7	ug/g	ND	92.2	80-120			
F2 PHCs (C10-C16)	88	4	ug/g	ND	82.5	60-140			
F3 PHCs (C16-C34)	168	8	ug/g	ND	63.0	60-140			
F4 PHCs (C34-C50)	88	6	ug/g	ND	55.0	60-140			QM-07
Semi-Volatiles									
Acenaphthene	0.139	0.02	ug/g	ND	81.3	50-140			
Acenaphthylene	0.159	0.02	ug/g	ND	93.3	50-140			
Anthracene	0.138	0.02	ug/g	ND	80.9	50-140			
Benzo [a] anthracene	0.165	0.02	ug/g	ND	96.5	50-140			
Benzo [a] pyrene	0.150	0.02	ug/g	ND	88.2	50-140			
Benzo [b] fluoranthene	0.193	0.02	ug/g	0.024	99.4	50-140			
Benzo [g,h,i] perylene	0.155	0.02	ug/g	ND	90.7	50-140			
Benzo [k] fluoranthene	0.185	0.02	ug/g	ND	108	50-140			
Biphenyl	0.180	0.02	ug/g	0.036	84.4	50-140			
Chrysene	0.174	0.02	ug/g	0.022	89.1	50-140			
Dibenzo [a,h] anthracene	0.134	0.02	ug/g	ND	78.4	50-140			
Fluoranthene	0.195	0.02	ug/g	0.029	97.5	50-140			
Fluorene	0.143	0.02	ug/g	ND	83.6	50-140			
Indeno [1,2,3-cd] pyrene	0.149	0.02	ug/g	ND	87.3	50-140			
1-Methylnaphthalene	0.151	0.02	ug/g	0.024	74.8	50-140			
2-Methylnaphthalene	0.164	0.02	ug/g	0.029	78.9	50-140			
Naphthalene	0.367	0.01	ug/g	0.228	81.1	50-140			
Phenanthrene	0.178	0.02	ug/g	0.025	89.8	50-140			
Pyrene	0.197	0.02	ug/g	0.023	102	50-140			
Surrogate: 2-Fluorobiphenyl	*1.01*		*ug/g*		*74.3*	*50-140*			

Certificate of Analysis

Report Date: 22-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:18-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Sample and QC Qualifiers Notes

1- QM-07 : The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable

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)
Nº 3857

Page 1 of 1

Client Name: exp
Contact Name: Chris Kimmerly / Darragh Kilroy / Mark Devlin
Address: Queensview Dr. Ottawa
Telephone: (613) 769-5134 (cell) -> off Mark.

Project Reference: OTT-00018293-J1
Quote #
PO #
Email Address:

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

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 1220309

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHC(F_1-F_4)	PAH									
1	EW8-3 AWP506	S		2	May 13/12		X				250 ml + vial						✓
2	F29 AWP507	S		2	↓		X				↓						✓
3	F54-B AWP508	S		2			X										✓
4	F2(P172) AWP509	S		2	↓		X	X									✓
5																	
6																	
7																	
8																	
9																	
10																	

Comments: City of Ottawa Job for Brad Carew

Method of Delivery: Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Mark Devlin / Mark Devlin		MC	MC
Date/Time: May 18, 2012 / 4:45pm	Date/Time:	Date/Time: May 18/12 4:49	Date/Time: May 18/12 5:07
	Temperature: ____ °C	Temperature: 11.2 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293-J1/ 1770 Heatherington
Custody: 2954

Report Date: 24-May-2012
Order Date: 22-May-2012
Order #: 1221043

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

Paracel ID	Client ID
1221043-01	SW2-1 (Pit 2)
1221043-02	NW1-1 (Pit 2)
1221043-03	WW3-1 (Pit 2)
1221043-04	EW2-1 (Pit 2)
1221043-05	EW5-1 (Pit 2)
1221043-06	F7 (Pit 2)
1221043-07	F12 (Pit 2)

Approved By:

Dale Robertson, BSc
Laboratory Director

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

Certificate of Analysis

Report Date: 24-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:22-May-2012

Client PO: 45064625

Project Description: OTT00018293-J1/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	23-May-12	23-May-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	23-May-12	23-May-12
PAHs by GC-MS, standard scan	EPA 8270 - GC-MS, extraction	23-May-12	23-May-12
Solids, %	Gravimetric, calculation	23-May-12	23-May-12

Certificate of Analysis

Report Date: 24-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:22-May-2012

Client PO: 45064625

Project Description: OTT00018293-J1/ 1770 Heatherington

	Client ID:	SW2-1 (Pit 2)	NW1-1 (Pit 2)	WW3-1 (Pit 2)	EW2-1 (Pit 2)
	Sample Date:	22-May-12	22-May-12	22-May-12	22-May-12
	Sample ID:	1221043-01	1221043-02	1221043-03	1221043-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	82.6	93.0	95.3	93.1
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	28	15	30	41
F3 PHCs (C16-C34)	8 ug/g dry	152	121	67	256
F4 PHCs (C34-C50)	6 ug/g dry	299	249	107	665 [1]
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	0.05	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	0.05	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	0.07	<0.02	<0.02	0.02
Benzo [a] pyrene	0.02 ug/g dry	0.07	<0.02	<0.02	0.03
Benzo [b] fluoranthene	0.02 ug/g dry	0.13	<0.02	<0.02	0.05
Benzo [g,h,i] perylene	0.02 ug/g dry	0.05	<0.02	<0.02	0.03
Benzo [k] fluoranthene	0.02 ug/g dry	0.06	<0.02	<0.02	0.02
Biphenyl	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	0.08	<0.02	<0.02	0.05
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	0.14	<0.02	<0.02	0.05
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.05	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.03
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.05
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	0.08
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	0.02
Phenanthrene	0.02 ug/g dry	0.07	<0.02	<0.02	0.03
Pyrene	0.02 ug/g dry	0.12	<0.02	<0.02	0.06
2-Fluorobiphenyl	Surrogate	60.3%	75.0%	74.0%	50.2%
Terphenyl-d14	Surrogate	66.9%	79.7%	76.7%	53.8%

Certificate of Analysis

Report Date: 24-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:22-May-2012

Client PO: 45064625

Project Description: OTT00018293-J1/ 1770 Heatherington

	Client ID:	EW5-1 (Pit 2)	F7 (Pit 2)	F12 (Pit 2)	-
	Sample Date:	22-May-12	22-May-12	22-May-12	-
	Sample ID:	1221043-05	1221043-06	1221043-07	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	92.9	83.2	82.9	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	5	<4	<4	-
F3 PHCs (C16-C34)	8 ug/g dry	131	<8	<8	-
F4 PHCs (C34-C50)	6 ug/g dry	295 [1]	<6	<6	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [a] anthracene	0.02 ug/g dry	0.03	<0.02	<0.02	-
Benzo [a] pyrene	0.02 ug/g dry	0.03	<0.02	<0.02	-
Benzo [b] fluoranthene	0.02 ug/g dry	0.05	<0.02	<0.02	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [k] fluoranthene	0.02 ug/g dry	0.03	<0.02	<0.02	-
Biphenyl	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Chrysene	0.02 ug/g dry	0.04	<0.02	<0.02	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Fluoranthene	0.02 ug/g dry	0.05	<0.02	<0.02	-
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	-
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	-
Phenanthrene	0.02 ug/g dry	0.02	<0.02	<0.02	-
Pyrene	0.02 ug/g dry	0.07	<0.02	<0.02	-
2-Fluorobiphenyl	Surrogate	77.9%	72.2%	81.6%	-
Terphenyl-d14	Surrogate	83.9%	78.6%	87.1%	-

Certificate of Analysis
Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Report Date: 24-May-2012
Order Date:22-May-2012
Project Description: OTT00018293-J1/ 1770 Heatherington

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						
Biphenyl	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.10*		*ug/g*		*82.8*	*50-140*			
Surrogate: Terphenyl-d14	*1.14*		*ug/g*		*85.6*	*50-140*			

Certificate of Analysis
Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Report Date: 24-May-2012
Order Date:22-May-2012
Project Description: OTT00018293-J1/ 1770 Heatherington

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)	81	4	ug/g dry	28			98.8	30	QR-04
F3 PHCs (C16-C34)	169	8	ug/g dry	152			10.8	30	
F4 PHCs (C34-C50)	262	6	ug/g dry	299			13.0	30	
Physical Characteristics									
% Solids	85.4	0.1	% by Wt.	85.2			0.3	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND			0.0	40	
Acenaphthylene	0.039	0.02	ug/g dry	0.047			17.4	40	
Anthracene	0.048	0.02	ug/g dry	0.048			1.2	40	
Benzo [a] anthracene	0.101	0.02	ug/g dry	0.067			39.5	40	
Benzo [a] pyrene	0.103	0.02	ug/g dry	0.075			31.6	40	
Benzo [b] fluoranthene	0.190	0.02	ug/g dry	0.127			40.0	40	QR-01
Benzo [g,h,i] perylene	0.068	0.02	ug/g dry	0.055			22.2	40	
Benzo [k] fluoranthene	0.083	0.02	ug/g dry	0.064			26.4	40	
Biphenyl	ND	0.02	ug/g dry	ND				40	
Chrysene	0.118	0.02	ug/g dry	0.079			39.4	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND				40	
Fluoranthene	0.218	0.02	ug/g dry	0.140			43.2	40	QR-01
Fluorene	ND	0.02	ug/g dry	ND			0.0	40	
Indeno [1,2,3-cd] pyrene	0.062	0.02	ug/g dry	0.051			19.0	40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND			0.0	40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND			0.0	40	
Naphthalene	ND	0.01	ug/g dry	ND				40	
Phenanthrene	0.114	0.02	ug/g dry	0.068			50.3	40	QR-01
Pyrene	0.191	0.02	ug/g dry	0.119			46.9	40	QR-01
Surrogate: 2-Fluorobiphenyl	*1.29*		*ug/g dry*	*ND*	*79.8*	*50-140*			
Surrogate: Terphenyl-d14	*1.36*		*ug/g dry*	*ND*	*84.5*	*50-140*			

Certificate of Analysis
Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Report Date: 24-May-2012
Order Date:22-May-2012
Project Description: OTT00018293-J1/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	184	7	ug/g	ND	92.2	80-120			
F2 PHCs (C10-C16)	136	4	ug/g	28	112	60-140			
F3 PHCs (C16-C34)	312	8	ug/g	152	66.3	60-140			
F4 PHCs (C34-C50)	392	6	ug/g	299	64.2	60-140			
Semi-Volatiles									
Acenaphthene	0.190	0.02	ug/g	ND	94.0	50-140			
Acenaphthylene	0.233	0.02	ug/g	0.047	92.5	50-140			
Anthracene	0.206	0.02	ug/g	0.048	78.4	50-140			
Benzo [a] anthracene	0.250	0.02	ug/g	0.067	90.5	50-140			
Benzo [a] pyrene	0.236	0.02	ug/g	0.075	80.0	50-140			
Benzo [b] fluoranthene	0.320	0.02	ug/g	0.127	95.8	50-140			
Benzo [g,h,i] perylene	0.198	0.02	ug/g	0.055	71.1	50-140			
Benzo [k] fluoranthene	0.278	0.02	ug/g	0.064	106	50-140			
Biphenyl	0.187	0.02	ug/g	ND	92.6	50-140			
Chrysene	0.271	0.02	ug/g	0.079	94.9	50-140			
Dibenzo [a,h] anthracene	0.170	0.02	ug/g	ND	84.3	50-140			
Fluoranthene	0.317	0.02	ug/g	0.140	87.6	50-140			
Fluorene	0.187	0.02	ug/g	ND	92.7	50-140			
Indeno [1,2,3-cd] pyrene	0.201	0.02	ug/g	0.051	74.4	50-140			
1-Methylnaphthalene	0.179	0.02	ug/g	ND	88.7	50-140			
2-Methylnaphthalene	0.191	0.02	ug/g	ND	94.8	50-140			
Naphthalene	0.188	0.01	ug/g	ND	93.4	50-140			
Phenanthrene	0.241	0.02	ug/g	0.068	85.8	50-140			
Pyrene	0.324	0.02	ug/g	0.119	102	50-140			
Surrogate: 2-Fluorobiphenyl	*1.43*		*ug/g*		*88.6*	*50-140*			

Certificate of Analysis

Report Date: 24-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:22-May-2012

Client PO: 45064625

Project Description: OTT00018293-J1/ 1770 Heatherington

Sample and QC Qualifiers Notes

1- ORG01 : GC-FID signal did not return to baseline by C50

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

3- 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

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
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Nº 2954

Page 1 of 1

Client Name: EXP Services	Project Reference: OTT-00018293-J1	TAT: [ ] Regular [ ] 3 Day
Contact Name: Chris Kimmerly / Darragh Kilroy	Quote #	[ ] 2 Day [X] 1 Day
Address: 2650 Queensview Drive	PO #	
Telephone: 613-688-1899	Email Address:	Date Required:

Criteria: [X] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 1221043

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHC (F1-F4)	PAH									
1	SW2-1 (Pit 2) AWP510	S		2	22 May 12		X	X			250	mL	+ vial				
2	NW1-1 (Pit 2) AWP511																
3	WW3-1 (Pit 2) AWP512																
4	EW2-1 (Pit 2 AWP513																
5	EW5-1 (Pit 2) AWP514																
6	F7 (Pit 2) AWP515																
7	F12 (Pit 2) AWP516																
8																	
9																	
10																	

Comments: City of Ottawa Job for Brad Carew

Method of Delivery: Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
DARRAGH KILROY		MC	MC
Date/Time: 22 May 12. 4:55pm.	Date/Time:	Date/Time: May 22/12 4:55	Date/Time: May 22/12. 5:25
	Temperature: ____ °C	Temperature: 23.0 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Darragh Kilroy

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293-J1/1770 Heatherington
Custody: 2956

Report Date: 24-May-2012
Order Date: 23-May-2012
Order #: 1221068

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

Paracel ID	Client ID
1221068-01	WW1-1 (Pit 3)
1221068-02	EW1-1 (Pit 3)
1221068-03	NW2-1 (Pit 3)
1221068-04	F1 (Pit 3)
1221068-05	F3 (Pit 3)

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: 24-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:23-May-2012

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals	EPA 6020 - Digestion - ICP-MS	24-May-12	24-May-12
Solids, %	Gravimetric, calculation	24-May-12	24-May-12

Certificate of Analysis

Report Date: 24-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:23-May-2012

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

	Client ID:	WW1-1 (Pit 3)	EW1-1 (Pit 3)	NW2-1 (Pit 3)	F1 (Pit 3)
	Sample Date:	23-May-12	23-May-12	23-May-12	23-May-12
	Sample ID:	1221068-01	1221068-02	1221068-03	1221068-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	77.3	76.6	82.2	73.2
Metals					
Cobalt	1 ug/g dry	18	8	10	24
Vanadium	10 ug/g dry	82	44	50	91

	Client ID:	F3 (Pit 3)	-	-	-
	Sample Date:	23-May-12	-	-	-
	Sample ID:	1221068-05	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	68.0	-	-	-
Metals					
Cobalt	1 ug/g dry	22	-	-	-
Vanadium	10 ug/g dry	80	-	-	-

Certificate of Analysis
Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Report Date: 24-May-2012
Order Date:23-May-2012
Project Description: OTT00018293-J1/1770 Heatherington

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Cobalt	ND	1	ug/g						
Vanadium	ND	10	ug/g						

Certificate of Analysis
Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Report Date: 24-May-2012
Order Date:23-May-2012
Project Description: OTT00018293-J1/1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Cobalt	3.0	1	ug/g dry	2.5			14.9	30	
Vanadium	20.9	10	ug/g dry	18.4			13.0	30	
Physical Characteristics									
% Solids	77.9	0.1	% by Wt.	86.2			10.1	25	

Certificate of Analysis
Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Report Date: 24-May-2012
Order Date:23-May-2012
Project Description: OTT00018293-J1/1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Cobalt	44.2		ug/L	ND	88.4	70-130			
Vanadium	44.0		ug/L	ND	88.0	70-130			

Certificate of Analysis

Report Date: 24-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:23-May-2012

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

Sample and QC Qualifiers Notes

None

Sample Data Revisions

None

Work Order Revisions/Comments:

None

Other Report Notes:

n/a: not applicable
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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Page 1 of 1

Client Name: Exp	Project Reference: OTT-00018293-J1
Contact Name: Chris Kinnaly / Darragh Kilroy	Quote #
Address: 2650 Queensview Drive, Ottawa	PO #
Telephone: 613-688-1899	Email Address:

TAT: [ ] Regular [ ] 3 Day [ ] 2 Day [X] 1 Day

Date Required: _____

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 1221068.

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analyses: Cobalt	Vanadium									
1	WW1-1 (P+3) AWP517	S		1	23 May 12		-	-			250mL						
2	EW1-1 (P+3) AWP518	↓		↓	↓		-	-			↓						
3	NW2-1 (P+3) AWP519						-	-									
4	F1 (P+3) AWP520						-	-									
5	F3 (P+3) AWP521.						-	-									
6																	
7																	
8																	
9																	
10																	

Comments: City of Ottawa job for Brad Carew.

Method of Delivery: Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
DARRAGH KILROY			
Date/Time: 23 May 12 11:20 am	Date/Time:	Date/Time: May 23/12 11:16a	Date/Time: May 23/12 11:23a
	Temperature: ____ °C	Temperature: ____ °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J1/ 1770 Heatherington
Custody: 2976

Report Date: 5-Jul-2012
Order Date: 25-May-2012
Revised Report **Order #: 1221236**

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

Paracel ID	Client ID
1221236-01	EW5a-3
1221236-02	NW2-1 (Pit 4)
1221236-03	EW3-1 (Pit 4)
1221236-04	WW2-1 (Pit 4)
1221236-05	F1 (Pit 4)
1221236-06	F4 (Pit 4)
1221236-07	WW1-2
1221236-08	F58

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

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Report Date: 05-Jul-2012

Order Date:25-May-2012

Project Description: OTT00018293J1/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.8 - ICP-MS	27-Jun-12	27-Jun-12
CCME PHC F1	CWS Tier 1 - P&T GC-FID	26-May-12	28-May-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	25-May-12	27-May-12
Metals	EPA 6020 - Digestion - ICP-MS	27-Jun-12	27-Jun-12
PAHs by GC-MS, standard scan	EPA 8270 - GC-MS, extraction	25-May-12	28-May-12
Solids, %	Gravimetric, calculation	26-May-12	26-May-12

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 05-Jul-2012
Order Date:25-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

	Client ID:	EW5a-3	NW2-1 (Pit 4)	EW3-1 (Pit 4)	WW2-1 (Pit 4)
	Sample Date:	25-May-12	25-May-12	25-May-12	25-May-12
	Sample ID:	1221236-01	1221236-02	1221236-03	1221236-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	82.3	94.3	75.9	66.1
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	100	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	1540	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	709	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	-	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	-	0.04	<0.02	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	-	0.03	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Biphenyl	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	-	0.03	<0.02	<0.02
Fluorene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	-	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	-	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Pyrene	0.02 ug/g dry	-	0.03	<0.02	<0.02
2-Fluorobiphenyl	Surrogate	-	81.5%	90.6%	89.1%
Terphenyl-d14	Surrogate	-	84.3%	104%	99.3%

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Report Date: 05-Jul-2012
Order Date:25-May-2012

Project Description: OTT00018293J1/ 1770 Heatherington

	Client ID:	F1 (Pit 4)	F4 (Pit 4)	WW1-2	F58
	Sample Date:	25-May-12	25-May-12	25-May-12	25-May-12
	Sample ID:	1221236-05	1221236-06	1221236-07	1221236-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	66.9	65.5	65.2	83.1
Metals					
Boron, available	0.5 ug/g dry	-	-	<0.5	-
Lead	1 ug/g dry	-	-	6	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	-	-	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	-	-	<4	28
F3 PHCs (C16-C34)	8 ug/g dry	-	-	<8	<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	-	-
Biphenyl	0.02 ug/g dry	<0.02	<0.02	-	-
Chrysene	0.02 ug/g dry	<0.02	<0.02	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	-	-
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	-	-
Fluorene	0.02 ug/g dry	<0.02	<0.02	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	-	-
Naphthalene	0.01 ug/g dry	<0.01	<0.01	-	-
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	-	-
Pyrene	0.02 ug/g dry	<0.02	<0.02	-	-
2-Fluorobiphenyl	Surrogate	74.5%	81.2%	-	-
Terphenyl-d14	Surrogate	84.4%	102%	-	-

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 05-Jul-2012
Order Date:25-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Boron, available	ND	0.5	ug/g						
Lead	ND	1	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						
Biphenyl	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.13*		*ug/g*		*85.0*	*50-140*			
Surrogate: Terphenyl-d14	*1.17*		*ug/g*		*87.6*	*50-140*			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 05-Jul-2012
Order Date:25-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	33			0.0	30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND			0.0	30	
Metals									
Boron, available	ND	0.5	ug/g dry	0.60			0.0	35	
Lead	11.9	1	ug/g dry	11.4			4.7	30	
Physical Characteristics									
% Solids	84.5	0.1	% by Wt.	85.3			1.0	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND				40	
Acenaphthylene	ND	0.02	ug/g dry	ND			0.0	40	
Anthracene	ND	0.02	ug/g dry	ND			0.0	40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] pyrene	0.022	0.02	ug/g dry	ND			0.0	40	
Benzo [b] fluoranthene	0.040	0.02	ug/g dry	0.038			3.8	40	
Benzo [g,h,i] perylene	0.027	0.02	ug/g dry	0.028			3.4	40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND			0.0	40	
Biphenyl	ND	0.02	ug/g dry	ND			0.0	40	
Chrysene	ND	0.02	ug/g dry	ND				40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND			0.0	40	
Fluoranthene	0.031	0.02	ug/g dry	0.033			5.3	40	
Fluorene	ND	0.02	ug/g dry	ND			0.0	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND			0.0	40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND			0.0	40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND			0.0	40	
Naphthalene	ND	0.01	ug/g dry	ND			0.0	40	
Phenanthrene	ND	0.02	ug/g dry	ND			0.0	40	
Pyrene	0.032	0.02	ug/g dry	0.033			1.5	40	
Surrogate: 2-Fluorobiphenyl	*1.23*		*ug/g dry*	*ND*	*87.3*	*50-140*			
Surrogate: Terphenyl-d14	*1.32*		*ug/g dry*	*ND*	*93.0*	*50-140*			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 05-Jul-2012

Order Date:25-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	180	7	ug/g	ND	90.0	80-120			
F2 PHCs (C10-C16)	129	4	ug/g	ND	125	60-140			
F3 PHCs (C16-C34)	319	8	ug/g	33	111	60-140			
F4 PHCs (C34-C50)	195	6	ug/g	ND	126	60-140			
Metals									
Boron, available	4.71	0.5	ug/g	0.60	82.1	70-122			
Lead	50.2		ug/L	4.5	91.3	70-130			
Semi-Volatiles									
Acenaphthene	0.163	0.02	ug/g	ND	92.5	50-140			
Acenaphthylene	0.181	0.02	ug/g	ND	103	50-140			
Anthracene	0.165	0.02	ug/g	ND	93.2	50-140			
Benzo [a] anthracene	0.173	0.02	ug/g	ND	97.7	50-140			
Benzo [a] pyrene	0.186	0.02	ug/g	ND	105	50-140			
Benzo [b] fluoranthene	0.224	0.02	ug/g	0.038	105	50-140			
Benzo [g,h,i] perylene	0.131	0.02	ug/g	0.028	58.1	50-140			
Benzo [k] fluoranthene	0.214	0.02	ug/g	ND	121	50-140			
Biphenyl	0.165	0.02	ug/g	ND	93.1	50-140			
Chrysene	0.216	0.02	ug/g	ND	122	50-140			
Dibenzo [a,h] anthracene	0.132	0.02	ug/g	ND	74.8	50-140			
Fluoranthene	0.197	0.02	ug/g	0.033	92.6	50-140			
Fluorene	0.160	0.02	ug/g	ND	90.7	50-140			
Indeno [1,2,3-cd] pyrene	0.125	0.02	ug/g	ND	70.6	50-140			
1-Methylnaphthalene	0.147	0.02	ug/g	ND	83.4	50-140			
2-Methylnaphthalene	0.166	0.02	ug/g	ND	93.9	50-140			
Naphthalene	0.166	0.01	ug/g	ND	93.7	50-140			
Phenanthrene	0.175	0.02	ug/g	ND	98.7	50-140			
Pyrene	0.206	0.02	ug/g	0.033	98.4	50-140			
Surrogate: 2-Fluorobiphenyl	*1.22*		*ug/g*		*86.2*	*50-140*			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 05-Jul-2012
Order Date:25-May-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

Revision 1 - This report includes additional HWE Boron and Lead data

Other Report Notes:

n/a: not applicable
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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Nº 2976

Page 1 of 1

Client Name: EXP
Contact Name: Chris Kimmerly / Darragh Kilroy
Address: 2650 Queensview Drive.
Telephone: 613-688-1899.

Project Reference: OTT-00018293-51
Quote #
PO #
Email Address: Contacts

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

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 1221236

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHC (F1-F4)	PAH
1	EW5a-3	AWP564	S		2	25 May 12		X	
2	NW2-1 (Pit 4)	AWP565	↓		1	↓			X
3	EW3-1 (Pit 4)	AWP566							X
4	WW2-1 (Pit 4)	AWP567							X
5	F1 (Pit 4)	AWP568							X
6	F4 (Pit 4)	AWP569							X
7	WW1-2	AWP570			2			X	
8	F58	AWP571	↓		↓	↓		X	
9									
10									

Comments: City of Ottawa job for Brad Cowan

Method of Delivery: Walk-in

Relinquished By (Print & Sign): DARRAGH KILROY

Date/Time: 25 May 2012 4:00pm

Received by Driver/Depot:
Date/Time:
Temperature: _____ °C

Received at Lab:
Date/Time: May 25/12
Temperature: 26 °C 3:58p

Verified By:
Date/Time: May 25 12 4:11
pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293-J1/ 1770 Heatherington
Custody: 2918

Report Date: 31-May-2012
Order Date: 30-May-2012
Order #: 1222199

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

Paracel ID	Client ID
1222199-01	SW3-3
1222199-02	WW8-3
1222199-03	F73
1222199-04	F83
1222199-05	Fla (Pit 3)

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: 31-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:30-May-2012

Client PO: 45064625

Project Description: OTT00018293-J1/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	30-May-12	31-May-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	30-May-12	31-May-12
Metals	EPA 6020 - Digestion - ICP-MS	31-May-12	31-May-12
Solids, %	Gravimetric, calculation	31-May-12	31-May-12

Certificate of Analysis

Report Date: 31-May-2012
Order Date:30-May-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293-J1/ 1770 Heatherington

	Client ID:	SW3-3	WW8-3	F73	F83
	Sample Date:	30-May-12	30-May-12	30-May-12	30-May-12
	Sample ID:	1222199-01	1222199-02	1222199-03	1222199-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	67.1	65.5	90.5	92.6
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	9	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	103	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	126	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6

	Client ID:	Fla (Pit 3)	-	-	-
	Sample Date:	30-May-12	-	-	-
	Sample ID:	1222199-05	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	68.3	-	-	-
Metals					
Cobalt	1 ug/g dry	14	-	-	-
Vanadium	10 ug/g dry	67	-	-	-

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Report Date: 31-May-2012

Order Date:30-May-2012

Project Description: OTT00018293-J1/ 1770 Heatherington

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Cobalt	ND	1	ug/g						
Vanadium	ND	10	ug/g						

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 31-May-2012
Order Date:30-May-2012

Client PO: 45064625

Project Description: OTT00018293-J1/ 1770 Heatherington

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	
Metals									
Cobalt	1.9	1	ug/g dry	2.0			3.0	30	
Vanadium	ND	10	ug/g dry	ND			0.0	30	
Physical Characteristics									
% Solids	98.2	0.1	% by Wt.	97.7			0.6	25	

Certificate of Analysis

Report Date: 31-May-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:30-May-2012

Client PO: 45064625

Project Description: OTT00018293-J1/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	94	7	ug/g	ND	94.5	80-120			
F2 PHCs (C10-C16)	1810	4	ug/g	963	862	60-140			QM-06
F3 PHCs (C16-C34)	474	8	ug/g	182	119	60-140			
F4 PHCs (C34-C50)	595	6	ug/g	339	173	60-140			QM-06
Metals									
Cobalt	99.1		ug/L	0.8	98.3	70-130			
Vanadium	104		ug/L	1.4	102	70-130			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 31-May-2012

Order Date:30-May-2012

Client PO: 45064625

Project Description: OTT00018293-J1/ 1770 Heatherington

Qualifier Notes:

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.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
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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No. 2918

Page 1 of 1

Client Name: ExP	Project Reference: OTT-00018293-J1
Contact Name: Chris Kimmerly / Darragh Kilroy	Quote # See Comments
Address: 2650 Queensview Drive.	PO #
Telephone: 613-688-1899	Email Address:

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

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 122199

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analyses: PHC(F1-F4)	Cobalt	Vanadium							
1	SW3-3 AWP630	S		2	30 May 12		X				250 ml + vial					✓
2	WW8-3 AWP631	↓		↓	↓		↓				↓					✓
3	F73 AWP632															✓
4	F83 AWP633			↓			↓					↓				✓
5	Fla (Pit 3) AWP634	↓		1	↓			X	X		↓					✓
6																
7																
8																
9																
10																

Comments: City of Ottawa job for Brad Casey

Method of Delivery: Walk-in

Relinquished By (Print & Sign): DARRAGH KILROY	Received by Driver/Depot:	Received at Lab: MC
Date/Time: 30 May 12 4:34 PM	Date/Time:	Date/Time: May 30/12 4:35
	Temperature: ____ °C	Temperature: 21.1 °C
		Verified By: MC
		Date/Time: May 30/12 4:51
		pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J1/ 1770 Heatherington
Custody: 3342/3

Report Date: 5-Jul-2012
Order Date: 31-May-2012
Revised Report **Order #: 1222281**

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

Paracel ID	Client ID
1222281-01	NW3a-3
1222281-02	NW5a-3
1222281-03	F90
1222281-04	NW9-1
1222281-05	EW3-1
1222281-06	WW1 (Pit 5)
1222281-07	EW1 (Pit 5)
1222281-08	SW1 (Pit 5)
1222281-09	F1 (Pit 5)
1222281-10	F2 (Pit 5)
1222281-11	NW1 (Pit 6)
1222281-12	WW1 (Pit 6)
1222281-13	F1 (Pit 6)
1222281-14	F2 (Pit 6)
1222281-15	F20 (Pit 6)

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

Certfcate of Analysis

Reporti Datie05-Jul-2012

Clienti **exp Services Inc. (Otawa)**

Order Datie31-May-2012

Clienti PQ 45064625

Projecti Description: OTT00018293J1/ 1770 Heatiherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.8 - ICP-MS	27-Jun-12	27-Jun-12
CCME PHC F1	CWS Tier 1 - P&T GC-FID	31-May-12	1-Jun-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	1-Jun-12	1-Jun-12
Metals	EPA 6020 - Digestion - ICP-MS	29-Jun-12	29-Jun-12
PAHs by GC-MS, standard scan	EPA 8270 - GC-MS, extraction	31-May-12	1-Jun-12
pH	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	31-May-12	1-Jun-12
Solids, %	Gravimetric, calculation	1-Jun-12	1-Jun-12

Certfcate of Analysis

Reporti Datie05-Jul-2012

Clienti **exp Services Inc. (Otawa)**

Order Datie31-May-2012

Clienti PQ 45064625

Projecti Description: OTT00018293J1/ 1770 Heatiherington

	Client ID:	NW3a-3	NW5a-3	F90	NW9-1
	Sample Date:	31-May-12	31-May-12	31-May-12	31-May-12
	Sample ID:	1222281-01	1222281-02	1222281-03	1222281-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	68.1	69.5	92.3	80.4
Metals					
Boron, available	0.5 ug/g dry	-	0.5	-	-
Lead	1 ug/g dry	-	4	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	51	<7	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	54	<4	<4	-
F3 PHCs (C16-C34)	8 ug/g dry	28	76	389	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	36	-
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
Biphenyl	0.02 ug/g dry	-	-	-	<0.02
Chrysene	0.02 ug/g dry	-	-	-	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	-	-	<0.02
Fluoranthene	0.02 ug/g dry	-	-	-	<0.02
Fluorene	0.02 ug/g dry	-	-	-	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	-	-	<0.02
1-Methylnaphthalene	0.02 ug/g dry	-	-	-	<0.02
2-Methylnaphthalene	0.02 ug/g dry	-	-	-	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	-	-	-	<0.04
Naphthalene	0.01 ug/g dry	-	-	-	<0.01
Phenanthrene	0.02 ug/g dry	-	-	-	0.06
Pyrene	0.02 ug/g dry	-	-	-	0.05
2-Fluorobiphenyl	Surrogate	-	-	-	92.5%
Terphenyl-d14	Surrogate	-	-	-	94.2%

Certfcate of Analysis

Reporti Datie05-Jul-2012

Clienti **exp Services Inc. (Otawa)**

Order Datie31-May-2012

Clienti PQ 45064625

Projecti Description: OTT00018293J1/ 1770 Heatiherington

	Client ID:	EW3-1	WW1 (Pit 5)	EW1 (Pit 5)	SW1 (Pit 5)
	Sample Date:	31-May-12	31-May-12	31-May-12	31-May-12
	Sample ID:	1222281-05	1222281-06	1222281-07	1222281-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	88.3	94.2	89.9	91.5
General Inorganics					
pH	0.05 pH Units	-	7.52	7.18	7.38
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	-	-	-
Biphenyl	0.02 ug/g dry	<0.02	-	-	-
Chrysene	0.02 ug/g dry	<0.02	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	-	-	-
Fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Fluorene	0.02 ug/g dry	<0.02	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	-	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	-	-
Naphthalene	0.01 ug/g dry	<0.01	-	-	-
Phenanthrene	0.02 ug/g dry	<0.02	-	-	-
Pyrene	0.02 ug/g dry	<0.02	-	-	-
2-Fluorobiphenyl	Surrogate	61.6%	-	-	-
Terphenyl-d14	Surrogate	64.2%	-	-	-

	Client ID:	F1 (Pit 5)	F2 (Pit 5)	NW1 (Pit 6)	WW1 (Pit 6)
	Sample Date:	31-May-12	31-May-12	31-May-12	31-May-12
	Sample ID:	1222281-09	1222281-10	1222281-11	1222281-12
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	71.9	68.6	95.3	93.8
General Inorganics					
pH	0.05 pH Units	7.64	7.54	7.57	7.43

Certfcate of Analysis

Reporti Datie05-Jul-2012

Clienti **exp Services Inc. (Otawa)**

Order Datie31-May-2012

Clienti PQ 45064625

Projecti Description: OTT00018293J1/ 1770 Heatiherington

	Client ID:	F1 (Pit 6)	F2 (Pit 6)	F20 (Pit 6)	-
	Sample Date:	31-May-12	31-May-12	31-May-12	-
	Sample ID:	1222281-13	1222281-14	1222281-15	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	79.5	84.1	80.1	-
General Inorganics					
pH	0.05 pH Units	8.00	7.36	7.27	-

Certfcate of Analysis

Clienti **exp Services Inc. (Otawa)**

Reporti Datie05-Jul-2012

Order Datie31-May-2012

Clienti PQ 45064625

Projecti Description: OTT00018293J1/ 1770 Heatiherington

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Boron, available	ND	0.5	ug/g						
Lead	ND	1	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						
Biphenyl	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.27*		*ug/g*		*95.5*	*50-140*			
Surrogate: Terphenyl-d14	*1.26*		*ug/g*		*94.5*	*50-140*			

Certfcate of Analysis

Clienti **exp Services Inc. (Otawa)**

Clienti PQ 45064625

Reporti Datie05-Jul-2012

Order Datie31-May-2012

Projecti Description: OTT00018293J1/ 1770 Heatiherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
pH	7.29	0.05	pH Units	7.27			0.3	10	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	17	4	ug/g dry	54			105.0	30	QR-01
F3 PHCs (C16-C34)	9	8	ug/g dry	28			104.0	30	QR-01
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Metals									
Boron, available	ND	0.5	ug/g dry	0.60			0.0	35	
Lead	6.5	1	ug/g dry	5.2			22.4	30	
Physical Characteristics									
% Solids	87.8	0.1	% by Wt.	88.6			1.0	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND				40	
Acenaphthylene	ND	0.02	ug/g dry	ND			0.0	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			0.0	40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND				40	
Biphenyl	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			0.0	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			0.0	40	
Phenanthrene	ND	0.02	ug/g dry	ND				40	
Pyrene	ND	0.02	ug/g dry	ND			0.0	40	
Surrogate: 2-Fluorobiphenyl	*1.21*		*ug/g dry*	*ND*	*80.1*	*50-140*			
Surrogate: Terphenyl-d14	*1.22*		*ug/g dry*	*ND*	*80.7*	*50-140*			

Certfcate of Analysis

Clienti **exp Services Inc. (Otawa)**

Reporti Datie05-Jul-2012

Order Datie31-May-2012

Clienti PQ 45064625

Projecti Description: OTT00018293J1/ 1770 Heatiherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	94	7	ug/g	ND	94.5	80-120			
F2 PHCs (C10-C16)	167	4	ug/g	54	96.5	60-140			
F3 PHCs (C16-C34)	268	8	ug/g	28	81.8	60-140			
F4 PHCs (C34-C50)	117	6	ug/g	ND	66.4	60-140			
Metals									
Boron, available	4.71	0.5	ug/g	0.60	82.1	70-122			
Lead	49.9		ug/L	2.1	95.6	70-130			
Semi-Volatiles									
Acenaphthene	0.129	0.02	ug/g	ND	68.4	50-140			
Acenaphthylene	0.145	0.02	ug/g	ND	76.8	50-140			
Anthracene	0.125	0.02	ug/g	ND	66.4	50-140			
Benzo [a] anthracene	0.128	0.02	ug/g	ND	67.6	50-140			
Benzo [a] pyrene	0.116	0.02	ug/g	ND	61.5	50-140			
Benzo [b] fluoranthene	0.127	0.02	ug/g	ND	67.5	50-140			
Benzo [g,h,i] perylene	0.124	0.02	ug/g	ND	65.5	50-140			
Benzo [k] fluoranthene	0.138	0.02	ug/g	ND	73.0	50-140			
Biphenyl	0.128	0.02	ug/g	ND	67.6	50-140			
Chrysene	0.123	0.02	ug/g	ND	64.9	50-140			
Dibenzo [a,h] anthracene	0.117	0.02	ug/g	ND	62.0	50-140			
Fluoranthene	0.121	0.02	ug/g	ND	64.0	50-140			
Fluorene	0.131	0.02	ug/g	ND	69.4	50-140			
Indeno [1,2,3-cd] pyrene	0.122	0.02	ug/g	ND	64.4	50-140			
1-Methylnaphthalene	0.110	0.02	ug/g	ND	58.3	50-140			
2-Methylnaphthalene	0.122	0.02	ug/g	ND	64.6	50-140			
Naphthalene	0.127	0.01	ug/g	ND	67.5	50-140			
Phenanthrene	0.123	0.02	ug/g	ND	65.3	50-140			
Pyrene	0.127	0.02	ug/g	ND	67.4	50-140			
Surrogate: 2-Fluorobiphenyl	*1.13*		*ug/g*		*74.9*	*50-140*			

Certfcate of Analysis

Clienti **exp Services Inc. (Otawa)**

Reporti Datie05-Jul-2012

Order Datie31-May-2012

Clienti PQ 45064625

Projecti Description: OTT00018293J1/ 1770 Heatiherington

Qualifier Notes:

QC Qualifers :

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

Sample Data Revisions

None

Work Order Revisions / Comments:

Revision 1 - This report includes additional HWE Boron and Lead data

Other Report Notes:

n/a: not applicable

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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Page ___ of ___

Client Name: EXP
Contact Name: Chris Kimmerly / Darragh Kilroy
Address: 2650 Queensview Drive
Telephone: 613-688-1899

Project Reference: OTT-00010293-J1
Quote #
PO #
Email Address:

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

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 1222281

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHC (F1-F4)	PAH	pH								
1	NW3a-3	AWP657	S		2	31 May 12		X					250 ml + vial					✓
2	NW5a-3	AWP658			↓	↓		X					↓					✓
3	F90	AWP659			↓	↓		X					↓					✓
4	NW9-1	AWP660			1	↓			X				250 ml					✓
5	EW3-1	AWP661			↓	↓			X				↓					✓
6	MW1 (Pit S)	AWP662			↓	↓				X			↓					✓
7	EW1 (Pit S)	AWP663			↓	↓				X			↓					✓
8	SW1 (Pit S)	AWP664			↓	↓				X			↓					✓
9	F1 (Pit S)	AWP665			↓	↓				X			↓					✓
10	F2 (Pit S)	AWP666			↓	↓				X			↓					✓

Comments: City of Ottawa job for Brad Carew

Method of Delivery: Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
DARRAGH KILROY			MJC
Date/Time: 31 May 12 16:36	Date/Time:	Date/Time: May 31/12 4:38p	Date/Time: May 31/12 5:35
	Temperature: ____ °C	Temperature: 9.0 °C	pH Verified [ ] By: N/A

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Nº 3343

Page 2 of 2

Client Name: EXP	Project Reference: OTT-00018293-51
Contact Name: Chris Kennedy / Darragh Kilroy	Quote #
Address: 2650 Queensview Drive	PO #
Telephone:	Email Address:

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

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 122281

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analyses: pH										
1	NW1 (Pit 6) AWP1667	S		1	31 May 12		X			250 ml							✓
2	WW1 (Pit 6) AWP1668	↓		↓	↓		X			↓							✓
3	F1 (Pit 6) AWP1669						X										✓
4	F2 (Pit 6) AWP1670						X										✓
5	F20 (Pit 6) AWP1671						X			↓							✓
6																	
7																	
8																	
9																	
10																	

Comments: City of Ottawa Jobs for Brad Caskey

Method of Delivery: Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Darragh Kilroy			MC
Date/Time: 31 May 12 16:36	Date/Time:	Date/Time: May 31/12 4:38p	Date/Time: May 31/12 5:35
	Temperature: ____ °C	Temperature: 31.2 °C	pH Verified [ ] By: N/A

Review Items

Lab Number	Analysis	Analyte	Exception
			Default Report (not modified)
			VERSION 6.08:2031
	Boron, available	(Soil)	Special Units: (ug/g dry)
	CCME PHC F1	(Soil)	Special Units: (ug/g)
	CCME PHC F2 - F4 standard	(Soil)	Special Units: (ug/g)
	Lead by ICP-MS	(Soil)	Special Units: (ug/g dry)
	PAHs by GC-MS - standard scan	(Soil)	Special Units: (ug/g)
	pH, soil	(Soil)	Special Units: (pH Units)
	Prep - Metals	(Soil)	Special Units: (mL/L)
	Solids, %	(Soil)	Special Units: (% by Wt.)
1208154-DUP1	CCME PHC F2 - F4 standard	F2 PHCs (C10-C16)	Exceeds RPD control limit
1208154-DUP1	CCME PHC F2 - F4 standard	F3 PHCs (C16-C34)	Exceeds RPD control limit
1208154-DUP1	CCME PHC F2 - F4 standard	F2 PHCs (C10-C16)	QR-01: Duplicate RPD is high, however, the sample result is less than 10x the MDL.
1208154-DUP1	CCME PHC F2 - F4 standard	F3 PHCs (C16-C34)	QR-01: Duplicate RPD is high, however, the sample result is less than 10x the MDL.
1222281-02	Boron, available		REV 6: Revision 1 - This report includes additional HWE Boron and Lead data

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J1/ 1770 Heatherington
Custody: 2515

Report Date: 7-Jun-2012
Order Date: 1-Jun-2012
Order #: 1222334

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

Paracel ID	Client ID
1222334-01	Water Main Soil

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: 07-Jun-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:1-Jun-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	4-Jun-12	7-Jun-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	1-Jun-12	5-Jun-12
Solids, %	Gravimetric, calculation	2-Jun-12	2-Jun-12

Certificate of Analysis

Report Date: 07-Jun-2012
Order Date:1-Jun-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

	Client ID:	Water Main Soil	-	-	-
	Sample Date:	01-Jun-12	-	-	-
	Sample ID:	1222334-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	68.5	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	-	-	-

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 07-Jun-2012

Order Date:1-Jun-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

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						

Certificate of Analysis

Report Date: 07-Jun-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:1-Jun-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	82.4	0.1	% by Wt.	84.4			2.4	25	

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 07-Jun-2012

Order Date:1-Jun-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	180	7	ug/g	ND	90.0	80-120			
F2 PHCs (C10-C16)	68	4	ug/g	ND	85.0	80-120			
F3 PHCs (C16-C34)	172	8	ug/g	ND	86.0	80-120			
F4 PHCs (C34-C50)	108	6	ug/g	ND	89.7	80-120			

Certificate of Analysis

Report Date: 07-Jun-2012
Order Date:1-Jun-2012

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625
Project Description: OTT00018293J1/ 1770 Heatherington

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
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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Page 1 of 1

Client Name: EXP	Project Reference: OTT-00018293-J1
Contact Name: Chris Kimmerly / Darragh Milroy	Quote #
Address: 2650 Queensview Drive	PO #
Telephone:	Email Address:

TAT: [X] Regular [ ] 3 Day [ ] 2 Day [ ] 1 Day

Date Required: _____

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 122334

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHC (F1-F4)										
1	Water Main Soil AWP680	S		2	1 June 12		X		250 ml + vial								
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Comments: City of Ottawa job for Brad Carew

Method of Delivery: Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
DARRAGH MILROY		MC	MC
Date/Time: 1 June 12 11:45am	Date/Time:	Date/Time: June 1/12 11:53	Date/Time: June 1/12 2:24
	Temperature: ____ °C	Temperature: 15.9 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J1/ 1770 Heatherington
Custody: 2520

Report Date: 12-Jun-2012
Order Date: 4-Jun-2012
Order #: 1223122

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

Paracel ID	Client ID
1223122-01	Imported B.Fill 1
1223122-02	Imported B.Fill 2
1223122-03	Imported B.Fill 3
1223122-04	Imported B.Fill 4

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: 12-Jun-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:4-Jun-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	6-Jun-12	10-Jun-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	6-Jun-12	7-Jun-12
Solids, %	Gravimetric, calculation	6-Jun-12	6-Jun-12

Certificate of Analysis

Report Date: 12-Jun-2012
Order Date:4-Jun-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

	Client ID:	Imported B.Fill 1	Imported B.Fill 2	Imported B.Fill 3	Imported B.Fill 4
	Sample Date:	04-Jun-12	04-Jun-12	04-Jun-12	04-Jun-12
	Sample ID:	1223122-01	1223122-02	1223122-03	1223122-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	95.5	96.1	97.2	96.9
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	12	<8	27
F4 PHCs (C34-C50)	6 ug/g dry	26	18	35	44

Certificate of Analysis

Report Date: 12-Jun-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:4-Jun-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

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						

Certificate of Analysis

Report Date: 12-Jun-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:4-Jun-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	610	7	ug/g dry	611			0.1	40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	87.0	0.1	% by Wt.	85.2			2.1	25	

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 12-Jun-2012

Order Date:4-Jun-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	188	7	ug/g	ND	94.0	80-120			
F2 PHCs (C10-C16)	64	4	ug/g	ND	80.0	80-120			
F3 PHCs (C16-C34)	168	8	ug/g	ND	84.0	80-120			
F4 PHCs (C34-C50)	110	6	ug/g	ND	91.7	80-120			

Certificate of Analysis

Report Date: 12-Jun-2012
Order Date:4-Jun-2012

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625
Project Description: OTT00018293J1/ 1770 Heatherington

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
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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Page 1 of 1

Client Name: EXP
Contact Name: Chris Kimmerly / Darragh Kilroy
Address:
Telephone:

Project Reference: OTT-00018293-J1
Quote #
PO #
Email Address:

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

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 1223122

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHC (F1-F4)	Metals									
1	Imported B.Fill 1 AWP695	S		2	4 June 12		X	X				250+ vial					
2	Imported B.Fill 2 AWP696	↓		↓	↓		X	X				↓					
3	Imported B.Fill 3 AWP697						X	X									
4	Imported B.Fill 4 AWP698						X	X									
5																	
6																	
7																	
8																	
9																	
10																	

Comments: City of Ottawa job for Brad Carew * ICP metals per Chris. - MJC

Method of Delivery: Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
DARRAGH KILROY			MJC
Date/Time: 4 June 12 13:48 pm	Date/Time:	Date/Time: June 4/12	Date/Time: June 5/12 4:50
	Temperature: ____ °C	Temperature: 19.1 °C 1.0 °p	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J1/ 1770 Heatherington
Custody: 95046

Report Date: 13-Jul-2012
Order Date: 10-Jul-2012
Order #: 1228119

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

Paracel ID	Client ID
1228119-01	MW12-1
1228119-02	MW12-2
1228119-03	MW12-3
1228119-04	MW12-4
1228119-05	Recovery Well
1228119-06	MW08-19

Approved By:



Dale Robertson, BSc
Laboratory Director

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

Certificate of Analysis

Report Date: 13-Jul-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:10-Jul-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
VOCs	EPA 624 - P&T GC-MS	10-Jul-12	11-Jul-12

Certificate of Analysis

Report Date: 13-Jul-2012
Order Date:10-Jul-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

	Client ID:	MW12-1	MW12-2	MW12-3	MW12-4
	Sample Date:	10-Jul-12	10-Jul-12	10-Jul-12	10-Jul-12
	Sample ID:	1228119-01	1228119-02	1228119-03	1228119-04
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<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
Chloroethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloromethane	3.0 ug/L	<3.0	<3.0	<3.0	<3.0
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-Dibromoethane	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
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	1.1
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethylene, total	0.5 ug/L	<0.5	<0.5	<0.5	1.2
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	<0.5	<0.5
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 Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	<10.0	<10.0	<10.0
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

Certificate of Analysis

Report Date: 13-Jul-2012
Order Date:10-Jul-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

	Client ID:	MW12-1	MW12-2	MW12-3	MW12-4
	Sample Date:	10-Jul-12	10-Jul-12	10-Jul-12	10-Jul-12
	Sample ID:	1228119-01	1228119-02	1228119-03	1228119-04
	MDL/Units	Water	Water	Water	Water
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
1,2,4-Trichlorobenzene	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
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
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5	6.7
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
4-Bromofluorobenzene	Surrogate	116%	114%	115%	113%
Dibromofluoromethane	Surrogate	100%	104%	99.8%	103%
Toluene-d8	Surrogate	104%	103%	103%	103%

Certificate of Analysis

Report Date: 13-Jul-2012
Order Date:10-Jul-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

	Client ID:	Recovery Well	MW08-19	-	-
	Sample Date:	10-Jul-12	10-Jul-12	-	-
	Sample ID:	1228119-05	1228119-06	-	-
	MDL/Units	Water	Water	-	-
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	-	-
Benzene	0.5 ug/L	<0.5	<0.5	-	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	-	-
Bromoform	0.5 ug/L	<0.5	<0.5	-	-
Bromomethane	0.5 ug/L	<0.5	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	-	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
Chloroethane	1.0 ug/L	<1.0	<1.0	-	-
Chloroform	0.5 ug/L	<0.5	<0.5	-	-
Chloromethane	3.0 ug/L	<3.0	<3.0	-	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	-	-
1,2-Dibromoethane	0.2 ug/L	<0.2	<0.2	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	17.2	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloroethylene, total	0.5 ug/L	<0.5	17.5	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Hexane	1.0 ug/L	<1.0	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	-	-
Methyl Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	<10.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	-	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	-	-

Certificate of Analysis

Report Date: 13-Jul-2012
Order Date:10-Jul-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

	Client ID:	Recovery Well	MW08-19	-	-
	Sample Date:	10-Jul-12	10-Jul-12	-	-
	Sample ID:	1228119-05	1228119-06	-	-
	MDL/Units	Water	Water	-	-
Styrene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-
1,2,4-Trichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
Trichloroethylene	0.5 ug/L	<0.5	1.4	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	-	-
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Vinyl chloride	0.5 ug/L	<0.5	7.0	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-
4-Bromofluorobenzene	Surrogate	116%	116%	-	-
Dibromofluoromethane	Surrogate	105%	99.3%	-	-
Toluene-d8	Surrogate	103%	103%	-	-

Certificate of Analysis

Report Date: 13-Jul-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:10-Jul-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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						
Chloroethane	ND	1.0	ug/L						
Chloroform	ND	0.5	ug/L						
Chloromethane	ND	3.0	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dibromoethane	ND	0.2	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-Dichloroethylene, total	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						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Butyl Ketone (2-Hexanone)	ND	10.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	ND	0.5	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	*75.6*		*ug/L*		*94.5*	*50-140*			
Surrogate: Dibromofluoromethane	*78.2*		*ug/L*		*97.7*	*50-140*			
Surrogate: Toluene-d8	*79.1*		*ug/L*		*98.9*	*50-140*			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 13-Jul-2012
Order Date:10-Jul-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	
Chloroethane	ND	1.0	ug/L	ND				30	
Chloroform	ND	0.5	ug/L	ND				30	
Chloromethane	ND	3.0	ug/L	ND				30	
Dibromochloromethane	ND	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dibromoethane	ND	0.2	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	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Butyl Ketone (2-Hexanone)	ND	10.0	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	
1,2,4-Trichlorobenzene	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	
1,3,5-Trimethylbenzene	ND	0.5	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	*77.2*		*ug/L*	*ND*	*96.4*	*50-140*			
Surrogate: Dibromofluoromethane	*82.1*		*ug/L*	*ND*	*103*	*50-140*			
Surrogate: Toluene-d8	*79.3*		*ug/L*	*ND*	*99.2*	*50-140*			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Report Date: 13-Jul-2012

Order Date:10-Jul-2012

Project Description: OTT00018293J1/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	128	5.0	ug/L	ND	128	50-140			
Benzene	32.9	0.5	ug/L	ND	82.3	50-140			
Bromodichloromethane	39.6	0.5	ug/L	ND	99.0	50-140			
Bromoform	40.9	0.5	ug/L	ND	102	50-140			
Bromomethane	33.3	0.5	ug/L	ND	83.4	50-140			
Carbon Tetrachloride	39.6	0.2	ug/L	ND	99.0	50-140			
Chlorobenzene	34.6	0.5	ug/L	ND	86.4	50-140			
Chloroethane	47.3	1.0	ug/L	ND	118	50-140			
Chloroform	35.7	0.5	ug/L	ND	89.2	50-140			
Chloromethane	51.2	3.0	ug/L	ND	128	50-140			
Dibromochloromethane	37.9	0.5	ug/L	ND	94.8	50-140			
Dichlorodifluoromethane	36.0	1.0	ug/L	ND	90.1	50-140			
1,2-Dibromoethane	34.0	0.2	ug/L	ND	85.0	50-140			
1,2-Dichlorobenzene	32.0	0.5	ug/L	ND	80.0	50-140			
1,3-Dichlorobenzene	36.0	0.5	ug/L	ND	90.0	50-140			
1,4-Dichlorobenzene	34.3	0.5	ug/L	ND	85.8	50-140			
1,1-Dichloroethane	31.7	0.5	ug/L	ND	79.2	50-140			
1,2-Dichloroethane	39.5	0.5	ug/L	ND	98.8	50-140			
1,1-Dichloroethylene	41.6	0.5	ug/L	ND	104	50-140			
cis-1,2-Dichloroethylene	37.4	0.5	ug/L	ND	93.4	50-140			
trans-1,2-Dichloroethylene	35.3	0.5	ug/L	ND	88.2	50-140			
1,2-Dichloropropane	32.5	0.5	ug/L	ND	81.3	50-140			
cis-1,3-Dichloropropylene	33.5	0.5	ug/L	ND	83.7	50-140			
trans-1,3-Dichloropropylene	37.1	0.5	ug/L	ND	92.7	50-140			
Ethylbenzene	43.6	0.5	ug/L	ND	109	50-140			
Hexane	36.5	1.0	ug/L	ND	91.2	50-140			
Methyl Ethyl Ketone (2-Butanone)	77.7	5.0	ug/L	ND	77.7	50-140			
Methyl Butyl Ketone (2-Hexanone)	70.7	10.0	ug/L	ND	70.7	50-140			
Methyl Isobutyl Ketone	82.9	5.0	ug/L	ND	82.9	50-140			
Methyl tert-butyl ether	99.8	2.0	ug/L	ND	99.8	50-140			
Methylene Chloride	41.0	5.0	ug/L	ND	103	50-140			
Styrene	36.7	0.5	ug/L	ND	91.8	50-140			
1,1,1,2-Tetrachloroethane	41.2	0.5	ug/L	ND	103	50-140			
1,1,2,2-Tetrachloroethane	41.8	0.5	ug/L	ND	104	50-140			
Tetrachloroethylene	36.7	0.5	ug/L	ND	91.7	50-140			
Toluene	48.9	0.5	ug/L	ND	122	50-140			
1,2,4-Trichlorobenzene	28.2	0.5	ug/L	ND	70.6	50-140			
1,1,1-Trichloroethane	37.0	0.5	ug/L	ND	92.5	50-140			
1,1,2-Trichloroethane	33.0	0.5	ug/L	ND	82.4	50-140			
Trichloroethylene	37.5	0.5	ug/L	ND	93.7	50-140			
Trichlorofluoromethane	44.7	1.0	ug/L	ND	112	50-140			
1,3,5-Trimethylbenzene	32.1	0.5	ug/L	ND	80.2	50-140			
Vinyl chloride	50.4	0.5	ug/L	ND	126	50-140			
m,p-Xylenes	69.8	0.5	ug/L	ND	87.3	50-140			
o-Xylene	38.4	0.5	ug/L	ND	96.0	50-140			
Surrogate: 4-Bromofluorobenzene	*73.5*		*ug/L*		*91.9*	*50-140*			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 13-Jul-2012

Order Date:10-Jul-2012

Client PO: 45064625

Project Description: OTT00018293J1/ 1770 Heatherington

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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Chain of Custody
(Lab Use Only)
Nº 95046

Page 1 of 1

Client Name: EXP Services	Project Reference: OTT-00018293-31	TAT: [X] Regular [ ] 3 Day
Contact Name: Chris Kimmerly / Darragh Kilroy	Quote #	[ ] 2 Day [ ] 1 Day
Address: Queensview Drive	PO #	
Telephone: 613-688-1899	Email Address: Contacts	Date Required:

Criteria: [X] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 1228119

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP/MS	Hg	CrVI	B (HWS)							Required Analyses
1	MW12-1	AWQ 201	GW		2	10 July 12			X												✓
2	MW12-2	AWQ 202							X												✓
3	MW12-3	AWQ 203							X												✓
4	MW12-4	AWQ 204							X												✓
5	Recovery Well	AWQ 205							X												✓
6	MW08-19	AWQ 206							X												✓
7																					
8																					
9																					
10																					

Comments: City of Ottawa job for Brad Corew.

Method of Delivery: Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
DARRAGH KILROY		MC	MC
Date/Time: 10 July 12 15:40	Date/Time:	Date/Time: July 10/12 3:39	Date/Time: July 10/12 4:43
	Temperature: _____ °C	Temperature: 16.0 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J/ 1770 Heatherington
Custody: 96871

Report Date: 8-Nov-2012
Order Date: 2-Nov-2012
Order #: 1244326

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

Paracel ID	Client ID
1244326-01	MW12-5 SS4
1244326-02	MW12-6 SS4
1244326-03	MW12-7 SS4
1244326-04	MW12-8 SS5
1244326-05	MW12-9 SS3
1244326-06	MW12-10 SS3
1244326-07	MW12-11 SS3

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: 08-Nov-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:2-Nov-2012

Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	2-Nov-12	7-Nov-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	3-Nov-12	6-Nov-12
Solids, %	Gravimetric, calculation	5-Nov-12	5-Nov-12
VOCs	EPA 8260 - P&T GC-MS	2-Nov-12	7-Nov-12

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 08-Nov-2012
Order Date:2-Nov-2012

Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

	Client ID:	MW12-5 SS4	MW12-6 SS4	MW12-7 SS4	MW12-8 SS5
	Sample Date:	01-Nov-12	01-Nov-12	01-Nov-12	02-Nov-12
	Sample ID:	1244326-01	1244326-02	1244326-03	1244326-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	79.1	86.5	91.0	90.5
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
Chloroethane	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
Chloromethane	0.20 ug/g dry	<0.20	<0.20	<0.20	<0.20
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-Dibromoethane	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	0.17	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethylene, total	0.05 ug/g dry	<0.05	<0.05	0.17	<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
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 Butyl Ketone (2-Hexanone)	2.00 ug/g dry	<2.00	<2.00	<2.00	<2.00
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50

Certificate of Analysis

Report Date: 08-Nov-2012
Order Date:2-Nov-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

	Client ID:	MW12-5 SS4	MW12-6 SS4	MW12-7 SS4	MW12-8 SS5
	Sample Date:	01-Nov-12	01-Nov-12	01-Nov-12	02-Nov-12
	Sample ID:	1244326-01	1244326-02	1244326-03	1244326-04
	MDL/Units	Soil	Soil	Soil	Soil
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
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
1,2,4-Trichlorobenzene	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	0.90	0.98	<0.05
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3,5-Trimethylbenzene	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	109%	110%	110%	110%
Dibromofluoromethane	Surrogate	95.1%	95.0%	95.7%	93.0%
Toluene-d8	Surrogate	100%	102%	102%	92.9%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	16	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	45	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	9	<6	<6

Certificate of Analysis

Report Date: 08-Nov-2012
Order Date:2-Nov-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

	Client ID:	MW12-9 SS3	MW12-10 SS3	MW12-11 SS3	-
	Sample Date:	02-Nov-12	02-Nov-12	02-Nov-12	-
	Sample ID:	1244326-05	1244326-06	1244326-07	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	92.9	84.6	89.0	-
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	<0.05	<0.05	0.35	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloroethane	0.05 ug/g dry	<0.05	<0.05	0.06	-
Chloroform	0.05 ug/g dry	<0.05	<0.05	1.28	-
Chloromethane	0.20 ug/g dry	<0.20	<0.20	<0.20	-
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dibromoethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloroethylene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl Butyl Ketone (2-Hexanone)	2.00 ug/g dry	<2.00	<2.00	<2.00	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	-

Certificate of Analysis

Report Date: 08-Nov-2012
Order Date:2-Nov-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

	Client ID:	MW12-9 SS3	MW12-10 SS3	MW12-11 SS3	-
	Sample Date:	02-Nov-12	02-Nov-12	02-Nov-12	-
	Sample ID:	1244326-05	1244326-06	1244326-07	-
	MDL/Units	Soil	Soil	Soil	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2,4-Trichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichloroethylene	0.05 ug/g dry	0.39	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3,5-Trimethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate	111%	110%	110%	-
Dibromofluoromethane	Surrogate	95.5%	95.8%	97.7%	-
Toluene-d8	Surrogate	94.6%	93.5%	103%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	-
F3 PHCs (C16-C34)	8 ug/g dry	82	326	452	-
F4 PHCs (C34-C50)	6 ug/g dry	270	735	188	-

Certificate of Analysis

Report Date: 08-Nov-2012
Order Date:2-Nov-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625 Project Description: OTT00018293J/ 1770 Heatherington

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						
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						
Chloroethane	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Chloromethane	ND	0.20	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dibromoethane	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-Dichloroethylene, total	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						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	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	*8.73*		*ug/g*		*109*	*50-140*			
Surrogate: Dibromofluoromethane	*6.84*		*ug/g*		*85.4*	*50-140*			
Surrogate: Toluene-d8	*7.97*		*ug/g*		*99.6*	*50-140*			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 08-Nov-2012
Order Date:2-Nov-2012

Client PO: 45064625 Project Description: OTT00018293J/ 1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	27	7	ug/g dry	25			8.1	40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	91.7	0.1	% by Wt.	88.0			4.1	25	
Volatiles									
Acetone	ND	0.50	ug/g dry	ND				50	
Benzene	ND	0.02	ug/g dry	ND			0.0	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	
Chloroethane	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Chloromethane	ND	0.20	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-Dibromoethane	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	0.071	0.05	ug/g dry	0.060			15.8	50	
Hexane	ND	0.05	ug/g dry	ND				50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND				50	
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	0.136	0.05	ug/g dry	ND			0.0	50	
1,2,4-Trichlorobenzene	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	
1,3,5-Trimethylbenzene	0.054	0.05	ug/g dry	0.052			3.9	50	
Vinyl chloride	ND	0.02	ug/g dry	ND			0.0	50	
m,p-Xylenes	0.370	0.05	ug/g dry	0.365			1.3	50	
o-Xylene	0.291	0.05	ug/g dry	0.289			0.8	50	
Surrogate: 4-Bromofluorobenzene	*12.0*		*ug/g dry*	*ND*	*110*	*50-140*			
Surrogate: Dibromofluoromethane	*10.6*		*ug/g dry*	*ND*	*96.6*	*50-140*			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 08-Nov-2012

Order Date:2-Nov-2012

Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Toluene-d8	*11.1*		*ug/g dry*	*ND*	*102*	*50-140*			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 08-Nov-2012
Order Date:2-Nov-2012

Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	207	7	ug/g	ND	104	80-120			
F2 PHCs (C10-C16)	95	4	ug/g	ND	82.5	60-140			
F3 PHCs (C16-C34)	309	8	ug/g	ND	108	60-140			
F4 PHCs (C34-C50)	208	6	ug/g	ND	121	60-140			
Volatiles									
Acetone	13.5	0.50	ug/g	ND	135	50-140			
Benzene	3.41	0.02	ug/g	ND	85.2	60-130			
Bromodichloromethane	4.74	0.05	ug/g	ND	119	60-130			
Bromoform	4.88	0.05	ug/g	ND	122	60-130			
Bromomethane	3.03	0.05	ug/g	ND	75.9	50-140			
Carbon Tetrachloride	4.58	0.05	ug/g	ND	114	60-130			
Chlorobenzene	4.77	0.05	ug/g	ND	119	60-130			
Chloroethane	2.50	0.05	ug/g	ND	62.4	50-140			
Chloroform	3.93	0.05	ug/g	ND	98.3	60-130			
Chloromethane	3.43	0.20	ug/g	ND	85.7	50-140			
Dibromochloromethane	4.84	0.05	ug/g	ND	121	60-130			
Dichlorodifluoromethane	3.54	0.05	ug/g	ND	88.5	50-140			
1,2-Dibromoethane	4.29	0.05	ug/g	ND	107	60-130			
1,2-Dichlorobenzene	3.97	0.05	ug/g	ND	99.2	60-130			
1,3-Dichlorobenzene	4.59	0.05	ug/g	ND	115	60-130			
1,4-Dichlorobenzene	3.83	0.05	ug/g	ND	95.8	60-130			
1,1-Dichloroethane	3.70	0.05	ug/g	ND	92.6	60-130			
1,2-Dichloroethane	3.84	0.05	ug/g	ND	96.0	60-130			
1,1-Dichloroethylene	3.25	0.05	ug/g	ND	81.3	60-130			
cis-1,2-Dichloroethylene	3.80	0.05	ug/g	ND	94.9	60-130			
trans-1,2-Dichloroethylene	4.03	0.05	ug/g	ND	101	60-130			
1,2-Dichloropropane	3.08	0.05	ug/g	ND	76.9	60-130			
cis-1,3-Dichloropropylene	3.60	0.05	ug/g	ND	90.0	60-130			
trans-1,3-Dichloropropylene	4.21	0.05	ug/g	ND	105	60-130			
Ethylbenzene	3.77	0.05	ug/g	ND	94.4	60-130			
Hexane	3.60	0.05	ug/g	ND	89.9	60-130			
Methyl Ethyl Ketone (2-Butanone)	10.6	0.50	ug/g	ND	106	50-140			
Methyl Butyl Ketone (2-Hexanone)	9.53	2.00	ug/g	ND	95.3	50-140			
Methyl Isobutyl Ketone	9.75	0.50	ug/g	ND	97.5	50-140			
Methyl tert-butyl ether	8.57	0.05	ug/g	ND	85.7	50-140			
Methylene Chloride	3.08	0.05	ug/g	ND	77.0	60-130			
Styrene	4.30	0.05	ug/g	ND	108	60-130			
1,1,1,2-Tetrachloroethane	4.19	0.05	ug/g	ND	105	60-130			
1,1,2,2-Tetrachloroethane	4.99	0.05	ug/g	ND	125	60-130			
Tetrachloroethylene	4.87	0.05	ug/g	ND	122	60-130			
Toluene	4.18	0.05	ug/g	ND	104	60-130			
1,2,4-Trichlorobenzene	4.58	0.05	ug/g	ND	114	60-130			
1,1,1-Trichloroethane	4.34	0.05	ug/g	ND	109	60-130			
1,1,2-Trichloroethane	3.66	0.05	ug/g	ND	91.6	60-130			
Trichloroethylene	4.54	0.05	ug/g	ND	113	60-130			
Trichlorofluoromethane	2.12	0.05	ug/g	ND	52.9	50-140			
1,3,5-Trimethylbenzene	3.71	0.05	ug/g	ND	92.8	60-130			
Vinyl chloride	3.15	0.02	ug/g	ND	78.7	50-140			
m,p-Xylenes	8.20	0.05	ug/g	ND	103	60-130			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 08-Nov-2012
Order Date:2-Nov-2012

Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	4.48	0.05	ug/g	ND	112	60-130			
Surrogate: 4-Bromofluorobenzene	*8.48*		*ug/g*		*106*	*50-140*			

Certificate of Analysis

Report Date: 08-Nov-2012
Order Date:2-Nov-2012

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625 Project Description: OTT00018293J/ 1770 Heatherington

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

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

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www.paracellabs.com

Chain of Custody
(Lab Use Only)
Nº 96871

Page 1 of 1

Client Name: exp	Project Reference: 18293 J	TAT: ✓ Regular | | 3 Day
Contact Name: Chris Kimmerly.	Quote # City of Ottawa.	| | 2 Day | | 1 Day
Address: 100-2650 Queensview	PO # City of Ottawa	Date Required:
Telephone:	Email Address:	

Criteria: \| \| O. Reg. 153/04 Table __ \| \| O. Reg. 153/11 (Current) 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: 124326

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP/MS	Hg	CrVI	B (HWS)	Required Analyses
1	MW12-5 554 BAH 206	S		3	Nov 1		✓	✓						1x 250mL + 2 Vial
2	MW12-6 554 BAH 207	↓		↓	↓		↓	↓						✓
3	MW12-7 554 BAH 208													✓
4	MW12-8 555 BAH 209				Nov 2									✓
5	MW12-9 553 BAH 210													✓
6	MW12-10 553 BAH 211													✓
7	MW12-11 553 BAH 212	↓		↓	↓		↓	↓						✓
8														
9														
10														

Comments:

Method of Delivery: Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
	Date/Time:	Date/Time: Nov 2/12 3:28p	Date/Time: Nov 2/12 4:44
Date/Time: Nov 2. 3:30pm	Temperature: _____ °C	Temperature: 15.8 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293-J1/1770 Heatherington
Custody: 95782

Report Date: 9-Nov-2012
Order Date: 5-Nov-2012
Order #: 1245072

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

Paracel ID	Client ID
1245072-01	MW12-5 SS5
1245072-02	MW12-6 SS3
1245072-03	MW12-7 SS6
1245072-04	MW12-8 SS4
1245072-05	MW12-9 SS4
1245072-06	MW12-10 SS2
1245072-07	MW12-11 SS2
1245072-08	MW12-7 SS40

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-Nov-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:5-Nov-2012

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	5-Nov-12	8-Nov-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	6-Nov-12	8-Nov-12
Solids, %	Gravimetric, calculation	6-Nov-12	6-Nov-12
VOCs	EPA 8260 - P&T GC-MS	5-Nov-12	8-Nov-12

Certificate of Analysis

Report Date: 09-Nov-2012
Order Date:5-Nov-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

	Client ID:	MW12-5 SS5	MW12-6 SS3	MW12-7 SS6	MW12-8 SS4
	Sample Date:	01-Nov-12	01-Nov-12	01-Nov-12	02-Nov-12
	Sample ID:	1245072-01	1245072-02	1245072-03	1245072-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	90.9	90.5	94.1	87.6
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
Chloroethane	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
Chloromethane	0.20 ug/g dry	<0.20	<0.20	<0.20	<0.20
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-Dibromoethane	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-Dichloroethylene, total	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
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 Butyl Ketone (2-Hexanone)	2.00 ug/g dry	<2.00	<2.00	<2.00	<2.00
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50

Certificate of Analysis

Report Date: 09-Nov-2012
Order Date:5-Nov-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

	Client ID:	MW12-5 SS5	MW12-6 SS3	MW12-7 SS6	MW12-8 SS4
	Sample Date:	01-Nov-12	01-Nov-12	01-Nov-12	02-Nov-12
	Sample ID:	1245072-01	1245072-02	1245072-03	1245072-04
	MDL/Units	Soil	Soil	Soil	Soil
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
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
1,2,4-Trichlorobenzene	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
1,3,5-Trimethylbenzene	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	110%	109%	109%	109%
Dibromofluoromethane	Surrogate	101%	101%	101%	101%
Toluene-d8	Surrogate	100%	101%	102%	100%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	22	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	65	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6

Certificate of Analysis

Report Date: 09-Nov-2012
Order Date:5-Nov-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

	Client ID:	MW12-9 SS4	MW12-10 SS2	MW12-11 SS2	MW12-7 SS40
	Sample Date:	02-Nov-12	02-Nov-12	02-Nov-12	01-Nov-12
	Sample ID:	1245072-05	1245072-06	1245072-07	1245072-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	93.1	84.8	88.2	88.2
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
Chloroethane	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
Chloromethane	0.20 ug/g dry	<0.20	<0.20	<0.20	<0.20
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-Dibromoethane	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	0.10
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethylene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	0.12
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
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 Butyl Ketone (2-Hexanone)	2.00 ug/g dry	<2.00	<2.00	<2.00	<2.00
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50

Certificate of Analysis

Report Date: 09-Nov-2012
Order Date:5-Nov-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

	Client ID:	MW12-9 SS4	MW12-10 SS2	MW12-11 SS2	MW12-7 SS40
	Sample Date:	02-Nov-12	02-Nov-12	02-Nov-12	01-Nov-12
	Sample ID:	1245072-05	1245072-06	1245072-07	1245072-08
	MDL/Units	Soil	Soil	Soil	Soil
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
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
1,2,4-Trichlorobenzene	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	0.56
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3,5-Trimethylbenzene	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	110%	109%	109%	109%
Dibromofluoromethane	Surrogate	102%	101%	107%	102%
Toluene-d8	Surrogate	101%	101%	101%	101%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	17	<4	5	<4
F3 PHCs (C16-C34)	8 ug/g dry	234	<8	382	<8
F4 PHCs (C34-C50)	6 ug/g dry	915	<6	95	<6

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625

Report Date: 09-Nov-2012

Order Date:5-Nov-2012

Project Description: OTT00018293-J1/1770 Heatherington

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						
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						
Chloroethane	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Chloromethane	ND	0.20	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dibromoethane	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-Dichloroethylene, total	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						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	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	*8.73*		*ug/g*		*109*	*50-140*			
Surrogate: Dibromofluoromethane	*7.44*		*ug/g*		*92.9*	*50-140*			
Surrogate: Toluene-d8	*7.97*		*ug/g*		*99.6*	*50-140*			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 09-Nov-2012
Order Date:5-Nov-2012

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	85.9	0.1	% by Wt.	85.0			1.1	25	
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	
Chloroethane	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Chloromethane	ND	0.20	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-Dibromoethane	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	
Hexane	ND	0.05	ug/g dry	ND				50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND				50	
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
1,2,4-Trichlorobenzene	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	
1,3,5-Trimethylbenzene	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	*10.1*		*ug/g dry*	*ND*	*108*	*50-140*			
Surrogate: Dibromofluoromethane	*8.83*		*ug/g dry*	*ND*	*93.8*	*50-140*			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 09-Nov-2012

Order Date:5-Nov-2012

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Toluene-d8	*8.99*		*ug/g dry*	*ND*	*95.5*	*50-140*			

Certificate of Analysis

Report Date: 09-Nov-2012
Order Date:5-Nov-2012

Client: **exp Services Inc. (Ottawa)**

Client PO: 45064625 Project Description: OTT00018293-J1/1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	207	7	ug/g	ND	104	80-120			
F2 PHCs (C10-C16)	105	4	ug/g	ND	111	60-140			
F3 PHCs (C16-C34)	214	8	ug/g	ND	91.0	60-140			
F4 PHCs (C34-C50)	176	6	ug/g	ND	125	60-140			
Volatiles									
Acetone	13.5	0.50	ug/g	ND	135	50-140			
Benzene	3.41	0.02	ug/g	ND	85.2	60-130			
Bromodichloromethane	4.74	0.05	ug/g	ND	119	60-130			
Bromoform	4.88	0.05	ug/g	ND	122	60-130			
Bromomethane	3.03	0.05	ug/g	ND	75.9	50-140			
Carbon Tetrachloride	4.58	0.05	ug/g	ND	114	60-130			
Chlorobenzene	4.77	0.05	ug/g	ND	119	60-130			
Chloroethane	2.50	0.05	ug/g	ND	62.4	50-140			
Chloroform	3.93	0.05	ug/g	ND	98.3	60-130			
Chloromethane	3.43	0.20	ug/g	ND	85.7	50-140			
Dibromochloromethane	4.84	0.05	ug/g	ND	121	60-130			
Dichlorodifluoromethane	3.54	0.05	ug/g	ND	88.5	50-140			
1,2-Dibromoethane	4.29	0.05	ug/g	ND	107	60-130			
1,2-Dichlorobenzene	3.97	0.05	ug/g	ND	99.2	60-130			
1,3-Dichlorobenzene	4.59	0.05	ug/g	ND	115	60-130			
1,4-Dichlorobenzene	3.83	0.05	ug/g	ND	95.8	60-130			
1,1-Dichloroethane	3.70	0.05	ug/g	ND	92.6	60-130			
1,2-Dichloroethane	3.84	0.05	ug/g	ND	96.0	60-130			
1,1-Dichloroethylene	3.25	0.05	ug/g	ND	81.3	60-130			
cis-1,2-Dichloroethylene	3.80	0.05	ug/g	ND	94.9	60-130			
trans-1,2-Dichloroethylene	4.03	0.05	ug/g	ND	101	60-130			
1,2-Dichloropropane	3.08	0.05	ug/g	ND	76.9	60-130			
cis-1,3-Dichloropropylene	3.60	0.05	ug/g	ND	90.0	60-130			
trans-1,3-Dichloropropylene	4.21	0.05	ug/g	ND	105	60-130			
Ethylbenzene	3.77	0.05	ug/g	ND	94.4	60-130			
Hexane	3.60	0.05	ug/g	ND	89.9	60-130			
Methyl Ethyl Ketone (2-Butanone)	10.6	0.50	ug/g	ND	106	50-140			
Methyl Butyl Ketone (2-Hexanone)	9.53	2.00	ug/g	ND	95.3	50-140			
Methyl Isobutyl Ketone	9.75	0.50	ug/g	ND	97.5	50-140			
Methyl tert-butyl ether	8.57	0.05	ug/g	ND	85.7	50-140			
Methylene Chloride	3.08	0.05	ug/g	ND	77.0	60-130			
Styrene	4.30	0.05	ug/g	ND	108	60-130			
1,1,1,2-Tetrachloroethane	4.19	0.05	ug/g	ND	105	60-130			
1,1,2,2-Tetrachloroethane	4.99	0.05	ug/g	ND	125	60-130			
Tetrachloroethylene	4.87	0.05	ug/g	ND	122	60-130			
Toluene	4.18	0.05	ug/g	ND	104	60-130			
1,2,4-Trichlorobenzene	4.58	0.05	ug/g	ND	114	60-130			
1,1,1-Trichloroethane	4.34	0.05	ug/g	ND	109	60-130			
1,1,2-Trichloroethane	3.66	0.05	ug/g	ND	91.6	60-130			
Trichloroethylene	4.54	0.05	ug/g	ND	113	60-130			
Trichlorofluoromethane	2.12	0.05	ug/g	ND	52.9	50-140			
1,3,5-Trimethylbenzene	3.71	0.05	ug/g	ND	92.8	60-130			
Vinyl chloride	3.15	0.02	ug/g	ND	78.7	50-140			
m,p-Xylenes	8.20	0.05	ug/g	ND	103	60-130			

Certificate of Analysis

Client: **exp Services Inc. (Ottawa)**

Report Date: 09-Nov-2012
Order Date:5-Nov-2012

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	4.48	0.05	ug/g	ND	112	60-130			
Surrogate: 4-Bromofluorobenzene	*8.48*		*ug/g*		*106*	*50-140*			

Certificate of Analysis

Report Date: 09-Nov-2012
Client: **exp Services Inc. (Ottawa)** Order Date:5-Nov-2012
Client PO: 45064625 Project Description: OTT00018293-J1/1770 Heatherington

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

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

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Chain of Custody (Lab Use Only)

Nº 95782

Page 1 of 1

Client Name: Exp Services Inc
Contact Name: Chris Kimmerly
Address: 2650 Queensview Dr.
Telephone: 613-688-1899

Project Reference: 07T-00018293-51
Quote #: City of Ottawa SOA.
PO #: City of Ottawa Real Estate Sopfs
Email Address: chris.kimmerly@exp.com

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

Criteria: [ ] O. Reg. 153/04 Table __ [ ] O. Reg. 153/11 (Current) 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: 1245072

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP/MS	Hg	CrVI	B (HWS)							
1	MW12-5 SS5 BAH007			3	Nov 1		✓	✓									- 1x125ml+2vial			✓
2	MW-12-6 SS3 BAH008																- 1x125ml+2vial			✓
3	MW 12-7 SS6 BAH~~009~~018																			✓
4	MW-12-8 SS4 BAH~~010~~124				Nov.2															✓
5	MW-12-9 SS4 BAH~~011~~213																			✓
6	MW-12-10 SS2 BAH~~012~~214																			✓
7	MW 12-11 SS 2 BAH215																			✓
8	MW 12-7 SS40 BAH216				Nov.1															✓
9																				
10																				

Comments:

Method of Delivery: Walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Chris Kimmerly	MJC	SUNREPORA	
Date/Time: Nov. 5/2012 4:00pm	Date/Time: Nov 5/12 4:39	Date/Time: Nov 05 2012 05:30	Date/Time: Nov. 5/12 5:42p
	Temperature: 8.8 °C	Temperature: 12.3 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293-J1/1770 Heatherington
Custody: 97129/31

Report Date: 5-Dec-2012
Order Date: 30-Nov-2012
Order #: 1248278

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

Paracel ID	Client ID
1248278-01	MW12-1
1248278-02	MW12-2
1248278-03	MW12-3
1248278-04	MW12-4
1248278-05	MW12-5
1248278-06	MW12-6
1248278-07	MW12-7
1248278-08	MW12-8
1248278-09	MW12-9
1248278-10	MW12-10
1248278-11	MW12-11
1248278-12	MW08-19
1248278-13	Recovery Well
1248278-14	MW12-30

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: 05-Dec-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:30-Nov-2012

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	30-Nov-12	4-Dec-12
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	30-Nov-12	1-Dec-12
VOCs	EPA 624 - P&T GC-MS	30-Nov-12	4-Dec-12

Certificate of Analysis

Report Date: 05-Dec-2012
Order Date:30-Nov-2012

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

	Client ID:	MW12-1	MW12-2	MW12-3	MW12-4
	Sample Date:	30-Nov-12	29-Nov-12	30-Nov-12	30-Nov-12
	Sample ID:	1248278-01	1248278-02	1248278-03	1248278-04
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<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
Chloroethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloromethane	3.0 ug/L	<3.0	<3.0	<3.0	<3.0
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-Dibromoethane	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
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-Dichloroethylene, total	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	<0.5	<0.5
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 Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	<10.0	<10.0	<10.0
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

Certificate of Analysis

Report Date: 05-Dec-2012
Order Date:30-Nov-2012

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

	Client ID:	MW12-1	MW12-2	MW12-3	MW12-4
	Sample Date:	30-Nov-12	29-Nov-12	30-Nov-12	30-Nov-12
	Sample ID:	1248278-01	1248278-02	1248278-03	1248278-04
	MDL/Units	Water	Water	Water	Water
Volatiles (continued)					
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
1,2,4-Trichlorobenzene	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
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
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
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	<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
4-Bromofluorobenzene	Surrogate	111%	110%	110%	110%
Dibromofluoromethane	Surrogate	117%	120%	120%	121%
Toluene-d8	Surrogate	80.1%	79.4%	80.8%	79.8%
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

Certificate of Analysis

Report Date: 05-Dec-2012
Order Date:30-Nov-2012

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

	Client ID:	MW12-5	MW12-6	MW12-7	MW12-8
	Sample Date:	29-Nov-12	29-Nov-12	29-Nov-12	30-Nov-12
	Sample ID:	1248278-05	1248278-06	1248278-07	1248278-08
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<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
Chloroethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloromethane	3.0 ug/L	<3.0	<3.0	<3.0	<3.0
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-Dibromoethane	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
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	12.3	4.3	5.2	<0.5
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethylene, total	0.5 ug/L	12.3	4.3	5.2	<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	<0.5	<0.5
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 Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	<10.0	<10.0	<10.0
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

Certificate of Analysis

Report Date: 05-Dec-2012
Order Date:30-Nov-2012

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

	Client ID:	MW12-5	MW12-6	MW12-7	MW12-8
	Sample Date:	29-Nov-12	29-Nov-12	29-Nov-12	30-Nov-12
	Sample ID:	1248278-05	1248278-06	1248278-07	1248278-08
	MDL/Units	Water	Water	Water	Water
Volatiles (continued)					
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
1,2,4-Trichlorobenzene	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
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	0.5 ug/L	5.0	6.8	1.5	<0.5
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
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	<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
4-Bromofluorobenzene	Surrogate	111%	110%	109%	110%
Dibromofluoromethane	Surrogate	124%	125%	123%	125%
Toluene-d8	Surrogate	79.5%	78.6%	79.3%	78.6%
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

Certificate of Analysis

Report Date: 05-Dec-2012
Order Date:30-Nov-2012

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

	Client ID:	MW12-9	MW12-10	MW12-11	MW08-19
	Sample Date:	29-Nov-12	29-Nov-12	29-Nov-12	29-Nov-12
	Sample ID:	1248278-09	1248278-10	1248278-11	1248278-12
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<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	1.0	<0.5	<0.5
Chloroethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloromethane	3.0 ug/L	<3.0	<3.0	<3.0	<3.0
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-Dibromoethane	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
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	1.1	<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	8.7	34.7
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethylene, total	0.5 ug/L	<0.5	<0.5	8.7	34.7
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	<0.5	<0.5
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 Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	<10.0	<10.0	<10.0
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

Certificate of Analysis

Report Date: 05-Dec-2012
Order Date:30-Nov-2012

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

	Client ID:	MW12-9	MW12-10	MW12-11	MW08-19
	Sample Date:	29-Nov-12	29-Nov-12	29-Nov-12	29-Nov-12
	Sample ID:	1248278-09	1248278-10	1248278-11	1248278-12
	MDL/Units	Water	Water	Water	Water
Volatiles (continued)					
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
1,2,4-Trichlorobenzene	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
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	0.5 ug/L	1.4	<0.5	<0.5	2.4
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5	5.7
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
4-Bromofluorobenzene	Surrogate	110%	109%	111%	109%
Dibromofluoromethane	Surrogate	125%	125%	126%	128%
Toluene-d8	Surrogate	78.8%	78.5%	78.1%	78.2%
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

Certificate of Analysis

Report Date: 05-Dec-2012
Order Date:30-Nov-2012

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

	Client ID:	Recovery Well	MW12-30	-	-
	Sample Date:	30-Nov-12	30-Nov-12	-	-
	Sample ID:	1248278-13	1248278-14	-	-
	MDL/Units	Water	Water	-	-
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	-	-
Benzene	0.5 ug/L	<0.5	<0.5	-	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	-	-
Bromoform	0.5 ug/L	<0.5	<0.5	-	-
Bromomethane	0.5 ug/L	<0.5	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	-	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
Chloroethane	1.0 ug/L	<1.0	<1.0	-	-
Chloroform	0.5 ug/L	<0.5	<0.5	-	-
Chloromethane	3.0 ug/L	<3.0	<3.0	-	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	-	-
1,2-Dibromoethane	0.2 ug/L	<0.2	<0.2	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloroethylene, total	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Hexane	1.0 ug/L	<1.0	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	-	-
Methyl Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	<10.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	-	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	-	-
Styrene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-

Certificate of Analysis

Report Date: 05-Dec-2012
Order Date:30-Nov-2012

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

	Client ID:	Recovery Well	MW12-30	-	-
	Sample Date:	30-Nov-12	30-Nov-12	-	-
	Sample ID:	1248278-13	1248278-14	-	-
	MDL/Units	Water	Water	-	-
Volatiles (continued)					
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-
1,2,4-Trichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	-	-
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-
4-Bromofluorobenzene	Surrogate	107%	109%	-	-
Dibromofluoromethane	Surrogate	128%	127%	-	-
Toluene-d8	Surrogate	81.0%	78.1%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	-

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						
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						
Chloroethane	ND	1.0	ug/L						
Chloroform	ND	0.5	ug/L						
Chloromethane	ND	3.0	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dibromoethane	ND	0.2	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-Dichloroethylene, total	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						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Butyl Ketone (2-Hexanone)	ND	10.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	ND	0.5	ug/L						
Vinyl chloride	ND	0.5	ug/L						

Certificate of Analysis

Report Date: 05-Dec-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:30-Nov-2012

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*35.0*		*ug/L*		*110*	*50-140*			
Surrogate: Dibromofluoromethane	*29.9*		*ug/L*		*93.5*	*50-140*			
Surrogate: Toluene-d8	*29.3*		*ug/L*		*91.7*	*50-140*			

Certificate of Analysis

Report Date: 05-Dec-2012
Order Date:30-Nov-2012

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625
Project Description: OTT00018293-J1/1770 Heatherington

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	
Chloroethane	ND	1.0	ug/L	ND				30	
Chloroform	ND	0.5	ug/L	ND				30	
Chloromethane	ND	3.0	ug/L	ND				30	
Dibromochloromethane	ND	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dibromoethane	ND	0.2	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	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Butyl Ketone (2-Hexanone)	ND	10.0	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	
1,2,4-Trichlorobenzene	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	
1,3,5-Trimethylbenzene	ND	0.5	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	*35.6*		*ug/L*	*ND*	*111*	*50-140*			

Certificate of Analysis

Report Date: 05-Dec-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:30-Nov-2012

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Dibromofluoromethane	*30.8*		*ug/L*	*ND*	*96.2*	*50-140*			
Surrogate: Toluene-d8	*29.0*		*ug/L*	*ND*	*90.8*	*50-140*			

Certificate of Analysis

Report Date: 05-Dec-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:30-Nov-2012

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1520	25	ug/L	ND	76.2	68-117			
F2 PHCs (C10-C16)	1060	100	ug/L	ND	66.2	60-140			
F3 PHCs (C16-C34)	3430	100	ug/L	ND	85.8	60-140			
F4 PHCs (C34-C50)	2480	100	ug/L	ND	103	60-140			
Volatiles									
Acetone	81.9	5.0	ug/L	ND	81.9	50-140			
Benzene	30.0	0.5	ug/L	ND	74.9	50-140			
Bromodichloromethane	37.0	0.5	ug/L	ND	92.5	50-140			
Bromoform	30.7	0.5	ug/L	ND	76.8	50-140			
Bromomethane	23.1	0.5	ug/L	ND	57.8	50-140			
Carbon Tetrachloride	36.4	0.2	ug/L	ND	90.9	50-140			
Chlorobenzene	29.3	0.5	ug/L	ND	73.2	50-140			
Chloroethane	36.4	1.0	ug/L	ND	90.9	50-140			
Chloroform	35.0	0.5	ug/L	ND	87.6	50-140			
Chloromethane	39.3	3.0	ug/L	ND	98.2	50-140			
Dibromochloromethane	34.7	0.5	ug/L	ND	86.7	50-140			
Dichlorodifluoromethane	41.9	1.0	ug/L	ND	105	50-140			
1,2-Dibromoethane	32.6	0.2	ug/L	ND	81.6	50-140			
1,2-Dichlorobenzene	37.5	0.5	ug/L	ND	93.8	50-140			
1,3-Dichlorobenzene	32.8	0.5	ug/L	ND	81.9	50-140			
1,4-Dichlorobenzene	30.7	0.5	ug/L	ND	76.8	50-140			
1,1-Dichloroethane	33.3	0.5	ug/L	ND	83.2	50-140			
1,2-Dichloroethane	38.9	0.5	ug/L	ND	97.2	50-140			
1,1-Dichloroethylene	40.5	0.5	ug/L	ND	101	50-140			
cis-1,2-Dichloroethylene	33.0	0.5	ug/L	ND	82.4	50-140			
trans-1,2-Dichloroethylene	42.2	0.5	ug/L	ND	105	50-140			
1,2-Dichloropropane	29.4	0.5	ug/L	ND	73.4	50-140			
cis-1,3-Dichloropropylene	32.5	0.5	ug/L	ND	81.2	50-140			
trans-1,3-Dichloropropylene	31.3	0.5	ug/L	ND	78.2	50-140			
Ethylbenzene	31.6	0.5	ug/L	ND	79.0	50-140			
Hexane	21.1	1.0	ug/L	ND	52.8	50-140			
Methyl Ethyl Ketone (2-Butanone)	74.0	5.0	ug/L	ND	74.0	50-140			
Methyl Butyl Ketone (2-Hexanone)	96.7	10.0	ug/L	ND	96.7	50-140			
Methyl Isobutyl Ketone	89.1	5.0	ug/L	ND	89.1	50-140			
Methyl tert-butyl ether	85.2	2.0	ug/L	ND	85.2	50-140			
Methylene Chloride	36.7	5.0	ug/L	ND	91.6	50-140			
Styrene	30.8	0.5	ug/L	ND	77.0	50-140			
1,1,1,2-Tetrachloroethane	29.4	0.5	ug/L	ND	73.4	50-140			
1,1,2,2-Tetrachloroethane	29.2	0.5	ug/L	ND	73.0	50-140			
Tetrachloroethylene	35.4	0.5	ug/L	ND	88.4	50-140			
Toluene	33.2	0.5	ug/L	ND	83.0	50-140			
1,2,4-Trichlorobenzene	40.1	0.5	ug/L	ND	100	50-140			
1,1,1-Trichloroethane	35.0	0.5	ug/L	ND	87.4	50-140			
1,1,2-Trichloroethane	37.2	0.5	ug/L	ND	93.0	50-140			
Trichloroethylene	32.8	0.5	ug/L	ND	82.0	50-140			
Trichlorofluoromethane	41.9	1.0	ug/L	ND	105	50-140			
1,3,5-Trimethylbenzene	31.9	0.5	ug/L	ND	79.8	50-140			
Vinyl chloride	33.4	0.5	ug/L	ND	83.6	50-140			

Certificate of Analysis

Report Date: 05-Dec-2012

Client: **exp Services Inc. (Ottawa)**

Order Date:30-Nov-2012

Client PO: 45064625

Project Description: OTT00018293-J1/1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
m,p-Xylenes	61.4	0.5	ug/L	ND	76.8	50-140			
o-Xylene	31.1	0.5	ug/L	ND	77.8	50-140			
Surrogate: 4-Bromofluorobenzene	*36.0*		*ug/L*		*113*	*50-140*			

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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Chain of Custody
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Nº 97129

Page 1 of 2

Client Name: EXP Services	Project Reference: OTT-00018293-J1	TAT: [X] Regular [ ] 3 Day
Contact Name: CHRIS KIMMERLY / DARRAGH KILROY	Quote #	[ ] 2 Day [ ] 1 Day
Address:	PO # RFSO, No. 01910-91843-501	Date Required:
Telephone:	Email Address:	

Criteria: [ ] O. Reg. 153/04 Table ___ [X] O. Reg. 153/11 (Current) 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: 1248278

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP/MS	Hg	CrVI	B (HWS)	
1	MW12-1 BH378	GW		3	30 Nov 12		X	X						✓
2	MW12-2 BH379				29 Nov 12									✓
3	MW12-3 BH380				30 Nov 12									✓
4	MW12-4 BH381				30 Nov 12									✓
5	MW12-5 BH382				29 Nov 12									✓
6	MW12-6 BH383				↓									✓
7	MW12-7 BH384				↓									✓
8	MW12-8 BH385				30 Nov 12									✓
9	MW12-9 BH386				29 Nov 12									✓
10	MW12-10 BH387	↓		↓	↓		↓	↓						✓

Comments: City of Ottawa job see RFSO on top.

Method of Delivery: drop-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
DARRAGH KILROY			
Date/Time: 30 Nov 12 1:05 pm	Date/Time:	Date/Time: NOV 30/12 1:07p	Date/Time: NOV 30/12
	Temperature: ____ °C	Temperature: 10.7 °C	pH Verified [ ] By: N/A

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Nº 97131

Page 2 of 2

Client Name: EXP Services
Contact Name: CHRIS KIMMERLY / DARRAGH KILROY
Address:
Telephone:

Project Reference: OTT-00018293-J1
Quote #
PO # RFSO, No 01910-91843-501
Email Address:

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

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 1248278

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP/MS	Hg	CrVI	B (HWS)							
1	MW12-11 BAH388	GW		3	29 Nov 12		X	X												✓
2	~~MW12-12~~ MW08-19 BAH389				29 Nov 12															✓
3	Recovery Well BAH390				30 Nov 12															✓
4	MW12-30 BAH391				↓															✓
5																				
6																				
7																				
8																				
9																				
10																				

Comments: City of Ottawa job see RFSO on top

Method of Delivery: walk-in

Relinquished By (Print & Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
DARRAGH KILROY			
Date/Time: 30 Nov 12 1:05pm	Date/Time:	Date/Time: Nov 30/12 1:57pm	Date/Time: Nov 30/12
	Temperature: _____ °C	Temperature: 8.9 °C	pH Verified [ ] By:

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Taryn Glancy

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J/ 1770 Heatherington
Custody: 96165/6

Report Date: 15-Apr-2013
Order Date: 11-Apr-2013
Order #: 1315253

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

Paracel ID	Client ID
1315253-01	MW12-5
1315253-02	MW12-2
1315253-03	MW12-20
1315253-04	MW12-1
1315253-05	MW12-4
1315253-06	MW12-8
1315253-07	MW12-3
1315253-08	MW8-19
1315253-09	MW12-7
1315253-10	MW12-9
1315253-11	MW12-8
1315253-12	MW12-10
1315253-13	MW12-11
1315253-14	Trip Blank
1315253-15	Field Blank

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: 15-Apr-2013
Order Date:11-Apr-2013

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625
Project Description: OTT00018293J/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
VOCs by P&T GC-MS	EPA 624 - P&T GC-MS	12-Apr-13	15-Apr-13

Certificate of Analysis

Report Date: 15-Apr-2013
Order Date:11-Apr-2013

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

	Client ID:	MW12-5	MW12-2	MW12-20	MW12-1
	Sample Date:	10-Apr-13	10-Apr-13	10-Apr-13	10-Apr-13
	Sample ID:	1315253-01	1315253-02	1315253-03	1315253-04
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<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
Chloroethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloromethane	3.0 ug/L	<3.0	<3.0	<3.0	<3.0
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-Dibromoethane	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
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	5.6	<0.5	<0.5	<0.5
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethylene, total	0.5 ug/L	5.6	<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	<0.5	<0.5
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 Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	<10.0	<10.0	<10.0
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

Certificate of Analysis

Report Date: 15-Apr-2013
Order Date:11-Apr-2013

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

	Client ID:	MW12-5	MW12-2	MW12-20	MW12-1
	Sample Date:	10-Apr-13	10-Apr-13	10-Apr-13	10-Apr-13
	Sample ID:	1315253-01	1315253-02	1315253-03	1315253-04
	MDL/Units	Water	Water	Water	Water
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
1,2,4-Trichlorobenzene	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
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	0.5 ug/L	2.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
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	<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
4-Bromofluorobenzene	Surrogate	124%	126%	123%	120%
Dibromofluoromethane	Surrogate	114%	120%	116%	115%
Toluene-d8	Surrogate	108%	109%	111%	112%

Certificate of Analysis

Report Date: 15-Apr-2013
Order Date:11-Apr-2013

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

	Client ID:	MW12-4	MW12-8	MW12-3	MW8-19
	Sample Date:	10-Apr-13	10-Apr-13	10-Apr-13	10-Apr-13
	Sample ID:	1315253-05	1315253-06	1315253-07	1315253-08
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	19.9	5.4	7.3	5.3
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<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
Chloroethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloromethane	3.0 ug/L	<3.0	<3.0	<3.0	<3.0
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-Dibromoethane	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
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	1.9	<0.5	17.8
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethylene, total	0.5 ug/L	<0.5	1.9	<0.5	17.8
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	<0.5	<0.5
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 Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	<10.0	<10.0	<10.0
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

Certificate of Analysis

Report Date: 15-Apr-2013
Order Date:11-Apr-2013

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

	Client ID:	MW12-4	MW12-8	MW12-3	MW8-19
	Sample Date:	10-Apr-13	10-Apr-13	10-Apr-13	10-Apr-13
	Sample ID:	1315253-05	1315253-06	1315253-07	1315253-08
	MDL/Units	Water	Water	Water	Water
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
1,2,4-Trichlorobenzene	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
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	0.5 ug/L	<0.5	3.7	<0.5	1.9
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5	2.1
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
4-Bromofluorobenzene	Surrogate	126%	123%	125%	125%
Dibromofluoromethane	Surrogate	119%	120%	118%	115%
Toluene-d8	Surrogate	109%	109%	107%	109%

Certificate of Analysis

Report Date: 15-Apr-2013
Order Date:11-Apr-2013

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

	Client ID:	MW12-7	MW12-9	MW12-8	MW12-10
	Sample Date:	10-Apr-13	10-Apr-13	10-Apr-13	10-Apr-13
	Sample ID:	1315253-09	1315253-10	1315253-11	1315253-12
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	6.1	7.7	11.2
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.5 ug/L	<0.5	1.5	<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	1.2
Chloroethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloromethane	3.0 ug/L	<3.0	<3.0	<3.0	<3.0
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-Dibromoethane	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
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	4.1	<0.5	<0.5	<0.5
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethylene, total	0.5 ug/L	4.1	<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	<0.5	<0.5
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 Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	<10.0	<10.0	<10.0
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

Certificate of Analysis

Report Date: 15-Apr-2013
Order Date:11-Apr-2013

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

	Client ID:	MW12-7	MW12-9	MW12-8	MW12-10
	Sample Date:	10-Apr-13	10-Apr-13	10-Apr-13	10-Apr-13
	Sample ID:	1315253-09	1315253-10	1315253-11	1315253-12
	MDL/Units	Water	Water	Water	Water
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
1,2,4-Trichlorobenzene	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
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	0.5 ug/L	1.4	<0.5	<0.5	<0.5
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
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	<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
4-Bromofluorobenzene	Surrogate	127%	123%	123%	119%
Dibromofluoromethane	Surrogate	120%	120%	120%	128%
Toluene-d8	Surrogate	108%	111%	109%	111%

Certificate of Analysis

Report Date: 15-Apr-2013
Order Date:11-Apr-2013

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

	Client ID:	MW12-11	Trip Blank	Field Blank	-
	Sample Date:	10-Apr-13	10-Apr-13	10-Apr-13	-
	Sample ID:	1315253-13	1315253-14	1315253-15	-
	MDL/Units	Water	Water	Water	-
Volatiles					
Acetone	5.0 ug/L	6.0	<5.0	229	-
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	-
Chloroethane	1.0 ug/L	<1.0	<1.0	<1.0	-
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	-
Chloromethane	3.0 ug/L	<3.0	<3.0	<3.0	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	-
1,2-Dibromoethane	0.2 ug/L	<0.2	<0.2	<0.2	-
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	5.5	<0.5	<0.5	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,2-Dichloroethylene, total	0.5 ug/L	5.5	<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	-
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 Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	<10.0	<10.0	-
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	8.3	-

Certificate of Analysis

Report Date: 15-Apr-2013
Order Date:11-Apr-2013

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

	Client ID:	MW12-11	Trip Blank	Field Blank	-
	Sample Date:	10-Apr-13	10-Apr-13	10-Apr-13	-
	Sample ID:	1315253-13	1315253-14	1315253-15	-
	MDL/Units	Water	Water	Water	-
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	-
1,2,4-Trichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
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	-
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
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	127%	123%	121%	-
Dibromofluoromethane	Surrogate	116%	122%	126%	-
Toluene-d8	Surrogate	113%	109%	112%	-

Certificate of Analysis

Report Date: 15-Apr-2013
Order Date:11-Apr-2013

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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						
Chloroethane	ND	1.0	ug/L						
Chloroform	ND	0.5	ug/L						
Chloromethane	ND	3.0	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dibromoethane	ND	0.2	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-Dichloroethylene, total	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						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Butyl Ketone (2-Hexanone)	ND	10.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	ND	0.5	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	*37.0*		*ug/L*		*115*	*50-140*			
Surrogate: Dibromofluoromethane	*39.2*		*ug/L*		*123*	*50-140*			
Surrogate: Toluene-d8	*27.9*		*ug/L*		*87.1*	*50-140*			

Certificate of Analysis

Report Date: 15-Apr-2013
Order Date:11-Apr-2013

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	
Chloroethane	ND	1.0	ug/L	ND				30	
Chloroform	ND	0.5	ug/L	ND				30	
Chloromethane	ND	3.0	ug/L	ND				30	
Dibromochloromethane	ND	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dibromoethane	ND	0.2	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	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Butyl Ketone (2-Hexanone)	ND	10.0	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	
1,2,4-Trichlorobenzene	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	
1,3,5-Trimethylbenzene	ND	0.5	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	*39.1*		*ug/L*	*ND*	*122*	*50-140*			
Surrogate: Dibromofluoromethane	*31.0*		*ug/L*	*ND*	*96.8*	*50-140*			
Surrogate: Toluene-d8	*37.9*		*ug/L*	*ND*	*118*	*50-140*			

Certificate of Analysis

Report Date: 15-Apr-2013
Order Date:11-Apr-2013

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	88.7	5.0	ug/L	ND	88.7	50-140			
Benzene	34.7	0.5	ug/L	ND	86.8	50-140			
Bromodichloromethane	32.8	0.5	ug/L	ND	82.0	50-140			
Bromoform	37.4	0.5	ug/L	ND	93.4	50-140			
Bromomethane	31.0	0.5	ug/L	ND	77.6	50-140			
Carbon Tetrachloride	31.7	0.2	ug/L	ND	79.2	50-140			
Chlorobenzene	41.0	0.5	ug/L	ND	102	50-140			
Chloroethane	29.8	1.0	ug/L	ND	74.4	50-140			
Chloroform	32.2	0.5	ug/L	ND	80.4	50-140			
Chloromethane	30.6	3.0	ug/L	ND	76.5	50-140			
Dibromochloromethane	38.1	0.5	ug/L	ND	95.2	50-140			
Dichlorodifluoromethane	23.5	1.0	ug/L	ND	58.7	50-140			
1,2-Dibromoethane	39.6	0.2	ug/L	ND	98.9	50-140			
1,2-Dichlorobenzene	41.2	0.5	ug/L	ND	103	50-140			
1,3-Dichlorobenzene	41.6	0.5	ug/L	ND	104	50-140			
1,4-Dichlorobenzene	37.8	0.5	ug/L	ND	94.4	50-140			
1,1-Dichloroethane	34.1	0.5	ug/L	ND	85.3	50-140			
1,2-Dichloroethane	31.7	0.5	ug/L	ND	79.3	50-140			
1,1-Dichloroethylene	31.7	0.5	ug/L	ND	79.3	50-140			
cis-1,2-Dichloroethylene	33.3	0.5	ug/L	ND	83.3	50-140			
trans-1,2-Dichloroethylene	38.7	0.5	ug/L	ND	96.8	50-140			
1,2-Dichloropropane	30.5	0.5	ug/L	ND	76.2	50-140			
cis-1,3-Dichloropropylene	30.8	0.5	ug/L	ND	77.0	50-140			
trans-1,3-Dichloropropylene	32.2	0.5	ug/L	ND	80.4	50-140			
Ethylbenzene	41.9	0.5	ug/L	ND	105	50-140			
Hexane	31.1	1.0	ug/L	ND	77.8	50-140			
Methyl Ethyl Ketone (2-Butanone)	97.2	5.0	ug/L	ND	97.2	50-140			
Methyl Butyl Ketone (2-Hexanone)	108	10.0	ug/L	ND	108	50-140			
Methyl Isobutyl Ketone	89.3	5.0	ug/L	ND	89.3	50-140			
Methyl tert-butyl ether	87.6	2.0	ug/L	ND	87.6	50-140			
Methylene Chloride	30.1	5.0	ug/L	ND	75.2	50-140			
Styrene	44.7	0.5	ug/L	ND	112	50-140			
1,1,1,2-Tetrachloroethane	41.0	0.5	ug/L	ND	103	50-140			
1,1,2,2-Tetrachloroethane	38.3	0.5	ug/L	ND	95.8	50-140			
Tetrachloroethylene	37.1	0.5	ug/L	ND	92.6	50-140			
Toluene	42.4	0.5	ug/L	ND	106	50-140			
1,2,4-Trichlorobenzene	36.6	0.5	ug/L	ND	91.4	50-140			
1,1,1-Trichloroethane	34.5	0.5	ug/L	ND	86.2	50-140			
1,1,2-Trichloroethane	32.3	0.5	ug/L	ND	80.8	50-140			
Trichloroethylene	31.5	0.5	ug/L	ND	78.8	50-140			
Trichlorofluoromethane	32.5	1.0	ug/L	ND	81.4	50-140			
1,3,5-Trimethylbenzene	42.7	0.5	ug/L	ND	107	50-140			
Vinyl chloride	29.6	0.5	ug/L	ND	74.0	50-140			
m,p-Xylenes	96.3	0.5	ug/L	ND	120	50-140			
o-Xylene	49.1	0.5	ug/L	ND	123	50-140			
Surrogate: 4-Bromofluorobenzene	*25.0*		*ug/L*		*78.3*	*50-140*			

Certificate of Analysis

Report Date: 15-Apr-2013
Client: **exp Services Inc. (Ottawa)** Order Date:11-Apr-2013
Client PO: 45064625 Project Description: OTT00018293J/ 1770 Heatherington

Qualifier Notes:

Login Qualifiers :

Sample not received in Paracel verified container / media

Applies to samples: MW12-5, MW12-2, MW12-20, MW12-1, MW12-4, MW12-8, MW12-3, MW8-19, MW12-7, MW12-9, MW12-10, MW12-11

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.

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www.paracellabs.com

Chain of Custody
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Nº 96165

Page 1 of 2

Client Name: Exp	Project Reference: 18293J	TAT: [4] Regular [ ] 3 Day
Contact Name: Tara Glancy / Chris Kimmerly	Quote # ?	[ ] 2 Day [ ] 1 Day
Address:	PO # City of Ottawa 01910-91843-S01	Date Required:
Telephone:	Email Address:	

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 1315253

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP/MS	Hg	CrVI	B (HWS)							
1	MW12-5	BAH602			2	Apr 10			X												
2	MW12-2	BAH603			3																
3	MW12-20	BAH604																			
4	MW12-1	BAH605																			
5	MW12-4	BAH606																			
6	MW12-8	BAH607																			
7	MW12-3	BAH608		1	1									Only 1 vial submitted.							
8	MW8-19	BAH609																			
9	MW12-7	BAH610																			
10	MW12-9	BAH611			↓	↓			↓												

Comments: Proceed with non-Paracel bottles. All vials preserved with Sodium Bisulfate.

Method of Delivery: Walk-in

Relinquished By (Print & Sign): Tara Glancy	Received by Driver/Depot: Karen Wiggs	Received at Lab: Ka
Date/Time: Apr 11/13 11:50 am	Date/Time: Apr 11/13 12:03	Date/Time: Apr 11/13
	Temperature: 7.8 °C	Temperature: 8.4 °C 1:45p

Verified By: M

Date/Time: Apr 12/13 12:25

pH Verified [X] By: N/A

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Nº 96166

Page 2 of 2

Client Name: exp	Project Reference: 102935	TAT: [4] Regular [ ] 3 Day
Contact Name: Taryn Glancy / Chris Kimmerly.	Quote # 01910-9-1843-501	[ ] 2 Day [ ] 1 Day
Address:	PO # City of Ottawa	Date Required:
Telephone:	Email Address:	

Criteria: [ ] O. Reg. 153/04 Table __ [X] O. Reg. 153/11 (Current) 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: 1315253

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP/MS	Hg	CrVI	B (HWS)
1	MW12-8	BAH612			2	Apr 10			X					
2	MW12-16	BAH613			↓	↓			↓					
3	MW12-11	BAH614			↓	↓			↓					
4	Trip Blank	BAH615		1	↓	↓			↓					
5	Field Blank.	BAH616			↓	↓			↓					
6														
7														
8														
9														
10														

Comments:

Method of Delivery: Walk-in

Relinquished By (Print & Sign): Taryn Glancy.	Received by Driver/Depot: Karen Wiggins	Received at Lab:
Date/Time: Apr 11/13 11:50 p.m.	Date/Time: Apr 11/13 12:03	Date/Time: Apr 11/13 1:45p
	Temperature: 7.8 °C	Temperature: 8.4 °C
		Verified By: MC
		Date/Time: Apr 12/13 12:25
		pH Verified [X] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Darragh Kilroy

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J2/ 1770 Heatherington Road
Custody: 15440

Report Date: 21-Jan-2014
Order Date: 20-Jan-2014
Order #: 1404061

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

Paracel ID	Client ID
1404061-01	E1-4
1404061-02	E1-40
1404061-03	S2-3

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: 21-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:20-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	21-Jan-14	21-Jan-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	21-Jan-14	21-Jan-14
Solids, %	Gravimetric, calculation	21-Jan-14	21-Jan-14
VOCs by P&T GC-MS	EPA 8260 - P&T GC-MS	21-Jan-14	21-Jan-14

Certificate of Analysis

Report Date: 21-Jan-2014
Order Date:20-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

	Client ID:	E1-4	E1-40	S2-3	-
	Sample Date:	20-Jan-14	20-Jan-14	20-Jan-14	-
	Sample ID:	1404061-01	1404061-02	1404061-03	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	64.3	63.1	65.2	-
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloromethane	0.20 ug/g dry	<0.20	<0.20	<0.20	-
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dibromoethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloroethylene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl Butyl Ketone (2-Hexanone)	2.00 ug/g dry	<2.00	<2.00	<2.00	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	-

Certificate of Analysis

Report Date: 21-Jan-2014
Order Date:20-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

	Client ID:	E1-4	E1-40	S2-3	-
	Sample Date:	20-Jan-14	20-Jan-14	20-Jan-14	-
	Sample ID:	1404061-01	1404061-02	1404061-03	-
	MDL/Units	Soil	Soil	Soil	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2,4-Trichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3,5-Trimethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate	111%	108%	104%	-
Dibromofluoromethane	Surrogate	89.0%	78.8%	68.9%	-
Toluene-d8	Surrogate	87.3%	90.1%	89.6%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	47	14	43	-
F2 PHCs (C10-C16)	4 ug/g dry	337	115	156	-
F3 PHCs (C16-C34)	8 ug/g dry	218	82	104	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	-

Certificate of Analysis

Report Date: 21-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:20-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

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						
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						
Chloroethane	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Chloromethane	ND	0.20	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dibromoethane	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-Dichloroethylene, total	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						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	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	*2.75*		*ug/g*		*86.0*	*50-140*			
Surrogate: Dibromofluoromethane	*1.79*		*ug/g*		*55.8*	*50-140*			
Surrogate: Toluene-d8	*2.94*		*ug/g*		*91.8*	*50-140*			

Certificate of Analysis

Report Date: 21-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:20-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	707	7	ug/g dry	694			1.9	40	
Physical Characteristics									
% Solids	78.5	0.1	% by Wt.	78.7			0.2	25	
Volatiles									
Acetone	ND	0.50	ug/g dry	ND				50	
Benzene	0.032	0.02	ug/g dry	0.031			3.9	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	
Chloroethane	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Chloromethane	ND	0.20	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-Dibromoethane	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	4.24	0.05	ug/g dry	4.15			2.0	50	
Hexane	0.098	0.05	ug/g dry	0.085			15.0	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND				50	
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	1.66	0.05	ug/g dry	1.51			9.6	50	
1,2,4-Trichlorobenzene	ND	0.05	ug/g dry	ND				50	
1,1,1-Trichloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2-Trichloroethane	11.3	0.05	ug/g dry	ND			0.0	50	
Trichloroethylene	ND	0.05	ug/g dry	ND				50	
Trichlorofluoromethane	ND	0.05	ug/g dry	ND				50	
1,3,5-Trimethylbenzene	2.91	0.05	ug/g dry	ND			0.0	50	
Vinyl chloride	ND	0.02	ug/g dry	ND				50	
m,p-Xylenes	24.7	0.05	ug/g dry	23.6			4.5	50	
o-Xylene	13.3	0.05	ug/g dry	13.4			1.0	50	
Surrogate: 4-Bromofluorobenzene	*3.64*		*ug/g dry*	*ND*	*97.6*	*50-140*			
Surrogate: Dibromofluoromethane	*2.26*		*ug/g dry*	*ND*	*60.6*	*50-140*			
Surrogate: Toluene-d8	*3.59*		*ug/g dry*	*ND*	*96.2*	*50-140*			

Certificate of Analysis

Report Date: 21-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:20-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	183	7	ug/g	ND	91.4	80-120			
Volatiles									
Acetone	9.71	0.50	ug/g	ND	97.1	50-140			
Benzene	5.09	0.02	ug/g	ND	127	60-130			
Bromodichloromethane	4.11	0.05	ug/g	ND	103	60-130			
Bromoform	2.95	0.05	ug/g	ND	73.9	60-130			
Bromomethane	4.03	0.05	ug/g	ND	101	50-140			
Carbon Tetrachloride	3.74	0.05	ug/g	ND	93.6	60-130			
Chlorobenzene	3.71	0.05	ug/g	ND	92.7	60-130			
Chloroethane	3.24	0.05	ug/g	ND	80.9	50-140			
Chloroform	4.29	0.05	ug/g	ND	107	60-130			
Chloromethane	3.57	0.20	ug/g	ND	89.2	50-140			
Dibromochloromethane	3.07	0.05	ug/g	ND	76.8	60-130			
Dichlorodifluoromethane	3.43	0.05	ug/g	ND	85.7	50-140			
1,2-Dibromoethane	3.63	0.05	ug/g	ND	90.7	60-130			
1,2-Dichlorobenzene	3.34	0.05	ug/g	ND	83.4	60-130			
1,3-Dichlorobenzene	3.38	0.05	ug/g	ND	84.5	60-130			
1,4-Dichlorobenzene	3.49	0.05	ug/g	ND	87.3	60-130			
1,1-Dichloroethane	3.98	0.05	ug/g	ND	99.6	60-130			
1,2-Dichloroethane	4.22	0.05	ug/g	ND	106	60-130			
1,1-Dichloroethylene	3.63	0.05	ug/g	ND	90.8	60-130			
cis-1,2-Dichloroethylene	4.73	0.05	ug/g	ND	118	60-130			
trans-1,2-Dichloroethylene	4.03	0.05	ug/g	ND	101	60-130			
1,2-Dichloropropane	5.05	0.05	ug/g	ND	126	60-130			
cis-1,3-Dichloropropylene	3.46	0.05	ug/g	ND	86.5	60-130			
trans-1,3-Dichloropropylene	3.02	0.05	ug/g	ND	75.4	60-130			
Ethylbenzene	4.12	0.05	ug/g	ND	103	60-130			
Hexane	5.03	0.05	ug/g	ND	126	60-130			
Methyl Ethyl Ketone (2-Butanone)	13.3	0.50	ug/g	ND	133	50-140			
Methyl Butyl Ketone (2-Hexanone)	11.5	2.00	ug/g	ND	115	50-140			
Methyl Isobutyl Ketone	12.5	0.50	ug/g	ND	125	50-140			
Methyl tert-butyl ether	10.4	0.05	ug/g	ND	104	50-140			
Methylene Chloride	3.42	0.05	ug/g	ND	85.6	60-130			
Styrene	4.37	0.05	ug/g	ND	109	60-130			
1,1,1,2-Tetrachloroethane	3.11	0.05	ug/g	ND	77.8	60-130			
1,1,2,2-Tetrachloroethane	4.25	0.05	ug/g	ND	106	60-130			
Tetrachloroethylene	3.20	0.05	ug/g	ND	80.0	60-130			
Toluene	3.90	0.05	ug/g	ND	97.5	60-130			
1,2,4-Trichlorobenzene	3.01	0.05	ug/g	ND	75.2	60-130			
1,1,1-Trichloroethane	3.92	0.05	ug/g	ND	98.0	60-130			
1,1,2-Trichloroethane	4.94	0.05	ug/g	ND	123	60-130			
Trichloroethylene	4.88	0.05	ug/g	ND	122	60-130			
Trichlorofluoromethane	4.84	0.05	ug/g	ND	121	50-140			
1,3,5-Trimethylbenzene	3.59	0.05	ug/g	ND	89.8	60-130			
Vinyl chloride	4.74	0.02	ug/g	ND	119	50-140			
m,p-Xylenes	8.51	0.05	ug/g	ND	106	60-130			
o-Xylene	4.25	0.05	ug/g	ND	106	60-130			
Surrogate: 4-Bromofluorobenzene	*2.85*		*ug/g*		*89.0*	*50-140*			

Certificate of Analysis

Report Date: 21-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:20-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

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

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Chain of Custody
(Lab Use Only)
№ 15440

Page 1 of 1

Client Name: Exp Services.	Project Reference: OTT-00018293-J2	TAT: [ ] Regular [ ] 3 Day
Contact Name: Darragh Kilroy / Chris Kennerly.	Quote # City of Ottawa SOA	[ ] 2 Day [X] 1 Day
Address: 2650 Queensview Drive, Ottawa.	PO #	Date Required:
Telephone: 613-688-1899.	Email Address: chris.kennerly@exp.com darragh.kilroy@exp.com	

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: 1404061

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHC (F1-F4)	VOCs									
1	E1-4	BCF116	S		3	20 Jan 2014		X	X			250ml + 2 vials						
2	E1-40	BCF117	↓		↓	↓		X	X				↓					
3	S2-3	BCF118	↓		↓	↓		X	X				↓					
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Comments: City of Ottawa Project

Method of Delivery: Walk-in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab: MC	Verified By: MC
Relinquished By (Print): Darragh Kilroy	Date/Time:	Date/Time: Jan 20/14 4:56	Date/Time: Jan 20/14 5:10
Date/Time: 20 Jan 2014 17:00.	Temperature: _____ °C	Temperature: 3.1 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J2/ 1770 Heatherington Road
Custody: 14113

Report Date: 22-Jan-2014
Order Date: 21-Jan-2014
Order #: 1404075

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

Paracel ID	Client ID
1404075-01	SP1
1404075-02	FS1

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: 22-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:21-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	22-Jan-14	22-Jan-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	22-Jan-14	22-Jan-14
Solids, %	Gravimetric, calculation	22-Jan-14	22-Jan-14
VOCs by P&T GC-MS	EPA 8260 - P&T GC-MS	22-Jan-14	22-Jan-14

Certificate of Analysis

Report Date: 22-Jan-2014
Order Date:21-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

	Client ID:	SP1	FS1	-	-
	Sample Date:	21-Jan-14	21-Jan-14	-	-
	Sample ID:	1404075-01	1404075-02	-	-
	MDL/Units	Soil	Soil	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	86.5	89.3	-	-
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	-	-
Chloroethane	0.05 ug/g dry	<0.05	<0.05	-	-
Chloroform	0.05 ug/g dry	<0.05	<0.05	-	-
Chloromethane	0.20 ug/g dry	<0.20	<0.20	-	-
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	-	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	-	-
1,2-Dibromoethane	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-Dichloroethylene, total	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	-	-
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 Butyl Ketone (2-Hexanone)	2.00 ug/g dry	<2.00	<2.00	-	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	-	-

Certificate of Analysis

Report Date: 22-Jan-2014
Order Date:21-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

	Client ID:	SP1	FS1	-	-
	Sample Date:	21-Jan-14	21-Jan-14	-	-
	Sample ID:	1404075-01	1404075-02	-	-
	MDL/Units	Soil	Soil	-	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	-	-
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	-	-
Styrene	0.05 ug/g dry	<0.05	<0.05	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	-	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene	0.05 ug/g dry	<0.05	<0.05	-	-
1,2,4-Trichlorobenzene	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	-	-
1,3,5-Trimethylbenzene	0.05 ug/g dry	<0.05	0.12	-	-
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	0.14	-	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g dry	<0.05	0.16	-	-
4-Bromofluorobenzene	Surrogate	103%	94.7%	-	-
Dibromofluoromethane	Surrogate	53.8%	47.7% [2]	-	-
Toluene-d8	Surrogate	86.6%	83.4%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	12	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	128	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	69	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	-	-

Certificate of Analysis

Report Date: 22-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:21-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

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						
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						
Chloroethane	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Chloromethane	ND	0.20	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dibromoethane	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-Dichloroethylene, total	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						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*3.60*		*ug/g*		*112*	*50-140*			
Surrogate: Dibromofluoromethane	*2.64*		*ug/g*		*82.6*	*50-140*			
Surrogate: Toluene-d8	*2.75*		*ug/g*		*86.0*	*50-140*			

Certificate of Analysis

Report Date: 22-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:21-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	19	7	ug/g dry	21			8.3	40	
F2 PHCs (C10-C16)	59	4	ug/g dry	36			47.0	30	QR-04
F3 PHCs (C16-C34)	592	8	ug/g dry	380			43.6	30	QR-04
F4 PHCs (C34-C50)	238	6	ug/g dry	206			14.4	30	
Physical Characteristics									
% Solids	87.5	0.1	% by Wt.	87.8			0.4	25	
Volatiles									
Acetone	ND	0.50	ug/g dry	ND				50	
Benzene	0.023	0.02	ug/g dry	0.022			2.5	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	
Chloroethane	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Chloromethane	ND	0.20	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-Dibromoethane	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	0.157	0.05	ug/g dry	0.155			1.3	50	
Hexane	0.604	0.05	ug/g dry	ND			0.0	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND				50	
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	0.631	0.05	ug/g dry	0.621			1.6	50	
1,2,4-Trichlorobenzene	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	
1,3,5-Trimethylbenzene	0.074	0.05	ug/g dry	0.075			0.5	50	
Vinyl chloride	ND	0.02	ug/g dry	ND				50	
m,p-Xylenes	0.906	0.05	ug/g dry	0.888			2.0	50	
o-Xylene	0.325	0.05	ug/g dry	0.315			3.1	50	
Surrogate: 4-Bromofluorobenzene	*5.24*		*ug/g dry*	*ND*	*95.5*	*50-140*			
Surrogate: Dibromofluoromethane	*3.40*		*ug/g dry*	*ND*	*62.0*	*50-140*			

Certificate of Analysis

Report Date: 22-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:21-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Toluene-d8	*4.78*		*ug/g dry*	*ND*	*87.0*	*50-140*			

Certificate of Analysis

Report Date: 22-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:21-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	192	7	ug/g	ND	95.8	80-120			
F2 PHCs (C10-C16)	105	4	ug/g	ND	116	80-120			
F3 PHCs (C16-C34)	218	8	ug/g	ND	117	80-120			
F4 PHCs (C34-C50)	148	6	ug/g	ND	119	80-120			
Volatiles									
Acetone	7.43	0.50	ug/g	ND	74.3	50-140			
Benzene	4.93	0.02	ug/g	ND	123	60-130			
Bromodichloromethane	4.47	0.05	ug/g	ND	112	60-130			
Bromoform	3.61	0.05	ug/g	ND	90.3	60-130			
Bromomethane	3.50	0.05	ug/g	ND	87.4	50-140			
Carbon Tetrachloride	4.15	0.05	ug/g	ND	104	60-130			
Chlorobenzene	4.01	0.05	ug/g	ND	100	60-130			
Chloroethane	3.59	0.05	ug/g	ND	89.7	50-140			
Chloroform	4.26	0.05	ug/g	ND	106	60-130			
Chloromethane	3.48	0.20	ug/g	ND	87.1	50-140			
Dibromochloromethane	3.95	0.05	ug/g	ND	98.8	60-130			
Dichlorodifluoromethane	2.92	0.05	ug/g	ND	72.9	50-140			
1,2-Dibromoethane	4.05	0.05	ug/g	ND	101	60-130			
1,2-Dichlorobenzene	3.63	0.05	ug/g	ND	90.6	60-130			
1,3-Dichlorobenzene	3.71	0.05	ug/g	ND	92.7	60-130			
1,4-Dichlorobenzene	3.76	0.05	ug/g	ND	94.0	60-130			
1,1-Dichloroethane	4.58	0.05	ug/g	ND	114	60-130			
1,2-Dichloroethane	3.89	0.05	ug/g	ND	97.2	60-130			
1,1-Dichloroethylene	2.79	0.05	ug/g	ND	69.8	60-130			
cis-1,2-Dichloroethylene	4.93	0.05	ug/g	ND	123	60-130			
trans-1,2-Dichloroethylene	4.45	0.05	ug/g	ND	111	60-130			
1,2-Dichloropropane	4.75	0.05	ug/g	ND	119	60-130			
cis-1,3-Dichloropropylene	4.54	0.05	ug/g	ND	113	60-130			
trans-1,3-Dichloropropylene	4.29	0.05	ug/g	ND	107	60-130			
Ethylbenzene	4.53	0.05	ug/g	ND	113	60-130			
Hexane	5.06	0.05	ug/g	ND	127	60-130			
Methyl Ethyl Ketone (2-Butanone)	12.6	0.50	ug/g	ND	126	50-140			
Methyl Butyl Ketone (2-Hexanone)	11.4	2.00	ug/g	ND	114	50-140			
Methyl Isobutyl Ketone	12.5	0.50	ug/g	ND	125	50-140			
Methyl tert-butyl ether	13.7	0.05	ug/g	ND	137	50-140			
Methylene Chloride	2.93	0.05	ug/g	ND	73.4	60-130			
Styrene	4.96	0.05	ug/g	ND	124	60-130			
1,1,1,2-Tetrachloroethane	3.88	0.05	ug/g	ND	97.1	60-130			
1,1,2,2-Tetrachloroethane	4.52	0.05	ug/g	ND	113	60-130			
Tetrachloroethylene	3.54	0.05	ug/g	ND	88.6	60-130			
Toluene	4.26	0.05	ug/g	ND	107	60-130			
1,2,4-Trichlorobenzene	3.28	0.05	ug/g	ND	82.1	60-130			
1,1,1-Trichloroethane	4.56	0.05	ug/g	ND	114	60-130			
1,1,2-Trichloroethane	4.72	0.05	ug/g	ND	118	60-130			
Trichloroethylene	4.49	0.05	ug/g	ND	112	60-130			
Trichlorofluoromethane	3.93	0.05	ug/g	ND	98.3	50-140			
1,3,5-Trimethylbenzene	3.96	0.05	ug/g	ND	99.1	60-130			
Vinyl chloride	3.98	0.02	ug/g	ND	99.5	50-140			
m,p-Xylenes	9.38	0.05	ug/g	ND	117	60-130			

Certificate of Analysis

Report Date: 22-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:21-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	4.52	0.05	ug/g	ND	113	60-130			
Surrogate: 4-Bromofluorobenzene	*2.93*		*ug/g*		*91.6*	*50-140*			

Qualifier Notes:

Sample Qualifiers :

2 : Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

QC Qualifiers :

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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Certificate of Analysis

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100-2650 Queensview Dr.
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Phone: (613) 688-1899
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Client PO: 45064625
Project: OTT0018293J2/ 1770 Heatherington Road
Custody: 15669

Report Date: 23-Jan-2014
Order Date: 22-Jan-2014
Order #: 1404151

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

Paracel ID	Client ID
1404151-01	E3-4
1404151-02	F5-4
1404151-03	F5-40

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: 23-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:22-Jan-2014
Client PO: 45064625 Project Description: OTT0018293J2/ 1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	22-Jan-14	23-Jan-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	22-Jan-14	23-Jan-14
Solids, %	Gravimetric, calculation	22-Jan-14	22-Jan-14
VOCs by P&T GC-MS	EPA 8260 - P&T GC-MS	22-Jan-14	23-Jan-14

Certificate of Analysis

Report Date: 23-Jan-2014
Order Date:22-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT0018293J2/ 1770 Heatherington Road

	Client ID:	E3-4	F5-4	F5-40	-
	Sample Date:	22-Jan-14	22-Jan-14	22-Jan-14	-
	Sample ID:	1404151-01	1404151-02	1404151-03	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	85.3	89.9	90.4	-
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloromethane	0.20 ug/g dry	<0.20	<0.20	<0.20	-
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dibromoethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	0.08	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloroethylene, total	0.05 ug/g dry	<0.05	<0.05	0.08	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl Butyl Ketone (2-Hexanone)	2.00 ug/g dry	<2.00	<2.00	<2.00	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	-

Certificate of Analysis

Report Date: 23-Jan-2014
Order Date:22-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT0018293J2/ 1770 Heatherington Road

	Client ID:	E3-4	F5-4	F5-40	-
	Sample Date:	22-Jan-14	22-Jan-14	22-Jan-14	-
	Sample ID:	1404151-01	1404151-02	1404151-03	-
	MDL/Units	Soil	Soil	Soil	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2,4-Trichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3,5-Trimethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate	101%	98.5%	98.9%	-
Dibromofluoromethane	Surrogate	93.9%	92.5%	92.6%	-
Toluene-d8	Surrogate	99.5%	98.6%	98.4%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	57	52	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	47	49	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	-

Certificate of Analysis

Report Date: 23-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:22-Jan-2014
Client PO: 45064625 Project Description: OTT0018293J2/ 1770 Heatherington Road

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						
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						
Chloroethane	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Chloromethane	ND	0.20	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dibromoethane	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-Dichloroethylene, total	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						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	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	*8.02*		*ug/g*		*100*	*50-140*			
Surrogate: Dibromofluoromethane	*8.07*		*ug/g*		*101*	*50-140*			
Surrogate: Toluene-d8	*7.91*		*ug/g*		*98.8*	*50-140*			

Certificate of Analysis

Report Date: 23-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:22-Jan-2014
Client PO: 45064625 Project Description: OTT0018293J2/ 1770 Heatherington Road

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	87.5	0.1	% by Wt.	87.8			0.4	25	
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	
Chloroethane	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Chloromethane	ND	0.20	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-Dibromoethane	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	
Hexane	ND	0.05	ug/g dry	ND				50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND				50	
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
1,2,4-Trichlorobenzene	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	
1,3,5-Trimethylbenzene	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	*6.33*		*ug/g dry*	*ND*	*101*	*50-140*			
Surrogate: Dibromofluoromethane	*5.64*		*ug/g dry*	*ND*	*90.3*	*50-140*			

Certificate of Analysis

Report Date: 23-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:22-Jan-2014
Client PO: 45064625 Project Description: OTT0018293J2/ 1770 Heatherington Road

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Toluene-d8	*6.17*		*ug/g dry*	*ND*	*98.7*	*50-140*			

Certificate of Analysis

Report Date: 23-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:22-Jan-2014
Client PO: 45064625 Project Description: OTT0018293J2/ 1770 Heatherington Road

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	198	7	ug/g	ND	99.2	80-120			
F2 PHCs (C10-C16)	98	4	ug/g	ND	109	80-120			
F3 PHCs (C16-C34)	210	8	ug/g	ND	113	80-120			
F4 PHCs (C34-C50)	148	6	ug/g	ND	119	80-120			
Volatiles									
Acetone	8.64	0.50	ug/g	ND	86.4	50-140			
Benzene	4.22	0.02	ug/g	ND	106	60-130			
Bromodichloromethane	4.23	0.05	ug/g	ND	106	60-130			
Bromoform	4.34	0.05	ug/g	ND	109	60-130			
Bromomethane	3.65	0.05	ug/g	ND	91.3	50-140			
Carbon Tetrachloride	4.31	0.05	ug/g	ND	108	60-130			
Chlorobenzene	4.19	0.05	ug/g	ND	105	60-130			
Chloroethane	3.63	0.05	ug/g	ND	90.7	50-140			
Chloroform	4.17	0.05	ug/g	ND	104	60-130			
Chloromethane	4.47	0.20	ug/g	ND	112	50-140			
Dibromochloromethane	3.76	0.05	ug/g	ND	94.1	60-130			
Dichlorodifluoromethane	4.24	0.05	ug/g	ND	106	50-140			
1,2-Dibromoethane	3.62	0.05	ug/g	ND	90.6	60-130			
1,2-Dichlorobenzene	4.14	0.05	ug/g	ND	103	60-130			
1,3-Dichlorobenzene	4.08	0.05	ug/g	ND	102	60-130			
1,4-Dichlorobenzene	4.15	0.05	ug/g	ND	104	60-130			
1,1-Dichloroethane	4.18	0.05	ug/g	ND	104	60-130			
1,2-Dichloroethane	4.45	0.05	ug/g	ND	111	60-130			
1,1-Dichloroethylene	4.11	0.05	ug/g	ND	103	60-130			
cis-1,2-Dichloroethylene	4.32	0.05	ug/g	ND	108	60-130			
trans-1,2-Dichloroethylene	4.44	0.05	ug/g	ND	111	60-130			
1,2-Dichloropropane	4.30	0.05	ug/g	ND	108	60-130			
cis-1,3-Dichloropropylene	4.27	0.05	ug/g	ND	107	60-130			
trans-1,3-Dichloropropylene	4.04	0.05	ug/g	ND	101	60-130			
Ethylbenzene	4.05	0.05	ug/g	ND	101	60-130			
Hexane	4.46	0.05	ug/g	ND	111	60-130			
Methyl Ethyl Ketone (2-Butanone)	10.3	0.50	ug/g	ND	103	50-140			
Methyl Butyl Ketone (2-Hexanone)	11.6	2.00	ug/g	ND	116	50-140			
Methyl Isobutyl Ketone	12.4	0.50	ug/g	ND	124	50-140			
Methyl tert-butyl ether	11.3	0.05	ug/g	ND	113	50-140			
Methylene Chloride	3.88	0.05	ug/g	ND	96.9	60-130			
Styrene	3.76	0.05	ug/g	ND	94.1	60-130			
1,1,1,2-Tetrachloroethane	4.27	0.05	ug/g	ND	107	60-130			
1,1,2,2-Tetrachloroethane	4.45	0.05	ug/g	ND	111	60-130			
Tetrachloroethylene	3.96	0.05	ug/g	ND	99.0	60-130			
Toluene	3.53	0.05	ug/g	ND	88.2	60-130			
1,2,4-Trichlorobenzene	4.29	0.05	ug/g	ND	107	60-130			
1,1,1-Trichloroethane	4.21	0.05	ug/g	ND	105	60-130			
1,1,2-Trichloroethane	3.75	0.05	ug/g	ND	93.8	60-130			
Trichloroethylene	3.75	0.05	ug/g	ND	93.7	60-130			
Trichlorofluoromethane	4.32	0.05	ug/g	ND	108	50-140			
1,3,5-Trimethylbenzene	4.12	0.05	ug/g	ND	103	60-130			
Vinyl chloride	3.89	0.02	ug/g	ND	97.4	50-140			
m,p-Xylenes	8.01	0.05	ug/g	ND	100	60-130			

Certificate of Analysis

Report Date: 23-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:22-Jan-2014
Client PO: 45064625 Project Description: OTT0018293J2/ 1770 Heatherington Road

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	4.28	0.05	ug/g	ND	107	60-130			
Surrogate: 4-Bromofluorobenzene	*8.06*		*ug/g*		*101*	*50-140*			

Certificate of Analysis

Report Date: 23-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:22-Jan-2014
Client PO: 45064625 Project Description: OTT0018293J2/ 1770 Heatherington Road

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

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

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Chain of Custody
(Lab Use Only)
№ 15669

Page 1 of 1

Client Name: Exp Services Inc	Project Reference: OTT-1018293-52	TAT: [ ] Regular [ ] 3 Day
Contact Name: Chris Kimmerly / Darragh Kilroy	Quote # City of Ottawa Reference	[ ] 2 Day [X] 1 Day
Address: 2650 Queensview Dr	PO #	Date Required: Jan 23/2014
Telephone: 613-688-1899	Email Address: chris.kimmerly@exp.com	

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: 1404151

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	VOC	PHC F1-F4									
1	BH3-4 BCF121	S		2	Jan 22	1:25p	✓	✓									
2	FS-4 BCF122	S		2	"	"	✓	✓									
3	FS-40 BCF123	S		2	"	"	✓	✓									
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Comments:

Method of Delivery: Walk In

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab: RBOM 3°	Verified By: MC
Relinquished By (Print): Chris Kimmerly	Date/Time:	Date/Time: Jan 22, 14	Date/Time: Jan 22/14 22:1
Date/Time: Jan 22/2014 1:28 p.m.	Temperature: _____ °C	Temperature: 17 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J2/Heatherington
Custody: 15668

Report Date: 23-Jan-2014
Order Date: 22-Jan-2014
Order #: 1404154

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

Paracel ID	Client ID
1404154-01	E5-4
1404154-02	FS-6
1404154-03	NE1-3

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: 23-Jan-2014
Order Date:22-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625
Project Description: OTT00018293J2/Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	22-Jan-14	23-Jan-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	22-Jan-14	23-Jan-14
Solids, %	Gravimetric, calculation	23-Jan-14	23-Jan-14
VOCs by P&T GC-MS	EPA 8260 - P&T GC-MS	22-Jan-14	23-Jan-14

Certificate of Analysis

Report Date: 23-Jan-2014
Order Date:22-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/Heatherington

	Client ID:	E5-4	FS-6	NE1-3	-
	Sample Date:	22-Jan-14	22-Jan-14	22-Jan-14	-
	Sample ID:	1404154-01	1404154-02	1404154-03	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	88.9	91.4	65.0	-
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloromethane	0.20 ug/g dry	<0.20	<0.20	<0.20	-
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dibromoethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	0.33	<0.05	<0.05	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloroethylene, total	0.05 ug/g dry	0.33	<0.05	<0.05	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl Butyl Ketone (2-Hexanone)	2.00 ug/g dry	<2.00	<2.00	<2.00	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	-

Certificate of Analysis

Report Date: 23-Jan-2014
Order Date:22-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/Heatherington

	Client ID:	E5-4	FS-6	NE1-3	-
	Sample Date:	22-Jan-14	22-Jan-14	22-Jan-14	-
	Sample ID:	1404154-01	1404154-02	1404154-03	-
	MDL/Units	Soil	Soil	Soil	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2,4-Trichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichloroethylene	0.05 ug/g dry	0.46	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3,5-Trimethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate	99.7%	99.0%	99.4%	-
Dibromofluoromethane	Surrogate	90.5%	87.4%	89.2%	-
Toluene-d8	Surrogate	99.3%	98.3%	99.0%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	22	26	<4	-
F3 PHCs (C16-C34)	8 ug/g dry	22	26	<8	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	-

Certificate of Analysis

Report Date: 23-Jan-2014
Order Date:22-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625
Project Description: OTT00018293J2/Heatherington

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						
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						
Chloroethane	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Chloromethane	ND	0.20	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dibromoethane	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-Dichloroethylene, total	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						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	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	*8.02*		*ug/g*		*100*	*50-140*			
Surrogate: Dibromofluoromethane	*8.07*		*ug/g*		*101*	*50-140*			
Surrogate: Toluene-d8	*7.91*		*ug/g*		*98.8*	*50-140*			

Certificate of Analysis

Report Date: 23-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:22-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	81.5	0.1	% by Wt.	81.0			0.7	25	
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	
Chloroethane	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Chloromethane	ND	0.20	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-Dibromoethane	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	
Hexane	ND	0.05	ug/g dry	ND				50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND				50	
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
1,2,4-Trichlorobenzene	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	
1,3,5-Trimethylbenzene	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	*6.33*		*ug/g dry*	*ND*	*101*	*50-140*			
Surrogate: Dibromofluoromethane	*5.64*		*ug/g dry*	*ND*	*90.3*	*50-140*			

Certificate of Analysis

Report Date: 23-Jan-2014
Order Date:22-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625
Project Description: OTT00018293J2/Heatherington

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Toluene-d8	*6.17*		*ug/g dry*	*ND*	*98.7*	*50-140*			

Certificate of Analysis

Report Date: 23-Jan-2014
Order Date:22-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	198	7	ug/g	ND	99.2	80-120			
F2 PHCs (C10-C16)	98	4	ug/g	ND	109	80-120			
F3 PHCs (C16-C34)	210	8	ug/g	ND	113	80-120			
F4 PHCs (C34-C50)	148	6	ug/g	ND	119	80-120			
Volatiles									
Acetone	8.64	0.50	ug/g	ND	86.4	50-140			
Benzene	4.22	0.02	ug/g	ND	106	60-130			
Bromodichloromethane	4.23	0.05	ug/g	ND	106	60-130			
Bromoform	4.34	0.05	ug/g	ND	109	60-130			
Bromomethane	3.65	0.05	ug/g	ND	91.3	50-140			
Carbon Tetrachloride	4.31	0.05	ug/g	ND	108	60-130			
Chlorobenzene	4.19	0.05	ug/g	ND	105	60-130			
Chloroethane	3.63	0.05	ug/g	ND	90.7	50-140			
Chloroform	4.17	0.05	ug/g	ND	104	60-130			
Chloromethane	4.47	0.20	ug/g	ND	112	50-140			
Dibromochloromethane	3.76	0.05	ug/g	ND	94.1	60-130			
Dichlorodifluoromethane	4.24	0.05	ug/g	ND	106	50-140			
1,2-Dibromoethane	3.62	0.05	ug/g	ND	90.6	60-130			
1,2-Dichlorobenzene	4.14	0.05	ug/g	ND	103	60-130			
1,3-Dichlorobenzene	4.08	0.05	ug/g	ND	102	60-130			
1,4-Dichlorobenzene	4.15	0.05	ug/g	ND	104	60-130			
1,1-Dichloroethane	4.18	0.05	ug/g	ND	104	60-130			
1,2-Dichloroethane	4.45	0.05	ug/g	ND	111	60-130			
1,1-Dichloroethylene	4.11	0.05	ug/g	ND	103	60-130			
cis-1,2-Dichloroethylene	4.32	0.05	ug/g	ND	108	60-130			
trans-1,2-Dichloroethylene	4.44	0.05	ug/g	ND	111	60-130			
1,2-Dichloropropane	4.30	0.05	ug/g	ND	108	60-130			
cis-1,3-Dichloropropylene	4.27	0.05	ug/g	ND	107	60-130			
trans-1,3-Dichloropropylene	4.04	0.05	ug/g	ND	101	60-130			
Ethylbenzene	4.05	0.05	ug/g	ND	101	60-130			
Hexane	4.46	0.05	ug/g	ND	111	60-130			
Methyl Ethyl Ketone (2-Butanone)	10.3	0.50	ug/g	ND	103	50-140			
Methyl Butyl Ketone (2-Hexanone)	11.6	2.00	ug/g	ND	116	50-140			
Methyl Isobutyl Ketone	12.4	0.50	ug/g	ND	124	50-140			
Methyl tert-butyl ether	11.3	0.05	ug/g	ND	113	50-140			
Methylene Chloride	3.88	0.05	ug/g	ND	96.9	60-130			
Styrene	3.76	0.05	ug/g	ND	94.1	60-130			
1,1,1,2-Tetrachloroethane	4.27	0.05	ug/g	ND	107	60-130			
1,1,2,2-Tetrachloroethane	4.45	0.05	ug/g	ND	111	60-130			
Tetrachloroethylene	3.96	0.05	ug/g	ND	99.0	60-130			
Toluene	3.53	0.05	ug/g	ND	88.2	60-130			
1,2,4-Trichlorobenzene	4.29	0.05	ug/g	ND	107	60-130			
1,1,1-Trichloroethane	4.21	0.05	ug/g	ND	105	60-130			
1,1,2-Trichloroethane	3.75	0.05	ug/g	ND	93.8	60-130			
Trichloroethylene	3.75	0.05	ug/g	ND	93.7	60-130			
Trichlorofluoromethane	4.32	0.05	ug/g	ND	108	50-140			
1,3,5-Trimethylbenzene	4.12	0.05	ug/g	ND	103	60-130			
Vinyl chloride	3.89	0.02	ug/g	ND	97.4	50-140			
m,p-Xylenes	8.01	0.05	ug/g	ND	100	60-130			

Certificate of Analysis

Report Date: 23-Jan-2014
Order Date:22-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625
Project Description: OTT00018293J2/Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	4.28	0.05	ug/g	ND	107	60-130			
Surrogate: 4-Bromofluorobenzene	*8.06*		*ug/g*		*101*	*50-140*			

Certificate of Analysis

Report Date: 23-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:22-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/Heatherington

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

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

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Chain of Custody
(Lab Use Only)
Nº 15668

Page 1 of 1

Client Name: EXP Services	Project Reference: OTT-00018293-J2	TAT: [ ] Regular [ ] 3 Day	
Contact Name: Chris Kimmerly / Darragh Kilroy	Quote #: City of Ottawa Project.	[ ] 2 Day [X] 1 Day	
Address: 2650 Queensview Drive, Ottawa.	PO #:	Date Required: ASAP - AM	
Telephone: 613-688-1899	Email Address: Chris.kimmerly@exp.com darragh.kilroy@exp.com		

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: 1404154

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHC (F1-F4)	VOCs
1	ES-4 BCF124	S		2	22 Jan 14	2:10pm	X	X
2	FS-6 BCF125	↓		↓	↓	2:00pm	↓	↓
3	NE1-3 BCF126.	↓		↓	↓	2:25pm	↓	↓
4								
5								
6								
7								
8								
9								
10								

Comments: City of Ottawa Project.

Method of Delivery: Walkin

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): DARRAGH KILROY	Date/Time:	Date/Time: Jan 22/14 2:42	Date/Time: Jan 22/14 2:47p
Date/Time: 22 Jan 2014 14:42	Temperature: _____ °C	Temperature: _____ °C	pH Verified [ ] By: AH

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J2/ 1770 Heatherington Road
Custody: 15688

Report Date: 29-Jan-2014
Order Date: 28-Jan-2014
Order #: 1405095

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

Paracel ID	Client ID
1405095-01	FS-0
1405095-02	W1-3
1405095-03	S21-3
1405095-04	S21-30
1405095-05	E0-4

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: 29-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:28-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	29-Jan-14	29-Jan-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	29-Jan-14	29-Jan-14
Solids, %	Gravimetric, calculation	29-Jan-14	29-Jan-14
VOCs by P&T GC-MS	EPA 8260 - P&T GC-MS	29-Jan-14	29-Jan-14

Certificate of Analysis

Report Date: 29-Jan-2014
Order Date:28-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

	Client ID:	FS-0	W1-3	S21-3	S21-30
	Sample Date:	28-Jan-14	28-Jan-14	28-Jan-14	28-Jan-14
	Sample ID:	1405095-01	1405095-02	1405095-03	1405095-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	86.6	69.0	81.6	65.8
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
Chloroethane	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
Chloromethane	0.20 ug/g dry	<0.20	<0.20	<0.20	<0.20
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-Dibromoethane	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-Dichloroethylene, total	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
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 Butyl Ketone (2-Hexanone)	2.00 ug/g dry	<2.00	<2.00	<2.00	<2.00
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50

Certificate of Analysis

Report Date: 29-Jan-2014
Order Date:28-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

	Client ID:	FS-0	W1-3	S21-3	S21-30
	Sample Date:	28-Jan-14	28-Jan-14	28-Jan-14	28-Jan-14
	Sample ID:	1405095-01	1405095-02	1405095-03	1405095-04
	MDL/Units	Soil	Soil	Soil	Soil
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
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
1,2,4-Trichlorobenzene	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
1,3,5-Trimethylbenzene	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	116%	107%	107%	106%
Dibromofluoromethane	Surrogate	95.1%	93.8%	97.6%	94.4%
Toluene-d8	Surrogate	85.0%	85.0%	85.5%	85.2%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	8	<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: 29-Jan-2014
Order Date:28-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

	Client ID:	E0-4	-	-	-
	Sample Date:	28-Jan-14	-	-	-
	Sample ID:	1405095-05	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	74.3	-	-	-
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	-	-	-
Chloroethane	0.05 ug/g dry	<0.05	-	-	-
Chloroform	0.05 ug/g dry	<0.05	-	-	-
Chloromethane	0.20 ug/g dry	<0.20	-	-	-
Dibromochloromethane	0.05 ug/g dry	<0.05	-	-	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dibromoethane	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-Dichloroethylene, total	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	-	-	-
Hexane	0.05 ug/g dry	<0.05	-	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	-	-	-
Methyl Butyl Ketone (2-Hexanone)	2.00 ug/g dry	<2.00	-	-	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	-	-	-

Certificate of Analysis

Report Date: 29-Jan-2014
Order Date:28-Jan-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

	Client ID:	E0-4	-	-	-
	Sample Date:	28-Jan-14	-	-	-
	Sample ID:	1405095-05	-	-	-
	MDL/Units	Soil	-	-	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	-	-	-
Methylene Chloride	0.05 ug/g dry	<0.05	-	-	-
Styrene	0.05 ug/g dry	<0.05	-	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	-	-	-
Toluene	0.05 ug/g dry	<0.05	-	-	-
1,2,4-Trichlorobenzene	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	-	-	-
1,3,5-Trimethylbenzene	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	105%	-	-	-
Dibromofluoromethane	Surrogate	95.2%	-	-	-
Toluene-d8	Surrogate	84.8%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	-	-	-

Certificate of Analysis

Report Date: 29-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:28-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

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						
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						
Chloroethane	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Chloromethane	ND	0.20	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dibromoethane	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-Dichloroethylene, total	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						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,2,4-Trichlorobenzene	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						
1,3,5-Trimethylbenzene	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*3.50*		*ug/g*		*109*	*50-140*			
Surrogate: Dibromofluoromethane	*2.28*		*ug/g*		*71.2*	*50-140*			
Surrogate: Toluene-d8	*2.53*		*ug/g*		*79.1*	*50-140*			

Certificate of Analysis

Report Date: 29-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:28-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

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)	8	4	ug/g dry	8			4.0	30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND			0.0	30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	87.0	0.1	% by Wt.	86.6			0.5	25	
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	
Chloroethane	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Chloromethane	ND	0.20	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-Dibromoethane	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	
Hexane	ND	0.05	ug/g dry	ND				50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND				50	
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
1,2,4-Trichlorobenzene	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	
1,3,5-Trimethylbenzene	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	*8.15*		*ug/g dry*	*ND*	*104*	*50-140*			
Surrogate: Dibromofluoromethane	*7.27*		*ug/g dry*	*ND*	*93.0*	*50-140*			

Certificate of Analysis

Report Date: 29-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:28-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Toluene-d8	*6.80*		*ug/g dry*	*ND*	*87.1*	*50-140*			

Certificate of Analysis

Report Date: 29-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:28-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	199	7	ug/g	ND	99.4	80-120			
F2 PHCs (C10-C16)	93	4	ug/g	ND	104	80-120			
F3 PHCs (C16-C34)	140	8	ug/g	ND	65.3	60-140			
F4 PHCs (C34-C50)	94	6	ug/g	ND	65.4	60-140			
Volatiles									
Acetone	6.20	0.50	ug/g	ND	62.0	50-140			
Benzene	3.91	0.02	ug/g	ND	97.7	60-130			
Bromodichloromethane	2.51	0.05	ug/g	ND	62.6	60-130			
Bromoform	2.85	0.05	ug/g	ND	71.2	60-130			
Bromomethane	3.09	0.05	ug/g	ND	77.3	50-140			
Carbon Tetrachloride	2.91	0.05	ug/g	ND	72.6	60-130			
Chlorobenzene	3.32	0.05	ug/g	ND	82.9	60-130			
Chloroethane	2.94	0.05	ug/g	ND	73.4	50-140			
Chloroform	3.15	0.05	ug/g	ND	78.7	60-130			
Chloromethane	2.46	0.20	ug/g	ND	61.5	50-140			
Dibromochloromethane	3.00	0.05	ug/g	ND	75.0	60-130			
Dichlorodifluoromethane	2.45	0.05	ug/g	ND	61.2	50-140			
1,2-Dibromoethane	3.19	0.05	ug/g	ND	79.9	60-130			
1,2-Dichlorobenzene	3.21	0.05	ug/g	ND	80.2	60-130			
1,3-Dichlorobenzene	3.25	0.05	ug/g	ND	81.1	60-130			
1,4-Dichlorobenzene	3.36	0.05	ug/g	ND	84.0	60-130			
1,1-Dichloroethane	2.85	0.05	ug/g	ND	71.3	60-130			
1,2-Dichloroethane	2.89	0.05	ug/g	ND	72.4	60-130			
1,1-Dichloroethylene	2.90	0.05	ug/g	ND	72.5	60-130			
cis-1,2-Dichloroethylene	3.61	0.05	ug/g	ND	90.3	60-130			
trans-1,2-Dichloroethylene	3.01	0.05	ug/g	ND	75.3	60-130			
1,2-Dichloropropane	3.86	0.05	ug/g	ND	96.5	60-130			
cis-1,3-Dichloropropylene	2.56	0.05	ug/g	ND	64.0	60-130			
trans-1,3-Dichloropropylene	2.65	0.05	ug/g	ND	66.2	60-130			
Ethylbenzene	3.62	0.05	ug/g	ND	90.6	60-130			
Hexane	3.75	0.05	ug/g	ND	93.8	60-130			
Methyl Ethyl Ketone (2-Butanone)	7.68	0.50	ug/g	ND	76.8	50-140			
Methyl Butyl Ketone (2-Hexanone)	8.78	2.00	ug/g	ND	87.8	50-140			
Methyl Isobutyl Ketone	8.82	0.50	ug/g	ND	88.2	50-140			
Methyl tert-butyl ether	9.04	0.05	ug/g	ND	90.4	50-140			
Methylene Chloride	2.96	0.05	ug/g	ND	73.9	60-130			
Styrene	3.85	0.05	ug/g	ND	96.4	60-130			
1,1,1,2-Tetrachloroethane	2.57	0.05	ug/g	ND	64.2	60-130			
1,1,2,2-Tetrachloroethane	4.00	0.05	ug/g	ND	100	60-130			
Tetrachloroethylene	2.86	0.05	ug/g	ND	71.5	60-130			
Toluene	3.48	0.05	ug/g	ND	87.1	60-130			
1,2,4-Trichlorobenzene	2.86	0.05	ug/g	ND	71.5	60-130			
1,1,1-Trichloroethane	2.78	0.05	ug/g	ND	69.5	60-130			
1,1,2-Trichloroethane	3.70	0.05	ug/g	ND	92.5	60-130			
Trichloroethylene	3.49	0.05	ug/g	ND	87.3	60-130			
Trichlorofluoromethane	3.49	0.05	ug/g	ND	87.2	50-140			
1,3,5-Trimethylbenzene	3.48	0.05	ug/g	ND	86.9	60-130			
Vinyl chloride	3.47	0.02	ug/g	ND	86.6	50-140			
m,p-Xylenes	7.59	0.05	ug/g	ND	94.9	60-130			

Certificate of Analysis

Report Date: 29-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:28-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	3.71	0.05	ug/g	ND	92.8	60-130			
Surrogate: 4-Bromofluorobenzene	*2.96*		*ug/g*		*92.4*	*50-140*			

Certificate of Analysis

Report Date: 29-Jan-2014
Client: **exp Services Inc. (Ottawa)** Order Date:28-Jan-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

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

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Chain of Custody
(Lab Use Only)
№ 15688

Page 1 of 1

Client Name: EXP Services.
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Project Reference: OTT-00018293-J2.
Quote # City of Ottawa.
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Email Address: chris.kimmerly@exp.com
darragh.kilroy@exp.com

TAT: [ ] Regular [ ] 3 Day [ ] 2 Day [X] 1 Day
Date Required: ASAP - AM

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: 1405095

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	Required Analyses: PHC (F1-F4)	Required Analyses: VOCs									
1	FS-0 BCF129	S		2	28 Jan 14		X	X				250 + vial					
2	W1-3 BCF130	↓		↓	↓		↓	↓				↓					
3	S21-3 BCF131																
4	S21-30 BCF132																
5	E0-4 BCF133																
6																	
7																	
8																	
9																	
10																	

Comments: City of Ottawa Job.

Method of Delivery: Walk-in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Darragh Kilroy	Date/Time:	Date/Time: Jan 28/14 3:52	Date/Time: Jan 28/14 4:22
Date/Time: 28 Jan 2014 3:53	Temperature: _____ °C	Temperature: 4.8 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J2/ 1770 Heatherington Road
Custody: 15733

Report Date: 5-Feb-2014
Order Date: 4-Feb-2014
Order #: 1406084

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

Paracel ID	Client ID
1406084-01	N2-3
1406084-02	NEW 1-3
1406084-03	NEW 1-30
1406084-04	FN-2

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: 05-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:4-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	4-Feb-14	4-Feb-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	4-Feb-14	5-Feb-14
Solids, %	Gravimetric, calculation	5-Feb-14	5-Feb-14

Certificate of Analysis

Report Date: 05-Feb-2014
Order Date:4-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

	Client ID:	N2-3	NEW 1-3	NEW 1-30	FN-2
	Sample Date:	04-Feb-14	04-Feb-14	04-Feb-14	04-Feb-14
	Sample ID:	1406084-01	1406084-02	1406084-03	1406084-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	65.6	74.3	83.5	83.7
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	16
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: 05-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:4-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

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						

Certificate of Analysis

Report Date: 05-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:4-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	74.2	0.1	% by Wt.	74.2			0.0	25	

Certificate of Analysis

Report Date: 05-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:4-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	214	7	ug/g	ND	107	80-120			
F2 PHCs (C10-C16)	93	4	ug/g	ND	104	80-120			
F3 PHCs (C16-C34)	202	8	ug/g	ND	108	80-120			
F4 PHCs (C34-C50)	134	6	ug/g	ND	108	80-120			

Certificate of Analysis

Report Date: 05-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:4-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

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

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Page 1 of 1

Client Name: EXP Services
Contact Name: Chris Kimmerly / Darragh Kilroy
Address: 2650 Queensview Drive, Ottawa
Telephone: 613-688-1899

Project Reference: OTT-00018293-J2
Quote #: City of Ottawa
PO #:
Email Address: chris.kimmerly@exp.com
darragh.kilroy@exp.com

TAT: [ ] Regular [ ] 3 Day [ ] 2 Day [X] 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: 1406084

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analyses: PHC (F1-F4)										
1	N2-3 BCF135	S		2	4 Feb 14		X			250+via O							
2	NEW 1-3 BCF136	↓		↓	↓		X				↓						
3	NEW 1-30 BCF137						X										
4	FN-2 BCF138						X										
5																	
6																	
7																	
8																	
9																	
10																	

Comments: City of Ottawa Project.

Method of Delivery: Walk-in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): DARRAGH KILROY	Date/Time:	Date/Time: Feb 4/14	Date/Time: Feb 4/14 10:48
Date/Time: 4 Feb 14 10:30 am	Temperature: °C	Temperature: 9.5 °C 10:30	pH Verified [ ] By: N/A

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100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J2
Custody: 99869

Report Date: 5-Feb-2014
Order Date: 4-Feb-2014
Order #: 1406128

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

Paracel ID	Client ID
1406128-01	FN-5
1406128-02	FN-50
1406128-03	N4-3

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: 05-Feb-2014
Order Date:4-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625 Project Description: OTT00018293J2

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	5-Feb-14	5-Feb-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	4-Feb-14	5-Feb-14
Solids, %	Gravimetric, calculation	5-Feb-14	5-Feb-14

Certificate of Analysis

Report Date: 05-Feb-2014
Order Date:4-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2

	Client ID:	FN-5	FN-50	N4-3	-
	Sample Date:	04-Feb-14	04-Feb-14	04-Feb-14	-
	Sample ID:	1406128-01	1406128-02	1406128-03	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	89.4	87.3	74.3	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	25	42	<4	-
F3 PHCs (C16-C34)	8 ug/g dry	19	34	<8	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	-

Certificate of Analysis

Report Date: 05-Feb-2014
Order Date:4-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625 Project Description: OTT00018293J2

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						

Certificate of Analysis

Report Date: 05-Feb-2014
Order Date:4-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625 Project Description: OTT00018293J2

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)	42	4	ug/g dry	25			50.1	30	QR-01
F3 PHCs (C16-C34)	25	8	ug/g dry	19			26.0	30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	74.2	0.1	% by Wt.	74.2			0.0	25	

Certificate of Analysis

Report Date: 05-Feb-2014
Order Date:4-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625 Project Description: OTT00018293J2

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	214	7	ug/g	ND	107	80-120			
F2 PHCs (C10-C16)	149	4	ug/g	25	123	60-140			
F3 PHCs (C16-C34)	237	8	ug/g	19	105	60-140			
F4 PHCs (C34-C50)	139	6	ug/g	ND	100	60-140			

Certificate of Analysis

Report Date: 05-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:4-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2

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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Page 1 of 1

Client Name: EXP Services	Project Reference: OTT-00018293-J2	TAT: [ ] Regular [ ] 3 Day
Contact Name: Chris Kimmerly / Darragh Kilroy / Daniel Clarke	Quote # City of Ottawa	[ ] 2 Day [X] Day
Address: 2650 Queensview Drive, Ottawa	PO #	Date Required:
Telephone: 613-688-1899	Email Address: chris.kimmerly@exp.com daniel.clarke@exp.com darragh.kilroy@exp.com	

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: 1406128

	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	FN-5 BCF139	S		2	4 Feb 14		X										250 + vial			
2	FN-50 BCF140	↓		↓	↓		X										↓			
3	N4-3 BCF141	↓		↓	↓		X										↓			
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Comments: City of Ottawa Project.

Method of Delivery: Walk-in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Darragh Kilroy	Date/Time:	Date/Time: Feb 4/14 2:49p	Date/Time: Feb 4/14 2:55p
Date/Time: 4 Feb 2014 2:50 pm.	Temperature: _____ °C	Temperature: 4.3 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J2/ 1770 Heatherington Road
Custody: 99871

Report Date: 6-Feb-2014
Order Date: 5-Feb-2014
Order #: 1406154

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

Paracel ID	Client ID
1406154-01	N7-3
1406154-02	FN6

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: 06-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:5-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	5-Feb-14	6-Feb-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	6-Feb-14	6-Feb-14
Solids, %	Gravimetric, calculation	6-Feb-14	6-Feb-14

Certificate of Analysis

Report Date: 06-Feb-2014
Order Date:5-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

	Client ID:	N7-3	FN6	-	-
	Sample Date:	05-Feb-14	05-Feb-14	-	-
	Sample ID:	1406154-01	1406154-02	-	-
	MDL/Units	Soil	Soil	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	84.6	89.5	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	-	-

Certificate of Analysis

Report Date: 06-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:5-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

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						

Certificate of Analysis

Report Date: 06-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:5-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	82.3	0.1	% by Wt.	84.6			2.8	25	

Certificate of Analysis

Report Date: 06-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:5-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	194	7	ug/g	ND	96.8	80-120			
F2 PHCs (C10-C16)	96	4	ug/g	ND	90.2	60-140			
F3 PHCs (C16-C34)	189	8	ug/g	ND	86.1	60-140			
F4 PHCs (C34-C50)	135	6	ug/g	ND	92.2	60-140			

Certificate of Analysis

Report Date: 06-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:5-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

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

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Page 1 of 1

Client Name: EXP Services
Contact Name: Chris Kimmerly / Darragh Kilroy / Daniel Clarke
Address: 2650 Queensview Drive, Ottawa,
Telephone: 613-688-1899

Project Reference: OTT-00018293-J2
Quote #: City of Ottawa
PO #:
Email Address: chris.kimmerly@exp.com darragh.kilroy@exp.com daniel.clarke@exp.com

TAT: [ ] Regular [ ] 3 Day [ ] 2 Day [X] 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: 1406154

	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	MW-3 BCF142	S		2	5 Feb 14		X									250+ vial				
2	FW6. BCF143	↓		↓			X									11				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Comments: City of Ottawa Project.

Method of Delivery: Walk-in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Darragh Kilroy	Date/Time:	Date/Time: Feb 5/14 11:41a	Date/Time: Feb 5/14 12:25
Date/Time: 5 Feb 2014 11:41	Temperature: _____ °C	Temperature: 5.9 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J2/ 1770 Heatherington Road
Custody: 99875

Report Date: 7-Feb-2014
Order Date: 6-Feb-2014
Order #: 1406217

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

Paracel ID	Client ID
1406217-01	N9-3
1406217-02	N9-30
1406217-03	FN-10
1406217-04	NWN1-2
1406217-05	NWN1-3
1406217-06	SP-8

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: 07-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:6-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
pH	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	7-Feb-14	7-Feb-14
PHC F1	CWS Tier 1 - P&T GC-FID	7-Feb-14	7-Feb-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	6-Feb-14	7-Feb-14
Solids, %	Gravimetric, calculation	7-Feb-14	7-Feb-14
VOCs by P&T GC-MS	EPA 8260 - P&T GC-MS	7-Feb-14	7-Feb-14

Certificate of Analysis

Report Date: 07-Feb-2014
Order Date:6-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

	Client ID:	N9-3	N9-30	FN-10	NWN1-2
	Sample Date:	06-Feb-14	06-Feb-14	06-Feb-14	06-Feb-14
	Sample ID:	1406217-01	1406217-02	1406217-03	1406217-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	80.3	79.8	90.3	69.3
General Inorganics					
pH	0.05 pH Units	7.55	7.51	7.79	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	31	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	25	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6

Certificate of Analysis

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Order Date:6-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

	Client ID:	NWN1-3	SP-8	-	-
	Sample Date:	06-Feb-14	06-Feb-14	-	-
	Sample ID:	1406217-05	1406217-06	-	-
	MDL/Units	Soil	Soil	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	78.9	83.8	-	-
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	-	-
Chloroethane	0.05 ug/g dry	-	<0.05	-	-
Chloroform	0.05 ug/g dry	-	<0.05	-	-
Chloromethane	0.20 ug/g dry	-	<0.20	-	-
Dibromochloromethane	0.05 ug/g dry	-	<0.05	-	-
Dichlorodifluoromethane	0.05 ug/g dry	-	<0.05	-	-
1,2-Dibromoethane	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-Dichloroethylene, total	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	-	-
Hexane	0.05 ug/g dry	-	<0.05	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	-	<0.50	-	-
Methyl Butyl Ketone (2-Hexanone)	2.00 ug/g dry	-	<2.00	-	-
Methyl Isobutyl Ketone	0.50 ug/g dry	-	<0.50	-	-

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Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

	Client ID:	NWN1-3	SP-8	-	-
	Sample Date:	06-Feb-14	06-Feb-14	-	-
	Sample ID:	1406217-05	1406217-06	-	-
	MDL/Units	Soil	Soil	-	-
Methyl tert-butyl ether	0.05 ug/g dry	-	<0.05	-	-
Methylene Chloride	0.05 ug/g dry	-	<0.05	-	-
Styrene	0.05 ug/g dry	-	<0.05	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	-	-
Tetrachloroethylene	0.05 ug/g dry	-	<0.05	-	-
Toluene	0.05 ug/g dry	-	<0.05	-	-
1,1,1-Trichloroethane	0.05 ug/g dry	-	<0.05	-	-
1,1,2-Trichloroethane	0.05 ug/g dry	-	<0.05	-	-
Trichloroethylene	0.05 ug/g dry	-	<0.05	-	-
Trichlorofluoromethane	0.05 ug/g dry	-	<0.05	-	-
1,3,5-Trimethylbenzene	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	-	103%	-	-
Dibromofluoromethane	Surrogate	-	87.3%	-	-
Toluene-d8	Surrogate	-	90.1%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	42	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	60	-	-

Certificate of Analysis

Report Date: 07-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:6-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

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						
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						
Chloroethane	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Chloromethane	ND	0.20	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dibromoethane	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-Dichloroethylene, total	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						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
1,3,5-Trimethylbenzene	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*3.31*		*ug/g*		*103*	*50-140*			
Surrogate: Dibromofluoromethane	*2.74*		*ug/g*		*85.5*	*50-140*			
Surrogate: Toluene-d8	*3.01*		*ug/g*		*93.9*	*50-140*			

Certificate of Analysis

Report Date: 07-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:6-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
pH	7.55	0.05	pH Units	7.55			0.0	10	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	79.3	0.1	% by Wt.	83.3			4.9	25	
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	
Chloroethane	ND	0.05	ug/g dry	ND				50	
Chloroform	ND	0.05	ug/g dry	ND				50	
Chloromethane	ND	0.20	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-Dibromoethane	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			0.0	50	
Hexane	ND	0.05	ug/g dry	ND				50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND				50	
Methyl Butyl Ketone (2-Hexanone)	ND	2.00	ug/g dry	ND				50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND				50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND				50	
Methylene Chloride	ND	0.05	ug/g dry	ND				50	
Styrene	ND	0.05	ug/g dry	ND				50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND				50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
1,1,1-Trichloroethane	ND	0.05	ug/g dry	ND				50	
1,1,2-Trichloroethane	ND	0.05	ug/g dry	ND				50	
Trichloroethylene	ND	0.05	ug/g dry	ND				50	
Trichlorofluoromethane	ND	0.05	ug/g dry	ND				50	
1,3,5-Trimethylbenzene	ND	0.05	ug/g dry	ND				50	
Vinyl chloride	ND	0.02	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: 4-Bromofluorobenzene	*3.31*		*ug/g dry*	*ND*	*103*	*50-140*			

Certificate of Analysis

Report Date: 07-Feb-2014

Client: **exp Services Inc. (Ottawa)**

Order Date:6-Feb-2014

Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Dibromofluoromethane	*2.79*		*ug/g dry*	*ND*	*86.9*	*50-140*			
Surrogate: Toluene-d8	*2.93*		*ug/g dry*	*ND*	*91.4*	*50-140*			

Certificate of Analysis

Report Date: 07-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:6-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	172	7	ug/g	ND	86.2	80-120			
F2 PHCs (C10-C16)	124	4	ug/g	ND	111	60-140			
F3 PHCs (C16-C34)	226	8	ug/g	ND	97.7	60-140			
F4 PHCs (C34-C50)	154	6	ug/g	ND	100	60-140			
Volatiles									
Acetone	9.28	0.50	ug/g	ND	92.8	50-140			
Benzene	2.84	0.02	ug/g	ND	71.0	60-130			
Bromodichloromethane	2.71	0.05	ug/g	ND	67.7	60-130			
Bromoform	3.25	0.05	ug/g	ND	81.2	60-130			
Bromomethane	2.78	0.05	ug/g	ND	69.5	50-140			
Carbon Tetrachloride	3.00	0.05	ug/g	ND	75.1	60-130			
Chlorobenzene	3.14	0.05	ug/g	ND	78.5	60-130			
Chloroethane	4.31	0.05	ug/g	ND	108	50-140			
Chloroform	2.97	0.05	ug/g	ND	74.3	60-130			
Chloromethane	2.83	0.20	ug/g	ND	70.6	50-140			
Dibromochloromethane	3.27	0.05	ug/g	ND	81.7	60-130			
Dichlorodifluoromethane	2.28	0.05	ug/g	ND	57.1	50-140			
1,2-Dibromoethane	3.34	0.05	ug/g	ND	83.6	60-130			
1,2-Dichlorobenzene	3.04	0.05	ug/g	ND	76.1	60-130			
1,3-Dichlorobenzene	3.28	0.05	ug/g	ND	82.0	60-130			
1,4-Dichlorobenzene	3.45	0.05	ug/g	ND	86.1	60-130			
1,1-Dichloroethane	2.96	0.05	ug/g	ND	73.9	60-130			
1,2-Dichloroethane	2.98	0.05	ug/g	ND	74.5	60-130			
1,1-Dichloroethylene	2.93	0.05	ug/g	ND	73.2	60-130			
cis-1,2-Dichloroethylene	2.85	0.05	ug/g	ND	71.3	60-130			
trans-1,2-Dichloroethylene	3.04	0.05	ug/g	ND	76.1	60-130			
1,2-Dichloropropane	2.67	0.05	ug/g	ND	66.6	60-130			
cis-1,3-Dichloropropylene	2.47	0.05	ug/g	ND	61.8	60-130			
trans-1,3-Dichloropropylene	2.74	0.05	ug/g	ND	68.6	60-130			
Ethylbenzene	3.36	0.05	ug/g	ND	83.9	60-130			
Hexane	2.97	0.05	ug/g	ND	74.1	60-130			
Methyl Ethyl Ketone (2-Butanone)	8.28	0.50	ug/g	ND	82.8	50-140			
Methyl Butyl Ketone (2-Hexanone)	8.81	2.00	ug/g	ND	88.1	50-140			
Methyl Isobutyl Ketone	7.30	0.50	ug/g	ND	73.0	50-140			
Methyl tert-butyl ether	7.94	0.05	ug/g	ND	79.4	50-140			
Methylene Chloride	2.64	0.05	ug/g	ND	66.0	60-130			
Styrene	3.14	0.05	ug/g	ND	78.5	60-130			
1,1,1,2-Tetrachloroethane	3.32	0.05	ug/g	ND	83.0	60-130			
1,1,2,2-Tetrachloroethane	3.56	0.05	ug/g	ND	88.9	60-130			
Tetrachloroethylene	3.47	0.05	ug/g	ND	86.7	60-130			
Toluene	3.49	0.05	ug/g	ND	87.2	60-130			
1,1,1-Trichloroethane	2.94	0.05	ug/g	ND	73.4	60-130			
1,1,2-Trichloroethane	2.68	0.05	ug/g	ND	67.0	60-130			
Trichloroethylene	2.57	0.05	ug/g	ND	64.4	60-130			
Trichlorofluoromethane	3.63	0.05	ug/g	ND	90.7	50-140			
1,3,5-Trimethylbenzene	3.36	0.05	ug/g	ND	84.0	60-130			
Vinyl chloride	2.32	0.02	ug/g	ND	58.1	50-140			
m,p-Xylenes	6.73	0.05	ug/g	ND	84.1	60-130			
o-Xylene	3.37	0.05	ug/g	ND	84.2	60-130			

Certificate of Analysis

Report Date: 07-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:6-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: 4-Bromofluorobenzene	*3.33*		*ug/g*		*104*	*50-140*			

Certificate of Analysis

Report Date: 07-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:6-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

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

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Chain of Custody
(Lab Use Only)
No. 99875

Page 1 of 1

Client Name: exp
Project Reference: 07-00018293-52
Contact Name: Chris Kimmerly/Darragh Kilroy/Daniel Clarke
Quote #: City of Ottawa
Address: 100-7650 Queens View Dr, Ottawa
PO #:
Telephone: 613-688-1899
Email Address: Chris.Kimmerly@exp.com, Darragh.Kilroy@exp.com, Daniel.Clarke@exp.com
TAT: [ ] Regular [ ] 3 Day [ ] 2 Day [X] 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: 1406217

	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)	PHC F1-F4	PH	VOC				
1	MW-3	BCF151	S		2	Feb 6/14	2:00pm	X							X	X					250+Vial
2	MW-30	BCF152					2:00pm	X							X	X					
3	FN-10	BCF153					2:15pm	X							X	X					
4	NWN1-2	BCF154					2:30pm	X							X						
5	NWN1-3	BCF155					2:35pm	X							X						
6	SP-8	BCF156					10:00am	X							X		X				
7																					
8																					
9																					
10																					

Comments: City of Ottawa 5ob

Method of Delivery: Walkin

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Daniel Clarke	Date/Time:	Date/Time: Feb 6/14	Date/Time: Feb 6/14 3:53
Date/Time: Feb 6/14	Temperature: ____ °C	Temperature: 7.8 °C 3:18p	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J2
Custody: 99895

Report Date: 11-Feb-2014
Order Date: 10-Feb-2014
Order #: 1407032

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

Paracel ID	Client ID
1407032-01	FN5-6

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: 11-Feb-2014
Order Date:10-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625 Project Description: OTT00018293J2

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	10-Feb-14	11-Feb-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	11-Feb-14	11-Feb-14
Solids, %	Gravimetric, calculation	11-Feb-14	11-Feb-14

Certificate of Analysis

Report Date: 11-Feb-2014
Order Date:10-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2

	Client ID:	FN5-6	-	-	-
	Sample Date:	09-Feb-14	-	-	-
	Sample ID:	1407032-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	90.1	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	-	-	-

Certificate of Analysis

Report Date: 11-Feb-2014
Order Date:10-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625 Project Description: OTT00018293J2

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						

Certificate of Analysis

Report Date: 11-Feb-2014
Order Date:10-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625 Project Description: OTT00018293J2

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	88.4	0.1	% by Wt.	90.1			1.9	25	

Certificate of Analysis

Report Date: 11-Feb-2014
Order Date:10-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625 Project Description: OTT00018293J2

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	195	7	ug/g	ND	97.3	80-120			
F2 PHCs (C10-C16)	120	4	ug/g	ND	120	60-140			
F3 PHCs (C16-C34)	184	8	ug/g	ND	89.2	60-140			
F4 PHCs (C34-C50)	129	6	ug/g	ND	93.5	60-140			

Certificate of Analysis

Report Date: 11-Feb-2014
Order Date:10-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625 Project Description: OTT00018293J2

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

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

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№ 99895

Page 1 of 1

Client Name: EXP	Project Reference: OH-00187933-52
Contact Name: Chris Kimmerly / Daniel Clarke	Quote #: City of Ottawa
Address: 100-2650 Queensview Dr, Ottawa	PO #:
Telephone: 613-688-1899	Email Address: Chris.Kimmerly@exp.com, Daniel.Clarke@exp.com, Darragh.Killoy@exp.com

TAT: [ ] Regular [ ] 3 Day [ ] 2 Day [X] 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: 1407032

	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)	PHC F1-F4						
1	FN 5-6	S		2	Feb 9/14	13:00								X						
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

Comments: City of Ottawa Job

Method of Delivery: Walk-in

Relinquished By (Sign): Daniel Clarke	Received by Driver/Depot:	Received at Lab: RCL	Verified By: RCL
Relinquished By (Print): Daniel Clarke	Date/Time:	Date/Time: Feb 10/14 1:57p	Date/Time: Feb 10/14 2:13p
Date/Time: Feb 9/14	Temperature: ____ °C	Temperature: 9.0 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J2/ 1770 Heatherington Road
Custody: 99900

Report Date: 12-Feb-2014
Order Date: 11-Feb-2014
Order #: 1407103

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

Paracel ID	Client ID
1407103-01	FN9-6
1407103-02	FN9-60

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: 12-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:11-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	12-Feb-14	12-Feb-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	11-Feb-14	12-Feb-14
Solids, %	Gravimetric, calculation	12-Feb-14	12-Feb-14

Certificate of Analysis

Report Date: 12-Feb-2014
Order Date:11-Feb-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington Road

	Client ID:	FN9-6	FN9-60	-	-
	Sample Date:	11-Feb-14	11-Feb-14	-	-
	Sample ID:	1407103-01	1407103-02	-	-
	MDL/Units	Soil	Soil	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	90.6	90.2	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g dry	28	29	-	-
F3 PHCs (C16-C34)	8 ug/g dry	28	27	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	-	-

Certificate of Analysis

Report Date: 12-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:11-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

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						

Certificate of Analysis

Report Date: 12-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:11-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	78.8	0.1	% by Wt.	79.3			0.7	25	

Certificate of Analysis

Report Date: 12-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:11-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	195	7	ug/g	ND	97.3	80-120			
F2 PHCs (C10-C16)	100	4	ug/g	ND	88.5	60-140			
F3 PHCs (C16-C34)	234	8	ug/g	ND	99.8	60-140			
F4 PHCs (C34-C50)	136	6	ug/g	ND	87.1	60-140			

Certificate of Analysis

Report Date: 12-Feb-2014
Client: **exp Services Inc. (Ottawa)** Order Date:11-Feb-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington Road

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

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

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Page 1 of 1

Client Name: exp	Project Reference: 04-00183793-52
Contact Name: Chris Kimmerly / Daniel Clarke	Quote # City of Ottawa
Address: 100-2650 Queensview DR	PO #
Telephone: 613 688-1899	Email Address: chris.kimmerly@exp.com, daniel.clarke@exp.com

TAT: [ ] Regular [ ] 3 Day [ ] 2 Day [X] 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: 1407103

	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)	PHC F1-F4					
1	FN 9-6 BCF161	S		2	Feb 11/14	16:05								X		250 mL + vial			
2	FN 9-60 BCF162	S		2	11	16:05								X		"			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Comments: City of Ottawa

Method of Delivery: Walk-in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab: MC	Verified By: MC
Relinquished By (Print): Daniel Clarke	Date/Time:	Date/Time: Feb 11/14 4:22	Date/Time: Feb 11/14 4:38
Date/Time: Feb 11/14	Temperature: _____ °C	Temperature: 5.4 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Darragh Kilroy

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J2/ 1770 Heatherington
Custody: 101503/16945

Report Date: 10-Jul-2014
Order Date: 3-Jul-2014
Order #: 1427217

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

Paracel ID	Client ID
1427217-01	MW14-1
1427217-02	MW14-2
1427217-03	MW14-3
1427217-04	MW14-4
1427217-05	MW14-5
1427217-06	MW14-6
1427217-07	MW14-7
1427217-08	MW14-50
1427217-09	MW12-3
1427217-10	Field Blank
1427217-11	Trip Blank

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-2014
Client: **exp Services Inc. (Ottawa)** Order Date:3-Jul-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	4-Jul-14	5-Jul-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	5-Jul-14	8-Jul-14
REG 153 - VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	4-Jul-14	5-Jul-14

Certificate of Analysis

Report Date: 10-Jul-2014
Order Date:3-Jul-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington

	Client ID:	MW14-1	MW14-2	MW14-3	MW14-4
	Sample Date:	03-Jul-14	03-Jul-14	03-Jul-14	03-Jul-14
	Sample ID:	1427217-01	1427217-02	1427217-03	1427217-04
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<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	<0.5	<0.5
Ethylene dibromide (dibromoethan	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

Certificate of Analysis

Report Date: 10-Jul-2014
Order Date:3-Jul-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington

	Client ID:	MW14-1	MW14-2	MW14-3	MW14-4
	Sample Date:	03-Jul-14	03-Jul-14	03-Jul-14	03-Jul-14
	Sample ID:	1427217-01	1427217-02	1427217-03	1427217-04
	MDL/Units	Water	Water	Water	Water
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
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	<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
4-Bromofluorobenzene	Surrogate	101%	102%	104%	103%
Dibromofluoromethane	Surrogate	96.8%	97.9%	96.6%	94.4%
Toluene-d8	Surrogate	110%	111%	111%	113%
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

Certificate of Analysis

Report Date: 10-Jul-2014
Order Date:3-Jul-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington

	Client ID:	MW14-5	MW14-6	MW14-7	MW14-50
	Sample Date:	03-Jul-14	03-Jul-14	03-Jul-14	03-Jul-14
	Sample ID:	1427217-05	1427217-06	1427217-07	1427217-08
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<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	<0.5	<0.5
Ethylene dibromide (dibromoethan	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

Certificate of Analysis

Report Date: 10-Jul-2014
Order Date:3-Jul-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington

	Client ID:	MW14-5	MW14-6	MW14-7	MW14-50
	Sample Date:	03-Jul-14	03-Jul-14	03-Jul-14	03-Jul-14
	Sample ID:	1427217-05	1427217-06	1427217-07	1427217-08
	MDL/Units	Water	Water	Water	Water
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
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	<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
4-Bromofluorobenzene	Surrogate	103%	104%	101%	103%
Dibromofluoromethane	Surrogate	96.1%	96.4%	97.9%	93.9%
Toluene-d8	Surrogate	112%	113%	114%	118%
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

Certificate of Analysis

Report Date: 10-Jul-2014
Order Date:3-Jul-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington

	Client ID:	MW12-3	Field Blank	Trip Blank	-
	Sample Date:	03-Jul-14	03-Jul-14	03-Jul-14	-
	Sample ID:	1427217-09	1427217-10	1427217-11	-
	MDL/Units	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 (dibromoethar	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	-

Certificate of Analysis

Report Date: 10-Jul-2014
Order Date:3-Jul-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington

	Client ID:	MW12-3	Field Blank	Trip Blank	-
	Sample Date:	03-Jul-14	03-Jul-14	03-Jul-14	-
	Sample ID:	1427217-09	1427217-10	1427217-11	-
	MDL/Units	Water	Water	Water	-
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	-
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	103%	105%	102%	-
Dibromofluoromethane	Surrogate	95.1%	91.8%	89.7%	-
Toluene-d8	Surrogate	116%	116%	115%	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	-
F1 + F2 PHCs	125 ug/L	<125	<125	<125	-
F3 + F4 PHCs	200 ug/L	<200	<200	<200	-

Certificate of Analysis

Report Date: 10-Jul-2014
Client: **exp Services Inc. (Ottawa)** Order Date:3-Jul-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington

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						
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	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*79.0*		*ug/L*		*98.7*	*50-140*			
Surrogate: Dibromofluoromethane	*73.6*		*ug/L*		*92.0*	*50-140*			
Surrogate: Toluene-d8	*85.2*		*ug/L*		*106*	*50-140*			

Certificate of Analysis

Report Date: 10-Jul-2014
Client: **exp Services Inc. (Ottawa)** Order Date:3-Jul-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington

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	4.67	0.5	ug/L	4.67			0.0	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	10.9	0.5	ug/L	11.4			4.7	30	
Dibromochloromethane	2.87	0.5	ug/L	3.50			19.8	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,1-Dichloroethane	ND	0.5	ug/L	ND				30	
1,2-Dichloroethane	ND	0.5	ug/L	ND				30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND				30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
1,2-Dichloropropane	ND	0.5	ug/L	ND				30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND				30	
Ethylene dibromide (dibromoethane	ND	0.2	ug/L	ND				30	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND				30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND				30	
Methylene Chloride	ND	5.0	ug/L	ND				30	
Styrene	ND	0.5	ug/L	ND				30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
Tetrachloroethylene	ND	0.5	ug/L	ND				30	
Toluene	ND	0.5	ug/L	ND				30	
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	*85.5*		*ug/L*	*ND*	*107*	*50-140*			
Surrogate: Dibromofluoromethane	*80.5*		*ug/L*	*ND*	*101*	*50-140*			
Surrogate: Toluene-d8	*87.4*		*ug/L*	*ND*	*109*	*50-140*			

Certificate of Analysis

Report Date: 10-Jul-2014
Client: **exp Services Inc. (Ottawa)** Order Date:3-Jul-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	2060	25	ug/L	ND	103	68-117			
F2 PHCs (C10-C16)	1930	100	ug/L	ND	107	60-140			
F3 PHCs (C16-C34)	3720	100	ug/L	ND	100	60-140			
F4 PHCs (C34-C50)	2340	100	ug/L	ND	94.4	60-140			
Volatiles									
Acetone	95.9	5.0	ug/L	ND	95.9	50-140			
Benzene	23.0	0.5	ug/L	ND	57.4	50-140			
Bromodichloromethane	35.8	0.5	ug/L	4.67	77.8	50-140			
Bromoform	32.5	0.5	ug/L	ND	81.2	50-140			
Bromomethane	39.2	0.5	ug/L	ND	98.1	50-140			
Carbon Tetrachloride	25.1	0.2	ug/L	ND	62.7	50-140			
Chlorobenzene	32.9	0.5	ug/L	ND	82.2	50-140			
Chloroform	41.7	0.5	ug/L	11.4	75.8	50-140			
Dibromochloromethane	35.6	0.5	ug/L	3.50	80.3	50-140			
Dichlorodifluoromethane	38.2	1.0	ug/L	ND	95.6	50-140			
1,2-Dichlorobenzene	30.4	0.5	ug/L	ND	76.0	50-140			
1,3-Dichlorobenzene	32.3	0.5	ug/L	ND	80.7	50-140			
1,4-Dichlorobenzene	31.2	0.5	ug/L	ND	77.9	50-140			
1,1-Dichloroethane	37.8	0.5	ug/L	ND	94.6	50-140			
1,2-Dichloroethane	24.7	0.5	ug/L	ND	61.8	50-140			
1,1-Dichloroethylene	34.5	0.5	ug/L	ND	86.4	50-140			
cis-1,2-Dichloroethylene	22.9	0.5	ug/L	ND	57.4	50-140			
trans-1,2-Dichloroethylene	35.6	0.5	ug/L	ND	89.1	50-140			
1,2-Dichloropropane	24.5	0.5	ug/L	ND	61.3	50-140			
cis-1,3-Dichloropropylene	24.9	0.5	ug/L	ND	62.2	50-140			
trans-1,3-Dichloropropylene	23.4	0.5	ug/L	ND	58.4	50-140			
Ethylbenzene	32.9	0.5	ug/L	ND	82.2	50-140			
Ethylene dibromide (dibromoethane	29.4	0.2	ug/L	ND	73.6	50-140			
Hexane	22.2	1.0	ug/L	ND	55.6	50-140			
Methyl Ethyl Ketone (2-Butanone)	64.7	5.0	ug/L	ND	64.7	50-140			
Methyl Isobutyl Ketone	72.4	5.0	ug/L	ND	72.4	50-140			
Methyl tert-butyl ether	100	2.0	ug/L	ND	100	50-140			
Methylene Chloride	36.9	5.0	ug/L	ND	92.3	50-140			
Styrene	30.0	0.5	ug/L	ND	75.1	50-140			
1,1,1,2-Tetrachloroethane	33.0	0.5	ug/L	ND	82.6	50-140			
1,1,2,2-Tetrachloroethane	33.3	0.5	ug/L	ND	83.2	50-140			
Tetrachloroethylene	43.9	0.5	ug/L	ND	110	50-140			
Toluene	30.4	0.5	ug/L	ND	76.1	50-140			
1,1,1-Trichloroethane	22.7	0.5	ug/L	ND	56.7	50-140			
1,1,2-Trichloroethane	23.3	0.5	ug/L	ND	58.3	50-140			
Trichloroethylene	26.4	0.5	ug/L	ND	65.9	50-140			
Trichlorofluoromethane	34.5	1.0	ug/L	ND	86.3	50-140			
Vinyl chloride	108	0.5	ug/L	ND	271	50-140			
m,p-Xylenes	67.4	0.5	ug/L	ND	84.3	50-140			
o-Xylene	37.4	0.5	ug/L	ND	93.4	50-140			
Surrogate: 4-Bromofluorobenzene	*49.2*		*ug/L*		*61.6*	*50-140*			

Certificate of Analysis

Report Date: 10-Jul-2014
Client: **exp Services Inc. (Ottawa)** Order Date:3-Jul-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington

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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Chain of Custody
(Lab Use Only)
№ 101503

Page 1 of 4

Client Name: EXP Services.
Contact Name: Darragh Kilroy / Chris Kimmerly.
Address: 100-2650 Queensview Drive, Ottawa.
Telephone: 613-688-1899.

Project Reference: OTT-00018293-J2.
Quote # City of Ottawa Project.
PO #
Email Address: darragh.kilroy@exp.com
chris.kimmerly@exp.com

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: 1427217

	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	MW14-1	BCF796	GW		3	3 Jul 14		X	X					
2	MW14-2	BCF797												
3	MW14-3	BCF798												
4	MW14-4	BCF799												
5	MW14-5	BCF800												
6	MW14-6	BCF801												
7	MW14-7	BCF802												
8	MW14-50	BCF803												
9	MW12-3	BCF804												
10	Field Blank	BCF805	D											

Comments: City of Ottawa Project 1770 Heatherington Road, Ottawa

Method of Delivery: Walk in

Relinquished By (Sign):
Relinquished By (Print): DARRAGH KILROY
Date/Time: 3 July 14. 15:33

Received by Driver/Depot:
Date/Time:
Temperature: _____ °C

Received at Lab:
Date/Time: July 3/14 3:34p
Temperature: 20.1 °C

Verified By:
Date/Time: July 3/14 6:35
pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Darragh Kilroy

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J3/ 1770 Heatherington Rd
Custody: 16955

Report Date: 11-Jul-2014
Order Date: 8-Jul-2014
Order #: 1428132

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

Paracel ID	Client ID
1428132-01	MW12-1
1428132-02	MW12-2
1428132-03	MW12-4

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: 11-Jul-2014
Client: **exp Services Inc. (Ottawa)** Order Date:8-Jul-2014
Client PO: 45064625 Project Description: OTT00018293J3/ 1770 Heatherington Rd

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	9-Jul-14	10-Jul-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	10-Jul-14	10-Jul-14
REG 153 - VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	9-Jul-14	10-Jul-14

Certificate of Analysis

Report Date: 11-Jul-2014
Order Date:8-Jul-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J3/ 1770 Heatherington Rd

	Client ID:	MW12-1	MW12-2	MW12-4	-
	Sample Date:	08-Jul-14	08-Jul-14	08-Jul-14	-
	Sample ID:	1428132-01	1428132-02	1428132-03	-
	MDL/Units	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 (dibromoethan	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	-

Certificate of Analysis

Report Date: 11-Jul-2014
Order Date:8-Jul-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J3/ 1770 Heatherington Rd

	Client ID:	MW12-1	MW12-2	MW12-4	-
	Sample Date:	08-Jul-14	08-Jul-14	08-Jul-14	-
	Sample ID:	1428132-01	1428132-02	1428132-03	-
	MDL/Units	Water	Water	Water	-
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	-
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	118%	116%	123%	-
Dibromofluoromethane	Surrogate	101%	104%	103%	-
Toluene-d8	Surrogate	102%	100%	99.6%	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	-
F1 + F2 PHCs	125 ug/L	<125	<125	<125	-
F3 + F4 PHCs	200 ug/L	<200	<200	<200	-

Certificate of Analysis

Report Date: 11-Jul-2014
Client: **exp Services Inc. (Ottawa)** Order Date:8-Jul-2014
Client PO: 45064625 Project Description: OTT00018293J3/ 1770 Heatherington Rd

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						
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	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*40.1*		*ug/L*		*125*	*50-140*			
Surrogate: Dibromofluoromethane	*35.1*		*ug/L*		*110*	*50-140*			
Surrogate: Toluene-d8	*24.9*		*ug/L*		*77.8*	*50-140*			

Certificate of Analysis

Report Date: 11-Jul-2014
Client: **exp Services Inc. (Ottawa)** Order Date:8-Jul-2014
Client PO: 45064625 Project Description: OTT00018293J3/ 1770 Heatherington Rd

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	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	*39.3*		*ug/L*	*ND*	*123*	*50-140*			
Surrogate: Dibromofluoromethane	*33.1*		*ug/L*	*ND*	*103*	*50-140*			
Surrogate: Toluene-d8	*32.4*		*ug/L*	*ND*	*101*	*50-140*			

Certificate of Analysis

Report Date: 11-Jul-2014
Client: **exp Services Inc. (Ottawa)** Order Date:8-Jul-2014
Client PO: 45064625 Project Description: OTT00018293J3/ 1770 Heatherington Rd

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1840	25	ug/L	ND	91.8	68-117			
F2 PHCs (C10-C16)	1970	100	ug/L	ND	109	60-140			
F3 PHCs (C16-C34)	2420	100	ug/L	ND	65.2	60-140			
F4 PHCs (C34-C50)	1760	100	ug/L	ND	71.0	60-140			
Volatiles									
Acetone	83.8	5.0	ug/L	ND	83.8	50-140			
Benzene	28.2	0.5	ug/L	ND	70.4	50-140			
Bromodichloromethane	29.0	0.5	ug/L	ND	72.4	50-140			
Bromoform	37.5	0.5	ug/L	ND	93.8	50-140			
Bromomethane	31.3	0.5	ug/L	ND	78.3	50-140			
Carbon Tetrachloride	23.4	0.2	ug/L	ND	58.5	50-140			
Chlorobenzene	32.3	0.5	ug/L	ND	80.8	50-140			
Chloroform	31.3	0.5	ug/L	ND	78.4	50-140			
Dibromochloromethane	34.1	0.5	ug/L	ND	85.2	50-140			
Dichlorodifluoromethane	27.9	1.0	ug/L	ND	69.8	50-140			
1,2-Dichlorobenzene	34.5	0.5	ug/L	ND	86.2	50-140			
1,3-Dichlorobenzene	30.9	0.5	ug/L	ND	77.2	50-140			
1,4-Dichlorobenzene	31.1	0.5	ug/L	ND	77.8	50-140			
1,1-Dichloroethane	31.0	0.5	ug/L	ND	77.6	50-140			
1,2-Dichloroethane	30.9	0.5	ug/L	ND	77.2	50-140			
1,1-Dichloroethylene	29.8	0.5	ug/L	ND	74.4	50-140			
cis-1,2-Dichloroethylene	30.1	0.5	ug/L	ND	75.3	50-140			
trans-1,2-Dichloroethylene	29.6	0.5	ug/L	ND	74.1	50-140			
1,2-Dichloropropane	31.6	0.5	ug/L	ND	79.1	50-140			
cis-1,3-Dichloropropylene	20.7	0.5	ug/L	ND	51.7	50-140			
trans-1,3-Dichloropropylene	16.5	0.5	ug/L	ND	41.3	50-140			
Ethylbenzene	27.4	0.5	ug/L	ND	68.5	50-140			
Ethylene dibromide (dibromoethane	35.4	0.2	ug/L	ND	88.5	50-140			
Hexane	15.2	1.0	ug/L	ND	37.9	50-140			
Methyl Ethyl Ketone (2-Butanone)	62.7	5.0	ug/L	ND	62.7	50-140			
Methyl Isobutyl Ketone	67.9	5.0	ug/L	ND	67.9	50-140			
Methyl tert-butyl ether	77.0	2.0	ug/L	ND	77.0	50-140			
Methylene Chloride	37.8	5.0	ug/L	ND	94.4	50-140			
Styrene	28.0	0.5	ug/L	ND	70.1	50-140			
1,1,1,2-Tetrachloroethane	30.4	0.5	ug/L	ND	76.0	50-140			
1,1,2,2-Tetrachloroethane	42.6	0.5	ug/L	ND	107	50-140			
Tetrachloroethylene	28.9	0.5	ug/L	ND	72.2	50-140			
Toluene	28.9	0.5	ug/L	ND	72.3	50-140			
1,1,1-Trichloroethane	24.7	0.5	ug/L	ND	61.7	50-140			
1,1,2-Trichloroethane	31.6	0.5	ug/L	ND	79.0	50-140			
Trichloroethylene	24.6	0.5	ug/L	ND	61.6	50-140			
Trichlorofluoromethane	25.9	1.0	ug/L	ND	64.8	50-140			
Vinyl chloride	27.4	0.5	ug/L	ND	68.6	50-140			
m,p-Xylenes	64.8	0.5	ug/L	ND	81.0	50-140			
o-Xylene	31.0	0.5	ug/L	ND	77.5	50-140			
Surrogate: 4-Bromofluorobenzene	*29.3*		*ug/L*		*91.6*	*50-140*			

Certificate of Analysis

Report Date: 11-Jul-2014
Client: **exp Services Inc. (Ottawa)** Order Date:8-Jul-2014
Client PO: 45064625 Project Description: OTT00018293J3/ 1770 Heatherington Rd

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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Chain of Custody
(Lab Use Only)
No. 16955

Page 1 of 1

Client Name: EXP Services
Contact Name: Daragh Kilroy / Chris Kennedy
Address: 100-2650 Queensview Drive, Ottawa
Telephone: 613-688-1899

Project Reference: OTT-00018293-J3
Quote #: City of Ottawa Project.
PO #:
Email Address: daragh.kilroy@exp.com
chris.kennedy@exp.com

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: 1428132

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHC (F1-F4)	VOC
1	MW12-1 BCF813	GW		3	8 July 14		X	X
2	MW12-2 BCF814	↓		↓	↓		X	X
3	MW12-4 BCF815	↓		↓	↓		X	X
4								
5								
6								
7								
8								
9								
10								

Comments: City of Ottawa Project. 1770 Heatherington Road

Method of Delivery: Walk-in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Daragh Kilroy	Date/Time:	Date/Time: July 8/14 10:11a	Date/Time: July 8/14 12:05
Date/Time: 8 July 14 10:11am	Temperature: _____ °C	Temperature: 16.9 °C	pH Verified [ ] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)
100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Phone: (613) 688-1899
Fax: (613) 225-7337

Client PO: 45064625
Project: OTT00018293J2/ 1770 Heatherington
Custody: 103049/50

Report Date: 1-Dec-2014
Order Date: 26-Nov-2014
Order #: 1448177

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

Paracel ID	Client ID
1448177-01	MW14-1
1448177-02	MW14-2
1448177-03	MW14-3
1448177-04	MW14-4
1448177-05	MW14-5
1448177-06	MW14-6
1448177-07	MW14-7
1448177-08	MW14-8
1448177-09	DUP1
1448177-10	MW12-2
1448177-11	MW12-3
1448177-12	Recovery Well
1448177-13	Trip Blank
1448177-14	Field Blank

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: 01-Dec-2014
Order Date:26-Nov-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625
Project Description: OTT00018293J2/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	28-Nov-14	29-Nov-14
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	27-Nov-14	28-Nov-14
REG 153 - VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	28-Nov-14	29-Nov-14

Certificate of Analysis

Report Date: 01-Dec-2014
Order Date:26-Nov-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington

	Client ID:	MW14-1	MW14-2	MW14-3	MW14-4
	Sample Date:	26-Nov-14	26-Nov-14	26-Nov-14	26-Nov-14
	Sample ID:	1448177-01	1448177-02	1448177-03	1448177-04
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<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	<0.5	<0.5
Ethylene dibromide (dibromoethan	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

Certificate of Analysis

Report Date: 01-Dec-2014
Order Date:26-Nov-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington

	Client ID:	MW14-1	MW14-2	MW14-3	MW14-4
	Sample Date:	26-Nov-14	26-Nov-14	26-Nov-14	26-Nov-14
	Sample ID:	1448177-01	1448177-02	1448177-03	1448177-04
	MDL/Units	Water	Water	Water	Water
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
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	<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
4-Bromofluorobenzene	Surrogate	118%	122%	121%	122%
Dibromofluoromethane	Surrogate	89.5%	92.2%	95.1%	95.6%
Toluene-d8	Surrogate	119%	122%	123%	120%
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

Certificate of Analysis

Report Date: 01-Dec-2014
Order Date:26-Nov-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington

	Client ID:	MW14-5	MW14-6	MW14-7	MW14-8
	Sample Date:	26-Nov-14	26-Nov-14	26-Nov-14	26-Nov-14
	Sample ID:	1448177-05	1448177-06	1448177-07	1448177-08
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<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	1.8	<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	<0.5	<0.5
Ethylene dibromide (dibromoethan	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

Certificate of Analysis

Report Date: 01-Dec-2014
Order Date:26-Nov-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington

	Client ID:	MW14-5	MW14-6	MW14-7	MW14-8
	Sample Date:	26-Nov-14	26-Nov-14	26-Nov-14	26-Nov-14
	Sample ID:	1448177-05	1448177-06	1448177-07	1448177-08
	MDL/Units	Water	Water	Water	Water
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
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	<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
4-Bromofluorobenzene	Surrogate	121%	122%	122%	119%
Dibromofluoromethane	Surrogate	95.8%	99.6%	99.6%	101%
Toluene-d8	Surrogate	120%	120%	122%	123%
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

Certificate of Analysis

Report Date: 01-Dec-2014
Order Date:26-Nov-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington

	Client ID:	DUP1	MW12-2	MW12-3	Recovery Well
	Sample Date:	26-Nov-14	26-Nov-14	26-Nov-14	26-Nov-14
	Sample ID:	1448177-09	1448177-10	1448177-11	1448177-12
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<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	<0.5	<0.5
Ethylene dibromide (dibromoethar	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

Certificate of Analysis

Report Date: 01-Dec-2014
Order Date:26-Nov-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington

	Client ID:	DUP1	MW12-2	MW12-3	Recovery Well
	Sample Date:	26-Nov-14	26-Nov-14	26-Nov-14	26-Nov-14
	Sample ID:	1448177-09	1448177-10	1448177-11	1448177-12
	MDL/Units	Water	Water	Water	Water
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
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	<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
4-Bromofluorobenzene	Surrogate	122%	126%	122%	120%
Dibromofluoromethane	Surrogate	99.8%	102%	99.2%	103%
Toluene-d8	Surrogate	120%	124%	121%	125%
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

Certificate of Analysis

Report Date: 01-Dec-2014
Order Date:26-Nov-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington

	Client ID:	Trip Blank	Field Blank	-	-
	Sample Date:	25-Nov-14	26-Nov-14	-	-
	Sample ID:	1448177-13	1448177-14	-	-
	MDL/Units	Water	Water	-	-
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	-	-
Benzene	0.5 ug/L	<0.5	<0.5	-	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	-	-
Bromoform	0.5 ug/L	<0.5	<0.5	-	-
Bromomethane	0.5 ug/L	<0.5	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	-	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
Chloroform	0.5 ug/L	<0.5	<0.5	-	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Ethylene dibromide (dibromoethar	0.2 ug/L	<0.2	<0.2	-	-
Hexane	1.0 ug/L	<1.0	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	-	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	-	-
Styrene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-

Certificate of Analysis

Report Date: 01-Dec-2014
Order Date:26-Nov-2014

Client: **exp Services Inc. (Ottawa)**
Client PO: 45064625

Project Description: OTT00018293J2/ 1770 Heatherington

	Client ID:	Trip Blank	Field Blank	-	-
	Sample Date:	25-Nov-14	26-Nov-14	-	-
	Sample ID:	1448177-13	1448177-14	-	-
	MDL/Units	Water	Water	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	-	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-
4-Bromofluorobenzene	Surrogate	126%	122%	-	-
Dibromofluoromethane	Surrogate	95.1%	95.2%	-	-
Toluene-d8	Surrogate	120%	121%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	-
F1 + F2 PHCs	125 ug/L	<125	<125	-	-
F3 + F4 PHCs	200 ug/L	<200	<200	-	-

Certificate of Analysis

Report Date: 01-Dec-2014
Client: **exp Services Inc. (Ottawa)** Order Date:26-Nov-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington

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						
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	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*37.3*		*ug/L*		*117*	*50-140*			
Surrogate: Dibromofluoromethane	*35.4*		*ug/L*		*110*	*50-140*			
Surrogate: Toluene-d8	*29.0*		*ug/L*		*90.7*	*50-140*			

Certificate of Analysis

Report Date: 01-Dec-2014
Client: **exp Services Inc. (Ottawa)** Order Date:26-Nov-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington

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	1.45	0.5	ug/L	1.56			7.3	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	3.12	0.5	ug/L	4.29			31.6	30	QR-05
Dibromochloromethane	1.82	0.5	ug/L	2.11			14.8	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,1-Dichloroethane	ND	0.5	ug/L	ND				30	
1,2-Dichloroethane	ND	0.5	ug/L	ND				30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND				30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
1,2-Dichloropropane	ND	0.5	ug/L	ND				30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND				30	
Ethylene dibromide (dibromoethane	ND	0.2	ug/L	ND				30	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND				30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND				30	
Methylene Chloride	ND	5.0	ug/L	ND				30	
Styrene	ND	0.5	ug/L	ND				30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
Tetrachloroethylene	ND	0.5	ug/L	ND				30	
Toluene	ND	0.5	ug/L	ND				30	
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	*38.2*		*ug/L*	*ND*	*119*	*50-140*			
Surrogate: Dibromofluoromethane	*31.4*		*ug/L*	*ND*	*98.2*	*50-140*			
Surrogate: Toluene-d8	*39.1*		*ug/L*	*ND*	*122*	*50-140*			

Certificate of Analysis

Report Date: 01-Dec-2014
Client: **exp Services Inc. (Ottawa)** Order Date:26-Nov-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1980	25	ug/L	ND	99.1	68-117			
F2 PHCs (C10-C16)	1220	100	ug/L	ND	67.6	60-140			
F3 PHCs (C16-C34)	3260	100	ug/L	ND	87.6	60-140			
F4 PHCs (C34-C50)	2520	100	ug/L	ND	102	60-140			
Volatiles									
Acetone	54.9	5.0	ug/L	ND	54.9	50-140			
Benzene	23.9	0.5	ug/L	ND	59.7	50-140			
Bromodichloromethane	27.5	0.5	ug/L	1.56	64.8	50-140			
Bromoform	42.7	0.5	ug/L	ND	107	50-140			
Bromomethane	35.2	0.5	ug/L	ND	88.1	50-140			
Carbon Tetrachloride	27.1	0.2	ug/L	ND	67.8	50-140			
Chlorobenzene	36.4	0.5	ug/L	ND	91.1	50-140			
Chloroform	26.8	0.5	ug/L	4.29	56.3	50-140			
Dibromochloromethane	42.8	0.5	ug/L	2.11	102	50-140			
Dichlorodifluoromethane	30.1	1.0	ug/L	ND	75.2	50-140			
1,2-Dichlorobenzene	41.1	0.5	ug/L	ND	103	50-140			
1,3-Dichlorobenzene	42.4	0.5	ug/L	ND	106	50-140			
1,4-Dichlorobenzene	38.8	0.5	ug/L	ND	96.9	50-140			
1,1-Dichloroethane	25.7	0.5	ug/L	ND	64.2	50-140			
1,2-Dichloroethane	27.7	0.5	ug/L	ND	69.3	50-140			
1,1-Dichloroethylene	21.0	0.5	ug/L	ND	52.6	50-140			
cis-1,2-Dichloroethylene	22.6	0.5	ug/L	ND	56.6	50-140			
trans-1,2-Dichloroethylene	21.9	0.5	ug/L	ND	54.8	50-140			
1,2-Dichloropropane	25.3	0.5	ug/L	ND	63.2	50-140			
cis-1,3-Dichloropropylene	21.7	0.5	ug/L	ND	54.2	50-140			
trans-1,3-Dichloropropylene	21.5	0.5	ug/L	ND	53.7	50-140			
Ethylbenzene	32.0	0.5	ug/L	ND	80.1	50-140			
Ethylene dibromide (dibromoethane	38.0	0.2	ug/L	ND	94.9	50-140			
Hexane	24.9	1.0	ug/L	ND	62.3	50-140			
Methyl Ethyl Ketone (2-Butanone)	59.0	5.0	ug/L	ND	59.0	50-140			
Methyl Isobutyl Ketone	50.8	5.0	ug/L	ND	50.8	50-140			
Methyl tert-butyl ether	57.1	2.0	ug/L	ND	57.1	50-140			
Methylene Chloride	22.8	5.0	ug/L	ND	57.0	50-140			
Styrene	34.7	0.5	ug/L	ND	86.7	50-140			
1,1,1,2-Tetrachloroethane	40.0	0.5	ug/L	ND	100	50-140			
1,1,2,2-Tetrachloroethane	40.2	0.5	ug/L	ND	101	50-140			
Tetrachloroethylene	36.2	0.5	ug/L	ND	90.4	50-140			
Toluene	38.8	0.5	ug/L	ND	97.0	50-140			
1,1,1-Trichloroethane	26.6	0.5	ug/L	ND	66.4	50-140			
1,1,2-Trichloroethane	25.6	0.5	ug/L	ND	64.0	50-140			
Trichloroethylene	24.6	0.5	ug/L	ND	61.4	50-140			
Trichlorofluoromethane	26.1	1.0	ug/L	ND	65.3	50-140			
Vinyl chloride	27.8	0.5	ug/L	ND	69.5	50-140			
m,p-Xylenes	73.1	0.5	ug/L	ND	91.3	50-140			
o-Xylene	41.0	0.5	ug/L	ND	103	50-140			
Surrogate: 4-Bromofluorobenzene	*22.5*		*ug/L*		*70.4*	*50-140*			

Certificate of Analysis

Report Date: 01-Dec-2014
Client: **exp Services Inc. (Ottawa)** Order Date:26-Nov-2014
Client PO: 45064625 Project Description: OTT00018293J2/ 1770 Heatherington

Qualifier Notes:

QC Qualifiers :

QR-05 : Duplicate RPDs higher than normally accepted. Remaing batch QA\QC was acceptable. May be sample effect.

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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№ 103049

Page ___ of ___

Client Name: EXP Services	Project Reference: OTT-00018293-J2	TAT: [X] Regular [ ] 3 Day [ ] 2 Day [ ] 1 Day
Contact Name: Chris Kimmerly	Quote #	
Address: 2650 Queensview Drive, Ottawa	PO # City of Ottawa Project	Date Required:
Telephone: 613-688-1899	Email Address: chris.kimmerly@exp.com	

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: 1448177

	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	MW14-1	BDA833	GW		3	26 Nov/14		X	X					
2	MW14-2	BDA834												
3	MW14-3	BDA835												
4	MW14-4	BDA836												
5	MW14-5	BDA837												
6	MW14-6	BDA838												
7	MW14-7	BDA839												
8	MW14-8	BDA840												
9	DUP1	BDA841												
10	MW12-2	BDA842												

Comments: City of Ottawa Project. All sampled Nov. 26

Method of Delivery: Walk-in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab: Kaur Cull	Verified By: MJ
Relinquished By (Print): DARRAGH KILROY	Date/Time:	Date/Time: Nov 26/14 3:05	Date/Time: Nov 26/14 3:40
Date/Time: 26 Nov 2014	Temperature: ___ °C	Temperature: 11.8 °C	pH Verified [X] By: N/A

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№ 103050

Page 2 of 2

Client Name: EXP services
Contact Name: Chris Kimmerly
Address: 2650 Queensview Drive, Ottawa
Telephone: 613-688-1899

Project Reference: OTT-00018293-J2
Quote #
PO # City of Ottawa Project.
Email Address: Chris.Kimmerly@exp.com

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: 1448177

	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	MW12-3	BDA843	GW		3	26 Nov 14		X	X					
2	Recovery well	BDA844												
3	Trip blank	BDA845												
4	Field blank	BDA846												
5														
6														
7														
8														
9														
10														

Comments: City of Ottawa Project.

Method of Delivery: Walk-in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab: Lauren Cull	Verified By: MJC
Relinquished By (Print): DARRAGH KLOOSTA	Date/Time:	Date/Time: Nov 26/14 3:06	Date/Time: Nov 26/14 3:40
Date/Time: 28 Nov 2014	Temperature: ___ °C	Temperature: 11.8 °C	pH Verified [X] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO: 45064625
Project: OTT00018293J5/1770 Heatherington Rd.
Custody: 105582

Report Date: 19-Aug-2015
Order Date: 5-Aug-2015

Revised Repo **Order #: 1532168**

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

Paracel ID	Client ID
1532168-01	BH15-3 SS7
1532168-02	BH15-30 SS7
1532168-03	BH15-8 SS7
1532168-04	BH15-10 SS7
1532168-05	BH15-11 SS7

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Conductivity	MOE E3138 - probe @25 °C, water ext	10-Aug-15	10-Aug-15
pH	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	18-Aug-15	18-Aug-15
SAR	Calculation	13-Aug-15	14-Aug-15
Solids, %	Gravimetric, calculation	10-Aug-15	10-Aug-15

Certificate of Analysis

Report Date: 19-Aug-2015

Client: exp Services Inc. (Ottawa)

Order Date:5-Aug-2015

Client PO: 45064625

Project Description: OTT00018293J5/ 1770 Heatherington Rd.

	Client ID:	BH15-3 SS7	BH15-30 SS7	BH15-8 SS7	BH15-10 SS7
	Sample Date:	04-Aug-15	04-Aug-15	04-Aug-15	04-Aug-15
	Sample ID:	1532168-01	1532168-02	1532168-03	1532168-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	91.6	91.7	90.4	71.5
General Inorganics					
SAR	0.01 N/A	9.06	9.60	1.61	2.59
Conductivity	5 uS/cm	2150	2190	568	1040
pH	0.05 pH Units	7.75	-	-	7.91

	Client ID:	BH15-11 SS7	-	-	-
	Sample Date:	04-Aug-15	-	-	-
	Sample ID:	1532168-05	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	91.2	-	-	-
General Inorganics					
SAR	0.01 N/A	17.3	-	-	-
Conductivity	5 uS/cm	1630	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Conductivity	ND	5	uS/cm						

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	ND	0.01	N/A	0.26			0.0	200	
Conductivity	1230	5	uS/cm	1180			3.7	6.2	
pH	7.53	0.05	pH Units	7.72			2.5	10	
Physical Characteristics									
% Solids	90.6	0.1	% by Wt.	91.3			0.8	25	

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

Revision 1 - This report includes additional pH data.

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
(Lab Use Only)
№ 105582

Page 1 of 1

Client Name: exp	Project Reference: 0TT00018293-55	TAT: [✓] Regular [ ] 3 Day
Contact Name: Chris Kimmerly	Quote # City of Ottawa (Invoice)	[ ] 2 Day [ ] 1 Day
Address: 100-2650 Queensview Ottawa	PO #	Date Required:
Telephone: 6136881099	Email Address:	

Criteria: [~~✓~~] 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: 1532168

	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)	ESA S+R						
1	BH15-3 557 BDB956	S			Aug 4									X		250	ml			
2	BH15-36 557 BDB957																			
3	BH15-8 557 BDB958																			
4	BH15-10 557 BDB959																			
5	MW15-11 557 BDB960	V			↓									↓		↓				
6																				
7																				
8																				
9																				
10																				

Comments:

Method of Delivery: walk-in

Relinquished By (Sign):	Received by Driver/Depot: Karen Cull	Received at Lab: SUNEEPORN DOK MAI	Verified By: DCharlebois
Relinquished By (Print): Taryn Clancy	Date/Time: Aug 5/15 1:25	Date/Time: AUG 05 2015 04:25	Date/Time: Aug 5 4:27
Date/Time: Aug 5 1:25 PM	Temperature: 9.4 °C	Temperature: 8.4 °C	pH Verified [X] By:

Review Items

Lab Number	Analysis	Analyte	Exception
			Default Report (not modified)
			VERSION 6.12:2007
1532168-01	pH, soil		REV 6: Revision 1 - This report includes additional pH data.

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Mark Devlin

Client PO: 45064625
Project: OTT00018293-J5/Heatherington Rd
Custody: 105263/61

Report Date: 2-Sep-2015
Order Date: 26-Aug-2015

Order #: 1535199

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

Paracel ID	Client ID
1535199-01	MW15-1
1535199-02	MW15-4
1535199-03	MW15-5
1535199-04	MW15-6
1535199-05	MW15-7
1535199-06	MW15-9
1535199-07	MW15-11
1535199-08	MW15-12
1535199-09	MW15-13
1535199-10	MW15-14
1535199-11	MW15-15
1535199-12	MW08-9
1535199-13	MW12-3
1535199-14	Trip Blank

Approved By:



Dale Robertson, BSc
Laboratory Director

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

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC	27-Aug-15	31-Aug-15
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	27-Aug-15	29-Aug-15
Metals, ICP-MS	EPA 200.8 - ICP-MS	28-Aug-15	28-Aug-15
PHC F1	CWS Tier 1 - P&T GC-FID	27-Aug-15	29-Aug-15
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	31-Aug-15	31-Aug-15
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	28-Aug-15	28-Aug-15
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	27-Aug-15	29-Aug-15

Certificate of Analysis

Report Date: 02-Sep-2015

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Aug-2015

Client PO: 45064625

Project Description: OTT00018293-J5/Heatherington Rd

	Client ID:	MW15-1	MW15-4	MW15-5	MW15-6
	Sample Date:	25-Aug-15	25-Aug-15	26-Aug-15	25-Aug-15
	Sample ID:	1535199-01	1535199-02	1535199-03	1535199-04
	MDL/Units	Water	Water	Water	Water
Anions					
Chloride	1 mg/L	-	-	5120	-
Metals					
Antimony	0.5 ug/L	0.9	-	-	0.6
Arsenic	1 ug/L	<1	-	-	2
Barium	1 ug/L	425	-	-	6660
Beryllium	0.5 ug/L	<0.5	-	-	<0.5
Boron	10 ug/L	513	-	-	576
Cadmium	0.1 ug/L	<0.1	-	-	<0.1
Chromium	1 ug/L	<1	-	-	<1
Cobalt	0.5 ug/L	1.1	-	-	0.5
Copper	0.5 ug/L	<0.5	-	-	<0.5
Lead	0.1 ug/L	<0.1	-	-	<0.1
Molybdenum	0.5 ug/L	3.0	-	-	1.6
Nickel	1 ug/L	3	-	-	2
Selenium	1 ug/L	<1	-	-	<1
Silver	0.1 ug/L	<0.1	-	-	<0.1
Sodium	200 ug/L	593000	-	2670000	3160000
Thallium	0.1 ug/L	<0.1	-	-	<0.1
Uranium	0.1 ug/L	2.4	-	-	0.5
Vanadium	0.5 ug/L	<0.5	-	-	<0.5
Zinc	5 ug/L	6	-	-	<5
Volatiles					
Benzene	0.5 ug/L	<0.5	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-
Toluene-d8	Surrogate	103%	106%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	-
F1 + F2 PHCs	125 ug/L	<125	<125	-	-
F3 + F4 PHCs	200 ug/L	<200	<200	-	-

Certificate of Analysis

Report Date: 02-Sep-2015

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Aug-2015

Client PO: 45064625

Project Description: OTT00018293-J5/Heatherington Rd

	Client ID:	MW15-1	MW15-4	MW15-5	MW15-6
	Sample Date:	25-Aug-15	25-Aug-15	26-Aug-15	25-Aug-15
	Sample ID:	1535199-01	1535199-02	1535199-03	1535199-04
	MDL/Units	Water	Water	Water	Water
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	-	82.0%	-	-
Terphenyl-d14	Surrogate	-	103%	-	-

Certificate of Analysis

Report Date: 02-Sep-2015

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Aug-2015

Client PO: 45064625

Project Description: OTT00018293-J5/Heatherington Rd

	Client ID:	MW15-7	MW15-9	MW15-11	MW15-12
	Sample Date:	26-Aug-15	25-Aug-15	25-Aug-15	26-Aug-15
	Sample ID:	1535199-05	1535199-06	1535199-07	1535199-08
	MDL/Units	Water	Water	Water	Water
Anions					
Chloride	1 mg/L	7390	-	9280	703
Metals					
Sodium	200 ug/L	2680000	-	6760000	437000
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	-	76.3%	-	-
Terphenyl-d14	Surrogate	-	97.3%	-	-

Certificate of Analysis

Report Date: 02-Sep-2015

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Aug-2015

Client PO: 45064625

Project Description: OTT00018293-J5/Heatherington Rd

	Client ID:	MW15-13	MW15-14	MW15-15	MW08-9
	Sample Date:	25-Aug-15	25-Aug-15	26-Aug-15	26-Aug-15
	Sample ID:	1535199-09	1535199-10	1535199-11	1535199-12
	MDL/Units	Water	Water	Water	Water
Anions					
Chloride	1 mg/L	9170	-	-	-
Metals					
Sodium	200 ug/L	6490000	-	-	-
Volatiles					
Acetone	5.0 ug/L	-	-	<5.0	<5.0
Benzene	0.5 ug/L	-	-	<0.5	<0.5
Bromodichloromethane	0.5 ug/L	-	-	<0.5	<0.5
Bromoform	0.5 ug/L	-	-	<0.5	<0.5
Bromomethane	0.5 ug/L	-	-	<0.5	<0.5
Carbon Tetrachloride	0.2 ug/L	-	-	<0.2	<0.2
Chlorobenzene	0.5 ug/L	-	-	<0.5	<0.5
Chloroform	0.5 ug/L	-	-	<0.5	<0.5
Dibromochloromethane	0.5 ug/L	-	-	<0.5	<0.5
Dichlorodifluoromethane	1.0 ug/L	-	-	<1.0	<1.0
1,2-Dichlorobenzene	0.5 ug/L	-	-	<0.5	<0.5
1,3-Dichlorobenzene	0.5 ug/L	-	-	<0.5	<0.5
1,4-Dichlorobenzene	0.5 ug/L	-	-	<0.5	<0.5
1,1-Dichloroethane	0.5 ug/L	-	-	<0.5	<0.5
1,2-Dichloroethane	0.5 ug/L	-	-	<0.5	<0.5
1,1-Dichloroethylene	0.5 ug/L	-	-	<0.5	<0.5
cis-1,2-Dichloroethylene	0.5 ug/L	-	-	<0.5	<0.5
trans-1,2-Dichloroethylene	0.5 ug/L	-	-	<0.5	<0.5
1,2-Dichloropropane	0.5 ug/L	-	-	<0.5	<0.5
cis-1,3-Dichloropropylene	0.5 ug/L	-	-	<0.5	<0.5
trans-1,3-Dichloropropylene	0.5 ug/L	-	-	<0.5	<0.5
1,3-Dichloropropene, total	0.5 ug/L	-	-	<0.5	<0.5
Ethylbenzene	0.5 ug/L	-	-	<0.5	<0.5
Ethylene dibromide (dibromoethane, 1	0.2 ug/L	-	-	<0.2	<0.2
Hexane	1.0 ug/L	-	-	<1.0	<1.0
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	-	-	<5.0	<5.0
Methyl Isobutyl Ketone	5.0 ug/L	-	-	<5.0	<5.0
Methyl tert-butyl ether	2.0 ug/L	-	-	<2.0	<2.0
Methylene Chloride	5.0 ug/L	-	-	<5.0	<5.0
Styrene	0.5 ug/L	-	-	<0.5	<0.5
1,1,1,2-Tetrachloroethane	0.5 ug/L	-	-	<0.5	<0.5

Certificate of Analysis

Report Date: 02-Sep-2015

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Aug-2015

Client PO: 45064625

Project Description: OTT00018293-J5/Heatherington Rd

	Client ID:	MW15-13	MW15-14	MW15-15	MW08-9
	Sample Date:	25-Aug-15	25-Aug-15	26-Aug-15	26-Aug-15
	Sample ID:	1535199-09	1535199-10	1535199-11	1535199-12
	MDL/Units	Water	Water	Water	Water
1,1,2,2-Tetrachloroethane	0.5 ug/L	-	-	<0.5	<0.5
Tetrachloroethylene	0.5 ug/L	-	-	<0.5	<0.5
Toluene	0.5 ug/L	-	-	<0.5	<0.5
1,1,1-Trichloroethane	0.5 ug/L	-	-	<0.5	<0.5
1,1,2-Trichloroethane	0.5 ug/L	-	-	<0.5	<0.5
Trichloroethylene	0.5 ug/L	-	-	<0.5	<0.5
Trichlorofluoromethane	1.0 ug/L	-	-	<1.0	<1.0
Vinyl chloride	0.5 ug/L	-	-	<0.5	<0.5
m,p-Xylenes	0.5 ug/L	-	-	<0.5	<0.5
o-Xylene	0.5 ug/L	-	-	<0.5	<0.5
Xylenes, total	0.5 ug/L	-	-	<0.5	<0.5
4-Bromofluorobenzene	Surrogate	-	-	105%	121%
Dibromofluoromethane	Surrogate	-	-	100%	98.1%
Toluene-d8	Surrogate	-	-	101%	100%
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	-	102%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	-	<25	-	<25
F2 PHCs (C10-C16)	100 ug/L	-	<100	-	<100
F3 PHCs (C16-C34)	100 ug/L	-	<100	-	<100
F4 PHCs (C34-C50)	100 ug/L	-	<100	-	<100
F1 + F2 PHCs	125 ug/L	-	<125	-	-
F1 + F2 PHCs	125 ug/L	-	-	-	<125
F3 + F4 PHCs	200 ug/L	-	<200	-	-
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	-	-

Certificate of Analysis

Report Date: 02-Sep-2015

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Aug-2015

Client PO: 45064625

Project Description: OTT00018293-J5/Heatherington Rd

	Client ID:	MW15-13	MW15-14	MW15-15	MW08-9
	Sample Date:	25-Aug-15	25-Aug-15	26-Aug-15	26-Aug-15
	Sample ID:	1535199-09	1535199-10	1535199-11	1535199-12
	MDL/Units	Water	Water	Water	Water
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	-	75.8%	-	-
Terphenyl-d14	Surrogate	-	98.8%	-	-

Certificate of Analysis

Report Date: 02-Sep-2015

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Aug-2015

Client PO: 45064625

Project Description: OTT00018293-J5/Heatherington Rd

	Client ID:	MW12-3	Trip Blank	-	-
	Sample Date:	26-Aug-15	20-Aug-15	-	-
	Sample ID:	1535199-13	1535199-14	-	-
	MDL/Units	Water	Water	-	-
Metals					
Antimony	0.5 ug/L	<0.5	-	-	-
Arsenic	1 ug/L	3	-	-	-
Barium	1 ug/L	41	-	-	-
Beryllium	0.5 ug/L	<0.5	-	-	-
Boron	10 ug/L	220	-	-	-
Cadmium	0.1 ug/L	<0.1	-	-	-
Chromium	1 ug/L	<1	-	-	-
Cobalt	0.5 ug/L	5.0	-	-	-
Copper	0.5 ug/L	<0.5	-	-	-
Lead	0.1 ug/L	<0.1	-	-	-
Molybdenum	0.5 ug/L	17.6	-	-	-
Nickel	1 ug/L	26	-	-	-
Selenium	1 ug/L	<1	-	-	-
Silver	0.1 ug/L	<0.1	-	-	-
Sodium	200 ug/L	270000	-	-	-
Thallium	0.1 ug/L	<0.1	-	-	-
Uranium	0.1 ug/L	20.1	-	-	-
Vanadium	0.5 ug/L	<0.5	-	-	-
Zinc	5 ug/L	<5	-	-	-
Volatiles					
Acetone	5.0 ug/L	-	<5.0 [1]	-	-
Benzene	0.5 ug/L	-	<0.5 [1]	-	-
Bromodichloromethane	0.5 ug/L	-	<0.5 [1]	-	-
Bromoform	0.5 ug/L	-	<0.5 [1]	-	-
Bromomethane	0.5 ug/L	-	<0.5 [1]	-	-
Carbon Tetrachloride	0.2 ug/L	-	<0.2 [1]	-	-
Chlorobenzene	0.5 ug/L	-	<0.5 [1]	-	-
Chloroform	0.5 ug/L	-	<0.5 [1]	-	-
Dibromochloromethane	0.5 ug/L	-	<0.5 [1]	-	-
Dichlorodifluoromethane	1.0 ug/L	-	<1.0 [1]	-	-
1,2-Dichlorobenzene	0.5 ug/L	-	<0.5 [1]	-	-
1,3-Dichlorobenzene	0.5 ug/L	-	<0.5 [1]	-	-
1,4-Dichlorobenzene	0.5 ug/L	-	<0.5 [1]	-	-
1,1-Dichloroethane	0.5 ug/L	-	<0.5 [1]	-	-
1,2-Dichloroethane	0.5 ug/L	-	<0.5 [1]	-	-

Certificate of Analysis

Report Date: 02-Sep-2015

Client: **exp Services Inc. (Ottawa)**

Order Date:26-Aug-2015

Client PO: 45064625

Project Description: OTT00018293-J5/Heatherington Rd

	Client ID:	MW12-3	Trip Blank	-	-
	Sample Date:	26-Aug-15	20-Aug-15	-	-
	Sample ID:	1535199-13	1535199-14	-	-
	MDL/Units	Water	Water	-	-
1,1-Dichloroethylene	0.5 ug/L	-	<0.5 [1]	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	-	<0.5 [1]	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	-	<0.5 [1]	-	-
1,2-Dichloropropane	0.5 ug/L	-	<0.5 [1]	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	-	<0.5 [1]	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	-	<0.5 [1]	-	-
1,3-Dichloropropene, total	0.5 ug/L	-	<0.5 [1]	-	-
Ethylbenzene	0.5 ug/L	-	<0.5 [1]	-	-
Ethylene dibromide (dibromoethane, 1	0.2 ug/L	-	<0.2 [1]	-	-
Hexane	1.0 ug/L	-	<1.0 [1]	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	-	<5.0 [1]	-	-
Methyl Isobutyl Ketone	5.0 ug/L	-	<5.0 [1]	-	-
Methyl tert-butyl ether	2.0 ug/L	-	<2.0 [1]	-	-
Methylene Chloride	5.0 ug/L	-	<5.0 [1]	-	-
Styrene	0.5 ug/L	-	<0.5 [1]	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	-	<0.5 [1]	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	-	<0.5 [1]	-	-
Tetrachloroethylene	0.5 ug/L	-	<0.5 [1]	-	-
Toluene	0.5 ug/L	-	<0.5 [1]	-	-
1,1,1-Trichloroethane	0.5 ug/L	-	<0.5 [1]	-	-
1,1,2-Trichloroethane	0.5 ug/L	-	<0.5 [1]	-	-
Trichloroethylene	0.5 ug/L	-	<0.5 [1]	-	-
Trichlorofluoromethane	1.0 ug/L	-	<1.0 [1]	-	-
Vinyl chloride	0.5 ug/L	-	<0.5 [1]	-	-
m,p-Xylenes	0.5 ug/L	-	<0.5 [1]	-	-
o-Xylene	0.5 ug/L	-	<0.5 [1]	-	-
Xylenes, total	0.5 ug/L	-	<0.5 [1]	-	-
4-Bromofluorobenzene	Surrogate	-	119% [1]	-	-
Dibromofluoromethane	Surrogate	-	93.7% [1]	-	-
Toluene-d8	Surrogate	-	102% [1]	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L						
F2 PHCs (C10-C16)	ND	100	ug/L						
F3 PHCs (C16-C34)	ND	100	ug/L						
F4 PHCs (C34-C50)	ND	100	ug/L						
Metals									
Antimony	ND	0.5	ug/L						
Arsenic	ND	1	ug/L						
Barium	ND	1	ug/L						
Beryllium	ND	0.5	ug/L						
Boron	ND	10	ug/L						
Cadmium	ND	0.1	ug/L						
Chromium	ND	1	ug/L						
Cobalt	ND	0.5	ug/L						
Copper	ND	0.5	ug/L						
Lead	ND	0.1	ug/L						
Molybdenum	ND	0.5	ug/L						
Nickel	ND	1	ug/L						
Selenium	ND	1	ug/L						
Silver	ND	0.1	ug/L						
Sodium	ND	200	ug/L						
Thallium	ND	0.1	ug/L						
Uranium	ND	0.1	ug/L						
Vanadium	ND	0.5	ug/L						
Zinc	ND	5	ug/L						
Semi-Volatiles									
Acenaphthene	ND	0.05	ug/L						
Acenaphthylene	ND	0.05	ug/L						
Anthracene	ND	0.01	ug/L						
Benzo [a] anthracene	ND	0.01	ug/L						
Benzo [a] pyrene	ND	0.01	ug/L						
Benzo [b] fluoranthene	ND	0.05	ug/L						
Benzo [g,h,i] perylene	ND	0.05	ug/L						
Benzo [k] fluoranthene	ND	0.05	ug/L						
Chrysene	ND	0.05	ug/L						
Dibenzo [a,h] anthracene	ND	0.05	ug/L						
Fluoranthene	ND	0.01	ug/L						
Fluorene	ND	0.05	ug/L						
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L						
1-Methylnaphthalene	ND	0.05	ug/L						
2-Methylnaphthalene	ND	0.05	ug/L						
Methylnaphthalene (1&2)	ND	0.10	ug/L						
Naphthalene	ND	0.05	ug/L						
Phenanthrene	ND	0.05	ug/L						
Pyrene	ND	0.01	ug/L						
Surrogate: 2-Fluorobiphenyl	*14.6*		*ug/L*		*72.9*	*50-140*			
Surrogate: Terphenyl-d14	*20.6*		*ug/L*		*103*	*50-140*			
Volatiles									
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						
Chlorobenzene	ND	0.5	ug/L						
Chloroform	ND	0.5	ug/L						
Dibromochloromethane	ND	0.5	ug/L						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane, 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						
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	*86.7*		*ug/L*		*108*	*50-140*			
Surrogate: Dibromofluoromethane	*74.4*		*ug/L*		*93.0*	*50-140*			
Surrogate: Toluene-d8	*80.0*		*ug/L*		*100*	*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	*80.0*		*ug/L*		*100*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	351	10	mg/L	347			1.3	10	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND				30	
Metals									
Antimony	ND	0.5	ug/L	ND			0.0	20	
Arsenic	ND	1	ug/L	ND				20	
Barium	ND	1	ug/L	ND				20	
Beryllium	ND	0.5	ug/L	ND			0.0	20	
Boron	ND	10	ug/L	17			0.0	20	
Cadmium	ND	0.1	ug/L	ND			0.0	20	
Chromium	ND	1	ug/L	ND				20	
Cobalt	ND	0.5	ug/L	ND			0.0	20	
Copper	ND	0.5	ug/L	ND				20	
Lead	ND	0.1	ug/L	ND				20	
Molybdenum	ND	0.5	ug/L	ND			0.0	20	
Nickel	ND	1	ug/L	ND				20	
Selenium	ND	1	ug/L	ND			0.0	20	
Silver	ND	0.1	ug/L	ND			0.0	20	
Sodium	ND	200	ug/L	1990			0.0	20	
Thallium	ND	0.1	ug/L	ND			0.0	20	
Uranium	ND	0.1	ug/L	ND			0.0	20	
Vanadium	ND	0.5	ug/L	ND				20	
Zinc	ND	5	ug/L	ND			0.0	20	
Volatiles									
Acetone	ND	5.0	ug/L	ND				30	
Benzene	ND	0.5	ug/L	ND				30	
Bromodichloromethane	1.29	0.5	ug/L	1.63			23.3	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	4.45	0.5	ug/L	6.04			30.3	30	QR-05
Dibromochloromethane	1.17	0.5	ug/L	1.17			0.0	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	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,1-Trichloroethane	ND	0.5	ug/L	ND				30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND				30	
Trichloroethylene	ND	0.5	ug/L	ND				30	
Trichlorofluoromethane	ND	1.0	ug/L	ND				30	
Vinyl chloride	ND	0.5	ug/L	ND				30	
m,p-Xylenes	ND	0.5	ug/L	ND				30	
o-Xylene	ND	0.5	ug/L	ND				30	
Surrogate: 4-Bromofluorobenzene	*98.8*		*ug/L*	*ND*	*124*	*50-140*			
Surrogate: Dibromofluoromethane	*76.7*		*ug/L*	*ND*	*95.9*	*50-140*			
Surrogate: Toluene-d8	*84.0*		*ug/L*	*ND*	*105*	*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	*84.0*		*ug/L*	*ND*	*105*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	10.5	1	mg/L	ND	105	78-112			
Hydrocarbons									
F1 PHCs (C6-C10)	1910	25	ug/L	ND	95.4	68-117			
F2 PHCs (C10-C16)	1470	100	ug/L	ND	81.7	60-140			
F3 PHCs (C16-C34)	3300	100	ug/L	ND	88.7	60-140			
F4 PHCs (C34-C50)	2060	100	ug/L	ND	83.1	60-140			
Metals									
Antimony	50.2		ug/L	ND	100	80-120			
Arsenic	50.7		ug/L	ND	101	80-120			
Barium	52.6		ug/L	0.8	104	80-120			
Beryllium	48.0		ug/L	0.01	95.9	80-120			
Boron	40		ug/L	ND	80.7	80-120			
Cadmium	48.5		ug/L	ND	97.0	80-120			
Chromium	49.8		ug/L	ND	99.6	80-120			
Cobalt	49.1		ug/L	0.0007	98.1	80-120			
Copper	43.5		ug/L	ND	87.0	80-120			
Lead	46.5		ug/L	ND	93.1	80-120			
Molybdenum	49.3		ug/L	0.04	98.6	80-120			
Nickel	49.1		ug/L	ND	98.3	80-120			
Selenium	50.9		ug/L	0.3	101	80-120			
Silver	48.3		ug/L	ND	96.5	80-120			
Sodium	860		ug/L	ND	86.0	80-120			
Thallium	47.3		ug/L	ND	94.6	80-120			
Uranium	49.6		ug/L	0.01	99.2	80-120			
Vanadium	50.4		ug/L	ND	101	80-120			
Zinc	53		ug/L	3	99.6	80-120			
Semi-Volatiles									
Acenaphthene	4.15	0.05	ug/L	ND	83.0	50-140			
Acenaphthylene	3.71	0.05	ug/L	ND	74.2	50-140			
Anthracene	3.75	0.01	ug/L	ND	75.1	50-140			
Benzo [a] anthracene	3.35	0.01	ug/L	ND	67.1	50-140			
Benzo [a] pyrene	3.47	0.01	ug/L	ND	69.4	50-140			
Benzo [b] fluoranthene	4.10	0.05	ug/L	ND	82.0	50-140			
Benzo [g,h,i] perylene	3.91	0.05	ug/L	ND	78.1	50-140			
Benzo [k] fluoranthene	5.36	0.05	ug/L	ND	107	50-140			
Chrysene	3.95	0.05	ug/L	ND	79.0	50-140			
Dibenzo [a,h] anthracene	4.34	0.05	ug/L	ND	86.8	50-140			
Fluoranthene	4.36	0.01	ug/L	ND	87.3	50-140			
Fluorene	3.98	0.05	ug/L	ND	79.6	50-140			
Indeno [1,2,3-cd] pyrene	4.21	0.05	ug/L	ND	84.1	50-140			
1-Methylnaphthalene	5.51	0.05	ug/L	ND	110	50-140			
2-Methylnaphthalene	5.88	0.05	ug/L	ND	118	50-140			
Naphthalene	4.20	0.05	ug/L	ND	84.0	50-140			
Phenanthrene	3.55	0.05	ug/L	ND	70.9	50-140			
Pyrene	4.44	0.01	ug/L	ND	88.8	50-140			
Surrogate: 2-Fluorobiphenyl	*15.6*		*ug/L*		*78.2*	*50-140*			
Volatiles									
Acetone	107	5.0	ug/L	ND	107	50-140			
Benzene	34.7	0.5	ug/L	ND	86.7	50-140			
Bromodichloromethane	37.5	0.5	ug/L	1.63	89.8	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Bromoform	41.6	0.5	ug/L	ND	104	50-140			
Bromomethane	32.2	0.5	ug/L	ND	80.6	50-140			
Carbon Tetrachloride	40.0	0.2	ug/L	ND	100	50-140			
Chlorobenzene	36.1	0.5	ug/L	ND	90.3	50-140			
Chloroform	46.4	0.5	ug/L	6.04	101	50-140			
Dibromochloromethane	39.5	0.5	ug/L	1.17	95.8	50-140			
Dichlorodifluoromethane	32.6	1.0	ug/L	ND	81.5	50-140			
1,2-Dichlorobenzene	38.4	0.5	ug/L	ND	96.1	50-140			
1,3-Dichlorobenzene	36.3	0.5	ug/L	ND	90.7	50-140			
1,4-Dichlorobenzene	34.4	0.5	ug/L	ND	85.9	50-140			
1,1-Dichloroethane	37.3	0.5	ug/L	ND	93.2	50-140			
1,2-Dichloroethane	37.4	0.5	ug/L	ND	93.6	50-140			
1,1-Dichloroethylene	34.5	0.5	ug/L	ND	86.3	50-140			
cis-1,2-Dichloroethylene	34.8	0.5	ug/L	ND	86.9	50-140			
trans-1,2-Dichloroethylene	33.5	0.5	ug/L	ND	83.7	50-140			
1,2-Dichloropropane	30.4	0.5	ug/L	ND	76.1	50-140			
cis-1,3-Dichloropropylene	32.2	0.5	ug/L	ND	80.4	50-140			
trans-1,3-Dichloropropylene	38.3	0.5	ug/L	ND	95.8	50-140			
Ethylbenzene	37.1	0.5	ug/L	ND	92.8	50-140			
Ethylene dibromide (dibromoethane, 1,2	34.9	0.2	ug/L	ND	87.2	50-140			
Hexane	30.9	1.0	ug/L	ND	77.2	50-140			
Methyl Ethyl Ketone (2-Butanone)	88.2	5.0	ug/L	ND	88.2	50-140			
Methyl Isobutyl Ketone	87.2	5.0	ug/L	ND	87.2	50-140			
Methyl tert-butyl ether	95.2	2.0	ug/L	ND	95.2	50-140			
Methylene Chloride	34.5	5.0	ug/L	ND	86.3	50-140			
Styrene	39.6	0.5	ug/L	ND	99.1	50-140			
1,1,1,2-Tetrachloroethane	35.5	0.5	ug/L	ND	88.7	50-140			
1,1,2,2-Tetrachloroethane	35.4	0.5	ug/L	ND	88.4	50-140			
Tetrachloroethylene	32.9	0.5	ug/L	ND	82.4	50-140			
Toluene	35.0	0.5	ug/L	ND	87.6	50-140			
1,1,1-Trichloroethane	37.4	0.5	ug/L	ND	93.5	50-140			
1,1,2-Trichloroethane	30.5	0.5	ug/L	ND	76.2	50-140			
Trichloroethylene	28.1	0.5	ug/L	ND	70.4	50-140			
Trichlorofluoromethane	38.9	1.0	ug/L	ND	97.2	50-140			
Vinyl chloride	33.9	0.5	ug/L	ND	84.6	50-140			
m,p-Xylenes	78.4	0.5	ug/L	ND	98.0	50-140			
o-Xylene	39.0	0.5	ug/L	ND	97.5	50-140			
Benzene	34.7	0.5	ug/L	ND	86.7	50-140			
Ethylbenzene	37.1	0.5	ug/L	ND	92.8	50-140			
Toluene	35.0	0.5	ug/L	ND	87.6	50-140			
m,p-Xylenes	78.4	0.5	ug/L	ND	98.0	50-140			
o-Xylene	39.0	0.5	ug/L	ND	97.5	50-140			

Qualifier Notes:

Sample Qualifiers :

1 : Trip blank hold time based on preparation date for this QA sample and the associated analytical requirements. Hold time exceedances do not preclude the validity of the Trip Blank data.

QC Qualifiers :

QR-05 : Duplicate RPDs higher than normally accepted. Remaing batch QA\QC was acceptable. May be sample effect.

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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Client Name: exp Services Inc.	Project Reference: 077-00018293-55	TAT: [X] Regular [ ] 3 Day
Contact Name: Mark Devlin / Tanya Glenny / Chris Kimmerly	Quote #: City of Ottawa Standing Offer No. 019614-91843-501	[ ] 2 Day [ ] 1 Day
Address: 100-2650 Queensview Dr. Ottawa Ontario	PO #:	Date Required:
Telephone: (613) 793 3319	Email Address:	

Criteria: [V] 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: 1535199

	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)	Inorganics (Nat, Cl)						
1	MW15-1 BDC029	GW		4	Aug 25, 2015		X			X										
2	MW15-4 BDC030	|		4	Aug 25		X		X											
3	MW15-5 BDC031	|		2	Aug 26									X						
4	MW15-6 BDC032	|		1	Aug 25					X										
5	MW15-7 BDC033	|		2	Aug 26									X						
6	MW15-9 BDC034	|		1	Aug 25				X											
7	MW15-11 BDC035	|		2	Aug 25									X						
8	MW15-12 BDC036	|		2	Aug 26									X						
9	MW15-13 BDC037	|		2	Aug 25									X						
10	MW15-14 BDC038	V		4	Aug 25		X		X											

Comments: *Also recd trip blank?
↳ Add for analysis of VOCs per Mark. SC

Method of Delivery: Walkin

Relinquished By (Sign): Mark Devlin	Received by Driver/Depot:	Received at Lab: SC	Verified By: SC
Relinquished By (Print): Mark Devlin	Date/Time:	Date/Time: Aug 26/15 12:38p	Date/Time: Aug 26/15 2:32p
Date/Time: Aug 26, 2015 / 12:40p	Temperature: °C	Temperature: 7.9 °C	pH Verified [ ] By: SC

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Ottawa, Ontario K1G 4J8
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e: paracel@paracellabs.com
www.paracellabs.com

Chain of Custody
(Lab Use Only)

№ 105261

Page 2 of 2

Client Name: exp Services Inc.	Project Reference: OTT-00018293-J.5	TAT: [X] Regular [ ] 3 Day
Contact Name: Mark Devlin / Taryn Glavey / Chris Kimmett	Quote #: City of Ottawa SO No. 019614-91843-501	[ ] 2 Day [ ] 1 Day
Address: 100-2650 Queensview Dr. Ottawa	PO #:	Date Required:
Telephone: (613) 793 3319	Email Address:	

Criteria: [✓] 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: 1535199

	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	MW 15-15 BDC039	GW		3	Aug 26, 2015			X					
2	MW 08-9 BDC040	"		4	"		X	X					
3	MW 12-3 BDC041	↓		1	↓					X			
4	Trip Blank BDC042				Aug 20			X					
5													
6													
7													
8													
9													
10													

Comments:

Method of Delivery: Walk-in

Relinquished By (Sign): Mark Devlin	Received by Driver/Depot:	Received at Lab: SCZ	Verified By: SCZ
Relinquished By (Print): Mark Devlin	Date/Time:	Date/Time: Aug 26/15	Date/Time: Aug 26/15
Date/Time: Aug 26, 2015 / 12:40pm	Temperature: ____ °C	Temperature: 4.5 @ 12:38p	pH Verified [ ] By: SC

2:32p

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Mark Devlin

Client PO: 45064625
Project: OTT00018293J5/1770 Heatherington
Custody: 106148

Report Date: 21-Sep-2015
Order Date: 15-Sep-2015

Order #: 1538097

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

Paracel ID	Client ID
1538097-01	MW15-2
1538097-02	MW05-10
1538097-03	Trip

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO: 45064625

Report Date: 21-Sep-2015
Order Date: 15-Sep-2015
Project Description: OTT00018293J5/ 1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-MS	EPA 200.8 - ICP-MS	16-Sep-15	16-Sep-15
PHC F1	CWS Tier 1 - P&T GC-FID	17-Sep-15	18-Sep-15
PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	15-Sep-15	16-Sep-15
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	17-Sep-15	18-Sep-15

Certificate of Analysis

Report Date: 21-Sep-2015

Client: exp Services Inc. (Ottawa)

Order Date: 15-Sep-2015

Client PO: 45064625

Project Description: OTT00018293J5/ 1770 Heatherington

	Client ID:	MW15-2	MW05-10	Trip	-
	Sample Date:	15-Sep-15	15-Sep-15	14-Sep-15	-
	Sample ID:	1538097-01	1538097-02	1538097-03	-
	MDL/Units	Water	Water	Water	-
Metals					
Antimony	0.5 ug/L	5.5	-	-	-
Arsenic	1 ug/L	20	-	-	-
Barium	1 ug/L	1760	-	-	-
Beryllium	0.5 ug/L	<0.5	-	-	-
Boron	10 ug/L	1070	-	-	-
Cadmium	0.1 ug/L	<0.1	-	-	-
Chromium	1 ug/L	24	-	-	-
Cobalt	0.5 ug/L	<0.5	-	-	-
Copper	0.5 ug/L	24.7	-	-	-
Lead	0.1 ug/L	0.2	-	-	-
Molybdenum	0.5 ug/L	46.5	-	-	-
Nickel	1 ug/L	3	-	-	-
Selenium	1 ug/L	45	-	-	-
Silver	0.1 ug/L	1.0	-	-	-
Sodium	200 ug/L	50100	-	-	-
Thallium	0.1 ug/L	<0.1	-	-	-
Uranium	0.1 ug/L	2.7	-	-	-
Vanadium	0.5 ug/L	22.6	-	-	-
Zinc	5 ug/L	17	-	-	-
Volatiles					
Acetone	5.0 ug/L	143	137	<5.0	-
Benzene	0.5 ug/L	15.8	15.0	<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	-

Certificate of Analysis

Report Date: 21-Sep-2015

Client: exp Services Inc. (Ottawa)

Order Date: 15-Sep-2015

Client PO: 45064625

Project Description: OTT00018293J5/ 1770 Heatherington

	Client ID:	MW15-2	MW05-10	Trip	-
	Sample Date:	15-Sep-15	15-Sep-15	14-Sep-15	-
	Sample ID:	1538097-01	1538097-02	1538097-03	-
	MDL/Units	Water	Water	Water	-
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	0.7	0.8	<0.5	-
Ethylene dibromide (dibromoethan	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	11.6	10.7	<0.5	-
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	2.1	2.0	<0.5	-
Xylenes, total	0.5 ug/L	2.1	2.0	<0.5	-
4-Bromofluorobenzene	Surrogate	116%	121%	118%	-
Dibromofluoromethane	Surrogate	99.9%	102%	84.3%	-
Toluene-d8	Surrogate	83.1%	85.5%	89.1%	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	76	-	-	-
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	-	-	-

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						
Metals									
Antimony	ND	0.5	ug/L						
Arsenic	ND	1	ug/L						
Barium	ND	1	ug/L						
Beryllium	ND	0.5	ug/L						
Boron	ND	10	ug/L						
Cadmium	ND	0.1	ug/L						
Chromium	ND	1	ug/L						
Cobalt	ND	0.5	ug/L						
Copper	ND	0.5	ug/L						
Lead	ND	0.1	ug/L						
Molybdenum	ND	0.5	ug/L						
Nickel	ND	1	ug/L						
Selenium	ND	1	ug/L						
Silver	ND	0.1	ug/L						
Sodium	ND	200	ug/L						
Thallium	ND	0.1	ug/L						
Uranium	ND	0.1	ug/L						
Vanadium	ND	0.5	ug/L						
Zinc	ND	5	ug/L						
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	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*90.4*		*ug/L*		*113*	*50-140*			
Surrogate: Dibromofluoromethane	*71.6*		*ug/L*		*89.6*	*50-140*			
Surrogate: Toluene-d8	*71.8*		*ug/L*		*89.8*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND				30	
Metals									
Antimony	5.47	0.5	ug/L	5.45			0.3	20	
Arsenic	20.6	1	ug/L	20.3			1.6	20	
Barium	1850	1	ug/L	1760			4.5	20	
Beryllium	ND	0.5	ug/L	ND			0.0	20	
Boron	1110	10	ug/L	1070			3.4	20	
Cadmium	ND	0.1	ug/L	ND			0.0	20	
Chromium	18.4	1	ug/L	23.6			24.7	20	
Cobalt	ND	0.5	ug/L	ND			0.0	20	
Copper	23.8	0.5	ug/L	24.7			3.9	20	
Lead	ND	0.1	ug/L	0.19			0.0	20	
Molybdenum	46.7	0.5	ug/L	46.5			0.5	20	
Nickel	3.2	1	ug/L	3.2			1.8	20	
Selenium	42.2	1	ug/L	44.6			5.7	20	
Silver	ND	0.1	ug/L	1.03			0.0	20	
Thallium	0.45	0.1	ug/L	ND			0.0	20	
Uranium	2.9	0.1	ug/L	2.7			6.8	20	
Vanadium	23.4	0.5	ug/L	22.6			3.7	20	
Zinc	17	5	ug/L	17			1.1	20	
Volatiles									
Acetone	ND	5.0	ug/L	ND				30	
Benzene	ND	0.5	ug/L	ND				30	
Bromodichloromethane	ND	0.5	ug/L	ND				30	
Bromoform	ND	0.5	ug/L	ND				30	
Bromomethane	ND	0.5	ug/L	ND				30	
Carbon Tetrachloride	ND	0.2	ug/L	ND				30	
Chlorobenzene	ND	0.5	ug/L	ND				30	
Chloroform	ND	0.5	ug/L	ND				30	
Dibromochloromethane	ND	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,1-Dichloroethane	ND	0.5	ug/L	ND				30	
1,2-Dichloroethane	ND	0.5	ug/L	ND				30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND				30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
1,2-Dichloropropane	ND	0.5	ug/L	ND				30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND				30	
Ethylene dibromide (dibromoethane	ND	0.2	ug/L	ND				30	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND				30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND				30	
Methylene Chloride	ND	5.0	ug/L	ND				30	
Styrene	ND	0.5	ug/L	ND				30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
Tetrachloroethylene	ND	0.5	ug/L	ND				30	
Toluene	ND	0.5	ug/L	ND				30	
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	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*91.8*		*ug/L*	*ND*	*115*	*50-140*			
Surrogate: Dibromofluoromethane	*79.1*		*ug/L*	*ND*	*98.9*	*50-140*			
Surrogate: Toluene-d8	*72.7*		*ug/L*	*ND*	*90.9*	*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)	1880	25	ug/L	ND	94.0	68-117			
Metals									
Antimony	64.2		ug/L	5.45	118	80-120			
Arsenic	50.8		ug/L	ND	102	80-120			
Barium	48.9		ug/L	ND	97.8	80-120			
Beryllium	54.7		ug/L	ND	110	80-120			
Boron	49		ug/L	ND	98.9	80-120			
Cadmium	51.5		ug/L	ND	105	80-120			
Chromium	69.3		ug/L	23.6	91.4	80-120			
Cobalt	50.2		ug/L	0.30	99.9	80-120			
Copper	68.5		ug/L	24.7	87.5	80-120			
Lead	50.7		ug/L	0.19	101	80-120			
Molybdenum	102		ug/L	46.5	111	80-120			
Nickel	51.2		ug/L	3.2	96.2	80-120			
Selenium	48.9		ug/L	ND	97.8	80-120			
Silver	48.0		ug/L	ND	95.9	80-120			
Sodium	1010		ug/L	ND	101	80-120			
Thallium	51.3		ug/L	ND	103	80-120			
Uranium	59.4		ug/L	2.7	113	80-120			
Vanadium	71.3		ug/L	22.6	97.5	80-120			
Zinc	68		ug/L	17	102	80-120			
Volatiles									
Acetone	64.1	5.0	ug/L	ND	64.1	50-140			
Benzene	29.2	0.5	ug/L	1.39	69.5	50-140			
Bromodichloromethane	29.6	0.5	ug/L	ND	73.9	50-140			
Bromoform	26.7	0.5	ug/L	ND	66.8	50-140			
Bromomethane	32.4	0.5	ug/L	ND	80.9	50-140			
Carbon Tetrachloride	28.2	0.2	ug/L	ND	70.4	50-140			
Chlorobenzene	25.8	0.5	ug/L	ND	64.4	50-140			
Chloroform	27.2	0.5	ug/L	ND	68.0	50-140			
Dibromochloromethane	26.4	0.5	ug/L	ND	66.1	50-140			
Dichlorodifluoromethane	29.0	1.0	ug/L	ND	72.6	50-140			
1,2-Dichlorobenzene	25.0	0.5	ug/L	ND	62.6	50-140			
1,3-Dichlorobenzene	25.8	0.5	ug/L	ND	64.5	50-140			
1,4-Dichlorobenzene	25.0	0.5	ug/L	ND	62.5	50-140			
1,1-Dichloroethane	27.9	0.5	ug/L	ND	69.7	50-140			
1,2-Dichloroethane	27.0	0.5	ug/L	ND	67.6	50-140			
1,1-Dichloroethylene	26.7	0.5	ug/L	ND	66.8	50-140			
cis-1,2-Dichloroethylene	26.3	0.5	ug/L	ND	65.8	50-140			
trans-1,2-Dichloroethylene	26.8	0.5	ug/L	ND	67.1	50-140			
1,2-Dichloropropane	26.1	0.5	ug/L	ND	65.3	50-140			
cis-1,3-Dichloropropylene	26.6	0.5	ug/L	ND	66.5	50-140			
trans-1,3-Dichloropropylene	27.6	0.5	ug/L	ND	69.0	50-140			
Ethylbenzene	31.4	0.5	ug/L	0.54	77.2	50-140			
Ethylene dibromide (dibromoethane	26.9	0.2	ug/L	ND	67.4	50-140			
Hexane	27.3	1.0	ug/L	ND	68.4	50-140			
Methyl Ethyl Ketone (2-Butanone)	66.6	5.0	ug/L	ND	66.6	50-140			
Methyl Isobutyl Ketone	85.3	5.0	ug/L	ND	85.3	50-140			
Methyl tert-butyl ether	69.5	2.0	ug/L	ND	69.5	50-140			
Methylene Chloride	26.2	5.0	ug/L	ND	65.6	50-140			
Styrene	29.9	0.5	ug/L	ND	74.7	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	26.8	0.5	ug/L	ND	67.0	50-140			
1,1,2,2-Tetrachloroethane	28.3	0.5	ug/L	ND	70.8	50-140			
Tetrachloroethylene	26.2	0.5	ug/L	ND	65.6	50-140			
Toluene	38.4	0.5	ug/L	4.42	85.0	50-140			
1,1,1-Trichloroethane	28.8	0.5	ug/L	ND	72.0	50-140			
1,1,2-Trichloroethane	28.9	0.5	ug/L	ND	72.2	50-140			
Trichloroethylene	28.0	0.5	ug/L	ND	70.0	50-140			
Trichlorofluoromethane	26.4	1.0	ug/L	ND	65.9	50-140			
Vinyl chloride	26.5	0.5	ug/L	ND	66.3	50-140			
m,p-Xylenes	65.9	0.5	ug/L	1.57	80.4	50-140			
o-Xylene	32.9	0.5	ug/L	0.88	80.0	50-140			
Surrogate: 4-Bromofluorobenzene	*82.0*		*ug/L*		*103*	*50-140*			

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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№ 106148

Page 1 of 1

Client Name: exp Services Inc.	Project Reference: OTT-00018293-J5		TAT: [X] Regular [ ] 3 Day
Contact Name: Mark Devlin/Tayyab Celaney/Chris Kennedy	Quote #	City of Ottawa SO No. 019614-9843-501	[ ] 2 Day [ ] 1 Day
Address: 100-2650 Queensview Dr. Ottawa	PO#		
Telephone: (613) 793-3319	Email Address:		Date Required:

Criteria: [✓] 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: 1538097

	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	MW15-2 BDC132	GW		4	Sept 15, 2015	10:30	X	X		X			
2	MW05-10 BDC133	GW		2	Sept 15, 2015	[illegible]		X					
3	Trip BDC134	O		1	Sept 14, 2015			X					
4													
5													
6													
7													
8													
9													
10													

Comments: Proceed to test whole bottle if sediment present

Method of Delivery: Walkin

Relinquished By (Sign): Mark Devlin	Received by Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Mark Devlin	Date/Time:	Date/Time: Sept 15/15	Date/Time: 15 Oct 15 11:16
Date/Time: Sept 15, 2015 / 11:10am	Temperature: _____ °C	Temperature: 14.3 °C 11:06a	pH Verified [ ] By:

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO: 45064625
Project: 0TT-00018293-J5/1770 Heatherington Road
Custody: 26089

Report Date: 9-Dec-2015
Order Date: 3-Dec-2015

Order #: 1549270

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

Paracel ID	Client ID
1549270-01	MW 12-3
1549270-02	MW 12-3 DUP

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis
Report Date: 09-Dec-2015
Client: exp Services Inc. (Ottawa)
Order Date:3-Dec-2015
Client PO: 45064625
Project Description: 0TT-00018293-J5/ 1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	8-Dec-15	9-Dec-15

Certificate of Analysis

Report Date: 09-Dec-2015

Client: exp Services Inc. (Ottawa)

Order Date:3-Dec-2015

Client PO: 45064625

Project Description: 0TT-00018293-J5/ 1770 Heatherington Road

	Client ID:	MW 12-3	MW 12-3 DUP	-	-
	Sample Date:	03-Dec-15	03-Dec-15	-	-
	Sample ID:	1549270-01	1549270-02	-	-
	MDL/Units	Water	Water	-	-
Semi-Volatiles					
Acenaphthene	0.05 ug/L	<0.05	<0.05	-	-
Acenaphthylene	0.05 ug/L	<0.05	<0.05	-	-
Anthracene	0.01 ug/L	<0.01	<0.01	-	-
Benzo [a] anthracene	0.01 ug/L	<0.01	<0.01	-	-
Benzo [a] pyrene	0.01 ug/L	<0.01	<0.01	-	-
Benzo [b] fluoranthene	0.05 ug/L	<0.05	<0.05	-	-
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	<0.05	-	-
Benzo [k] fluoranthene	0.05 ug/L	<0.05	<0.05	-	-
Chrysene	0.05 ug/L	<0.05	<0.05	-	-
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	<0.05	-	-
Fluoranthene	0.01 ug/L	<0.01	<0.01	-	-
Fluorene	0.05 ug/L	<0.05	<0.05	-	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	<0.05	-	-
1-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	-	-
2-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	-	-
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	<0.10	-	-
Naphthalene	0.05 ug/L	<0.05	<0.05	-	-
Phenanthrene	0.05 ug/L	<0.05	<0.05	-	-
Pyrene	0.01 ug/L	<0.01	<0.01	-	-
2-Fluorobiphenyl	Surrogate	75.0%	66.2%	-	-
Terphenyl-d14	Surrogate	113%	99.4%	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*17.7*		*ug/L*		*88.5*	*50-140*			
Surrogate: Terphenyl-d14	*19.0*		*ug/L*		*95.2*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Semi-Volatiles									
Acenaphthene	4.52	0.05	ug/L	ND	90.3	50-140			
Acenaphthylene	3.77	0.05	ug/L	ND	75.4	50-140			
Anthracene	3.73	0.01	ug/L	ND	74.7	50-140			
Benzo [a] anthracene	3.09	0.01	ug/L	ND	61.9	50-140			
Benzo [a] pyrene	3.51	0.01	ug/L	ND	70.3	50-140			
Benzo [b] fluoranthene	3.37	0.05	ug/L	ND	67.5	50-140			
Benzo [g,h,i] perylene	3.89	0.05	ug/L	ND	77.8	50-140			
Benzo [k] fluoranthene	4.26	0.05	ug/L	ND	85.3	50-140			
Chrysene	3.77	0.05	ug/L	ND	75.3	50-140			
Dibenzo [a,h] anthracene	4.43	0.05	ug/L	ND	88.5	50-140			
Fluoranthene	3.87	0.01	ug/L	ND	77.5	50-140			
Fluorene	2.74	0.05	ug/L	ND	54.8	50-140			
Indeno [1,2,3-cd] pyrene	4.09	0.05	ug/L	ND	81.8	50-140			
1-Methylnaphthalene	4.57	0.05	ug/L	ND	91.4	50-140			
2-Methylnaphthalene	4.84	0.05	ug/L	ND	96.9	50-140			
Naphthalene	4.59	0.05	ug/L	ND	91.8	50-140			
Phenanthrene	3.63	0.05	ug/L	ND	72.5	50-140			
Pyrene	3.94	0.01	ug/L	ND	78.8	50-140			
Surrogate: 2-Fluorobiphenyl	*14.0*		*ug/L*		*70.0*	*50-140*			

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.

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№ 26089

Page 1 of 1

Client Name: exp	Project Reference: OH-00018293-55
Contact Name: Chris Kimmerly / Daniel Clarke	Quote # City of Ottawa Job
Address: 100 2650 Queensview Dr Ottawa	PO # 19614-91843
Telephone: 613-688-1899	Email Address: Chris.Kimmerly@exp.com Daniel.Clarke@exp.com

TAT: [X] Regular [ ] 3 Day [ ] 2 Day [ ] 1 Day

Date Required: _____

Criteria: [X] O. Reg. 153/04 (As Amended) Table 2 [ ] 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: 1549270

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analyses: PAH										
1	MW 12-3 BEN157	GW		1	Dec 3/15	11:45	X										
2	MW 12-3 Dup BEN158	GW		1	Dec 3/15	11:45	X										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Comments:

Method of Delivery: Walk-in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Daniel Clarke	Date/Time:	Date/Time: Dec 3/15	Date/Time: Dec 3/15 12:59
Date/Time: Dec 3/15 12:10	Temperature: °C	Temperature: 12.0°C 12:09p	pH Verified [X] By: N/A

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO:
Project: OTT0018293J5
Custody: 123794

Report Date: 15-Oct-2019
Order Date: 4-Oct-2019

Order #: 1941050

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

Paracel ID	Client ID
1941050-01	TP1 S2
1941050-02	TP2 S3
1941050-03	TP4 S3
1941050-04	TP6 S2
1941050-05	TP8 S2
1941050-06	TP10 S2
1941050-07	TP11 S1
1941050-08	TP14 S1
1941050-09	TP17 S1
1941050-10	TP19 S1
1941050-11	TP22 S3
1941050-12	TP23 S3
1941050-13	TP26 S2
1941050-14	TP27 S1
1941050-15	TP30 S3
1941050-16	TP33 S2
1941050-17	TP35 S2
1941050-18	TP36 S3
1941050-19	TP37 S1
1941050-20	TP40 S1
1941050-21	TP41 S2
1941050-22	TP42 S3
1941050-23	TP50 S2
1941050-24	TP51 S2
1941050-25	TP54 S1

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 15-Oct-2019
Order Date: 4-Oct-2019
Project Description: OTT0018293J5

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.7 - ICP-OES	8-Oct-19	9-Oct-19
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	8-Oct-19	10-Oct-19
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	7-Oct-19	8-Oct-19
Mercury by CVAA	EPA 7471B - CVAA, digestion	8-Oct-19	9-Oct-19
PHC F1	CWS Tier 1 - P&T GC-FID	8-Oct-19	10-Oct-19
PHC F4G (gravimetric)	CWS Tier 1 - Extraction Gravimetric	15-Oct-19	15-Oct-19
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	7-Oct-19	11-Oct-19
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	8-Oct-19	8-Oct-19
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	7-Oct-19	12-Oct-19
Solids, %	Gravimetric, calculation	8-Oct-19	8-Oct-19

Certificate of Analysis

Client: exp Services Inc. (Ottawa)

Client PO:

Report Date: 15-Oct-2019

Order Date: 4-Oct-2019

Project Description: OTT0018293J5

	Client ID:	TP1 S2	TP2 S3	TP4 S3	TP6 S2
	Sample Date:	02-Oct-19 09:00	02-Oct-19 09:00	02-Oct-19 09:00	02-Oct-19 09:00
	Sample ID:	1941050-01	1941050-02	1941050-03	1941050-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	91.9	93.8	93.7	94.2
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	3.7	3.9	2.3	3.5
Barium	1.0 ug/g dry	49.6	67.8	55.5	79.7
Beryllium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Boron	5.0 ug/g dry	<5.0	5.8	<5.0	5.9
Boron, available	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	15.9	17.1	14.7	25.4
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	<0.2
Cobalt	1.0 ug/g dry	4.3	5.2	4.2	5.6
Copper	5.0 ug/g dry	12.4	13.7	11.1	20.3
Lead	1.0 ug/g dry	9.7	20.7	9.8	41.1
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	1.1	<1.0	1.6
Nickel	5.0 ug/g dry	10.1	11.5	9.8	14.4
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	20.4	23.8	21.5	27.5
Zinc	20.0 ug/g dry	39.4	47.6	55.0	78.1
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	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
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
Toluene-d8	Surrogate	109%	108%	108%	108%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	39	17	<8	27

Certificate of Analysis

Report Date: 15-Oct-2019

Client: exp Services Inc. (Ottawa)

Order Date: 4-Oct-2019

Client PO:

Project Description: OTT0018293J5

	Client ID:	TP1 S2	TP2 S3	TP4 S3	TP6 S2
	Sample Date:	02-Oct-19 09:00	02-Oct-19 09:00	02-Oct-19 09:00	02-Oct-19 09:00
	Sample ID:	1941050-01	1941050-02	1941050-03	1941050-04
	MDL/Units	Soil	Soil	Soil	Soil
F4 PHCs (C34-C50)	6 ug/g dry	61	<6	<6	19
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	0.04
Anthracene	0.02 ug/g dry	<0.02	0.02	<0.02	0.06
Benzo [a] anthracene	0.02 ug/g dry	0.03	0.07	0.03	0.14
Benzo [a] pyrene	0.02 ug/g dry	0.04	0.06	0.03	0.14
Benzo [b] fluoranthene	0.02 ug/g dry	0.06	0.10	0.06	0.27
Benzo [g,h,i] perylene	0.02 ug/g dry	0.06	0.07	0.03	0.15
Benzo [k] fluoranthene	0.02 ug/g dry	0.03	0.05	0.03	0.14
Chrysene	0.02 ug/g dry	0.03	0.07	0.04	0.21
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	0.03
Fluoranthene	0.02 ug/g dry	0.06	0.11	0.07	0.33
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.03	0.05	0.03	0.12
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	0.03	0.06	0.05	0.18
Pyrene	0.02 ug/g dry	0.05	0.09	0.06	0.28
2-Fluorobiphenyl	Surrogate	106%	100%	81.3%	106%
Terphenyl-d14	Surrogate	103%	97.1%	104%	113%

PARACEL LABORATORIES LTD.

Order #: 1941050

Certificate of Analysis

Report Date: 15-Oct-2019

Client: exp Services Inc. (Ottawa)

Order Date: 4-Oct-2019

Client PO:

Project Description: OTT0018293J5

	Client ID:	TP8 S2	TP10 S2	TP11 S1	TP14 S1
	Sample Date:	02-Oct-19 09:00	02-Oct-19 12:00	02-Oct-19 12:00	02-Oct-19 12:00
	Sample ID:	1941050-05	1941050-06	1941050-07	1941050-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	91.5	91.0	95.0	96.8
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	3.1	3.6	2.3	2.8
Barium	1.0 ug/g dry	61.2	83.1	46.3	64.1
Beryllium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Boron	5.0 ug/g dry	5.3	6.3	5.1	5.8
Boron, available	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	29.3	21.9	14.8	17.7
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	<0.2
Cobalt	1.0 ug/g dry	5.1	5.5	3.8	4.7
Copper	5.0 ug/g dry	28.1	19.7	10.1	13.7
Lead	1.0 ug/g dry	29.1	25.3	11.9	16.7
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	2.0	1.2	<1.0	<1.0
Nickel	5.0 ug/g dry	12.9	13.6	9.0	11.2
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	22.2	26.7	20.3	24.1
Zinc	20.0 ug/g dry	84.9	69.1	61.2	70.8
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	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
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
Toluene-d8	Surrogate	108%	108%	107%	108%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	58	24	<8	17

Certificate of Analysis

Report Date: 15-Oct-2019

Client: exp Services Inc. (Ottawa)

Order Date: 4-Oct-2019

Client PO:

Project Description: OTT0018293J5

	Client ID:	TP8 S2	TP10 S2	TP11 S1	TP14 S1
	Sample Date:	02-Oct-19 09:00	02-Oct-19 12:00	02-Oct-19 12:00	02-Oct-19 12:00
	Sample ID:	1941050-05	1941050-06	1941050-07	1941050-08
	MDL/Units	Soil	Soil	Soil	Soil
F4 PHCs (C34-C50)	6 ug/g dry	49	34	<6	7
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	0.04	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	0.04	0.02	0.04	<0.02
Anthracene	0.02 ug/g dry	0.20	<0.02	0.04	<0.02
Benzo [a] anthracene	0.02 ug/g dry	0.40	0.04	0.07	0.04
Benzo [a] pyrene	0.02 ug/g dry	0.29	0.05	0.08	0.05
Benzo [b] fluoranthene	0.02 ug/g dry	0.37	0.09	0.12	0.10
Benzo [g,h,i] perylene	0.02 ug/g dry	0.24	0.05	0.06	0.05
Benzo [k] fluoranthene	0.02 ug/g dry	0.19	0.05	0.06	0.04
Chrysene	0.02 ug/g dry	0.34	0.07	0.10	0.07
Dibenzo [a,h] anthracene	0.02 ug/g dry	0.06	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	0.82	0.09	0.17	0.09
Fluorene	0.02 ug/g dry	0.06	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.21	0.04	0.05	0.04
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	0.70	0.04	0.08	0.04
Pyrene	0.02 ug/g dry	0.71	0.08	0.15	0.08
2-Fluorobiphenyl	Surrogate	89.6%	109%	117%	93.6%
Terphenyl-d14	Surrogate	82.6%	113%	105%	117%

Certificate of Analysis

Report Date: 15-Oct-2019

Client: exp Services Inc. (Ottawa)

Order Date: 4-Oct-2019

Client PO:

Project Description: OTT0018293J5

	Client ID:	TP17 S1	TP19 S1	TP22 S3	TP23 S3
	Sample Date:	02-Oct-19 12:00	03-Oct-19 12:00	03-Oct-19 12:00	03-Oct-19 09:00
	Sample ID:	1941050-09	1941050-10	1941050-11	1941050-12
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	88.2	96.9	96.0	95.4
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	2.6	3.5	2.5	2.6
Barium	1.0 ug/g dry	49.4	67.6	45.0	47.6
Beryllium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Boron	5.0 ug/g dry	<5.0	6.0	<5.0	<5.0
Boron, available	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	14.7	17.9	15.2	14.6
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	<0.2
Cobalt	1.0 ug/g dry	3.9	4.9	4.6	3.6
Copper	5.0 ug/g dry	11.1	11.4	11.9	11.6
Lead	1.0 ug/g dry	10.9	15.5	12.9	11.9
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	1.4	<1.0	<1.0
Nickel	5.0 ug/g dry	9.1	12.1	9.4	8.3
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	21.7	23.2	20.7	20.2
Zinc	20.0 ug/g dry	40.0	40.2	34.7	36.0
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	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
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
Toluene-d8	Surrogate	108%	108%	108%	107%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	21	<8	<8	31

Certificate of Analysis

Report Date: 15-Oct-2019

Client: exp Services Inc. (Ottawa)

Order Date: 4-Oct-2019

Client PO:

Project Description: OTT0018293J5

	Client ID:	TP17 S1	TP19 S1	TP22 S3	TP23 S3
	Sample Date:	02-Oct-19 12:00	03-Oct-19 12:00	03-Oct-19 12:00	03-Oct-19 09:00
	Sample ID:	1941050-09	1941050-10	1941050-11	1941050-12
	MDL/Units	Soil	Soil	Soil	Soil
F4 PHCs (C34-C50)	6 ug/g dry	11	<6	<6	15
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	0.04	0.04	0.06	0.03
Benzo [a] pyrene	0.02 ug/g dry	0.06	0.05	0.07	0.03
Benzo [b] fluoranthene	0.02 ug/g dry	0.09	0.09	0.10	0.05
Benzo [g,h,i] perylene	0.02 ug/g dry	0.07	0.04	0.06	0.04
Benzo [k] fluoranthene	0.02 ug/g dry	0.04	0.04	0.05	0.02
Chrysene	0.02 ug/g dry	0.07	0.06	0.07	0.04
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	0.10	0.10	0.11	0.07
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.06	0.03	0.05	0.03
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	0.05	0.08	0.05	0.03
Pyrene	0.02 ug/g dry	0.09	0.08	0.10	0.06
2-Fluorobiphenyl	Surrogate	123%	121%	113%	115%
Terphenyl-d14	Surrogate	126%	136%	130%	102%

Certificate of Analysis

Client: exp Services Inc. (Ottawa)

Client PO:

Report Date: 15-Oct-2019

Order Date: 4-Oct-2019

Project Description: OTT0018293J5

	Client ID:	TP26 S2	TP27 S1	TP30 S3	TP33 S2
	Sample Date:	03-Oct-19 09:00	03-Oct-19 09:00	03-Oct-19 12:00	03-Oct-19 12:00
	Sample ID:	1941050-13	1941050-14	1941050-15	1941050-16
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	92.0	88.2	93.3	92.6
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	3.1	<1.0
Arsenic	1.0 ug/g dry	3.8	3.8	4.6	3.8
Barium	1.0 ug/g dry	77.3	62.6	42.2	76.0
Beryllium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Boron	5.0 ug/g dry	6.8	6.3	5.3	8.4
Boron, available	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	2.6	<0.5
Chromium	5.0 ug/g dry	20.3	25.2	15.9	16.9
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	<0.2
Cobalt	1.0 ug/g dry	5.8	5.4	6.0	5.5
Copper	5.0 ug/g dry	16.4	22.5	13.4	14.5
Lead	1.0 ug/g dry	22.1	20.4	14.6	19.8
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	1.3	1.6	3.1	1.7
Nickel	5.0 ug/g dry	13.5	12.7	10.2	12.5
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	2.7	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	2.8	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	3.1	<1.0
Vanadium	10.0 ug/g dry	26.8	23.1	20.6	21.4
Zinc	20.0 ug/g dry	63.2	71.3	39.0	59.2
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	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
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
Toluene-d8	Surrogate	110%	109%	109%	108%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	20	35	19	60

Certificate of Analysis

Report Date: 15-Oct-2019

Client: exp Services Inc. (Ottawa)

Order Date: 4-Oct-2019

Client PO:

Project Description: OTT0018293J5

	Client ID:	TP26 S2	TP27 S1	TP30 S3	TP33 S2
	Sample Date:	03-Oct-19 09:00	03-Oct-19 09:00	03-Oct-19 12:00	03-Oct-19 12:00
	Sample ID:	1941050-13	1941050-14	1941050-15	1941050-16
	MDL/Units	Soil	Soil	Soil	Soil
F4 PHCs (C34-C50)	6 ug/g dry	22	23	15	83
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	0.05	0.04	0.07	<0.02
Anthracene	0.02 ug/g dry	0.04	0.05	0.06	<0.02
Benzo [a] anthracene	0.02 ug/g dry	0.22	0.23	0.21	0.06
Benzo [a] pyrene	0.02 ug/g dry	0.19	0.23	0.21	0.06
Benzo [b] fluoranthene	0.02 ug/g dry	0.45	0.33	0.38	0.10
Benzo [g,h,i] perylene	0.02 ug/g dry	0.17	0.22	0.18	0.07
Benzo [k] fluoranthene	0.02 ug/g dry	0.24	0.16	0.19	0.04
Chrysene	0.02 ug/g dry	0.25	0.35	0.27	0.06
Dibenzo [a,h] anthracene	0.02 ug/g dry	0.04	0.05	0.04	<0.02
Fluoranthene	0.02 ug/g dry	0.41	0.49	0.42	0.11
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.14	0.19	0.16	0.05
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	0.14	0.22	0.17	0.05
Pyrene	0.02 ug/g dry	0.33	0.41	0.39	0.09
2-Fluorobiphenyl	Surrogate	126%	115%	122%	106%
Terphenyl-d14	Surrogate	191% [4]	107%	155% [4]	101%

Certificate of Analysis

Report Date: 15-Oct-2019

Client: exp Services Inc. (Ottawa)

Order Date: 4-Oct-2019

Client PO:

Project Description: OTT0018293J5

	Client ID:	TP35 S2	TP36 S3	TP37 S1	TP40 S1
	Sample Date:	03-Oct-19 12:00	03-Oct-19 12:00	03-Oct-19 12:00	03-Oct-19 12:00
	Sample ID:	1941050-17	1941050-18	1941050-19	1941050-20
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	96.0	89.7	96.6	95.0
Metals					
Antimony	1.0 ug/g dry	1.4	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	3.1	3.5	4.5	2.5
Barium	1.0 ug/g dry	47.2	60.9	56.1	54.8
Beryllium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Boron	5.0 ug/g dry	7.4	6.6	7.2	5.3
Boron, available	0.5 ug/g dry	1.1	0.7	<0.5	<0.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	47.5	18.5	13.6	20.6
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	0.2
Cobalt	1.0 ug/g dry	5.9	5.2	4.8	5.1
Copper	5.0 ug/g dry	29.8	12.7	8.1	17.4
Lead	1.0 ug/g dry	27.8	16.1	10.3	12.1
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	2.8	1.5	1.9	<1.0
Nickel	5.0 ug/g dry	13.0	11.8	9.5	10.4
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	18.9	21.3	16.0	23.7
Zinc	20.0 ug/g dry	112	47.8	40.8	45.0
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	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
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
Toluene-d8	Surrogate	109%	108%	108%	109%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	254	31	<8	25

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 15-Oct-2019
Order Date: 4-Oct-2019
Project Description: OTT0018293J5

	Client ID:	TP35 S2	TP36 S3	TP37 S1	TP40 S1
	Sample Date:	03-Oct-19 12:00	03-Oct-19 12:00	03-Oct-19 12:00	03-Oct-19 12:00
	Sample ID:	1941050-17	1941050-18	1941050-19	1941050-20
	MDL/Units	Soil	Soil	Soil	Soil
F4 PHCs (C34-C50)	6 ug/g dry	258 [2]	47	<6	26
F4G PHCs (gravimetric)	50 ug/g dry	1270	-	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.04	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.04	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	0.06	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	0.41	0.06	<0.02	0.08
Benzo [a] pyrene	0.02 ug/g dry	0.42	0.07	<0.02	0.10
Benzo [b] fluoranthene	0.02 ug/g dry	0.81	0.14	<0.02	0.16
Benzo [g,h,i] perylene	0.02 ug/g dry	0.41	0.07	<0.02	0.10
Benzo [k] fluoranthene	0.02 ug/g dry	0.42	0.07	<0.02	0.07
Chrysene	0.02 ug/g dry	0.65	0.08	<0.02	0.14
Dibenzo [a,h] anthracene	0.02 ug/g dry	0.09	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	1.03	0.12	<0.02	0.24
Fluorene	0.02 ug/g dry	<0.04	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.36	0.06	<0.02	0.08
1-Methylnaphthalene	0.02 ug/g dry	<0.04	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.04	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.08	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	0.02	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	0.51	0.06	<0.02	0.08
Pyrene	0.02 ug/g dry	0.84	0.11	<0.02	0.19
2-Fluorobiphenyl	Surrogate	129%	110%	121%	110%
Terphenyl-d14	Surrogate	117%	130%	191% [4]	97.1%

Certificate of Analysis

Client: exp Services Inc. (Ottawa)

Client PO:

Report Date: 15-Oct-2019

Order Date: 4-Oct-2019

Project Description: OTT0018293J5

	Client ID:	TP41 S2	TP42 S3	TP50 S2	TP51 S2
	Sample Date:	03-Oct-19 12:00	03-Oct-19 12:00	02-Oct-19 09:00	03-Oct-19 12:00
	Sample ID:	1941050-21	1941050-22	1941050-23	1941050-24
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	97.4	92.4	95.8	94.7
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	2.4	2.7	3.2	2.1
Barium	1.0 ug/g dry	53.7	53.3	68.4	42.2
Beryllium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Boron	5.0 ug/g dry	<5.0	<5.0	5.7	<5.0
Boron, available	0.5 ug/g dry	0.6	<0.5	<0.5	<0.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	18.7	16.6	20.5	16.0
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	<0.2
Cobalt	1.0 ug/g dry	5.1	4.1	4.8	4.3
Copper	5.0 ug/g dry	17.3	13.2	16.9	10.7
Lead	1.0 ug/g dry	9.6	13.4	29.2	6.7
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	<1.0	1.3	<1.0
Nickel	5.0 ug/g dry	10.4	8.6	11.8	8.9
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	21.4	22.0	23.8	21.2
Zinc	20.0 ug/g dry	39.5	40.8	68.1	24.7
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	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
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
Toluene-d8	Surrogate	99.5%	110%	111%	109%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	108	14	35	33

Certificate of Analysis

Client: exp Services Inc. (Ottawa)

Client PO:

Report Date: 15-Oct-2019

Order Date: 4-Oct-2019

Project Description: OTT0018293J5

	Client ID:	TP41 S2	TP42 S3	TP50 S2	TP51 S2
	Sample Date:	03-Oct-19 12:00	03-Oct-19 12:00	02-Oct-19 09:00	03-Oct-19 12:00
	Sample ID:	1941050-21	1941050-22	1941050-23	1941050-24
	MDL/Units	Soil	Soil	Soil	Soil
F4 PHCs (C34-C50)	6 ug/g dry	89	10	26	23
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	0.04	<0.02
Anthracene	0.02 ug/g dry	0.02	<0.02	0.05	<0.02
Benzo [a] anthracene	0.02 ug/g dry	0.15	<0.02	0.10	0.03
Benzo [a] pyrene	0.02 ug/g dry	0.15	0.02	0.12	0.04
Benzo [b] fluoranthene	0.02 ug/g dry	0.35	0.03	0.16	0.07
Benzo [g,h,i] perylene	0.02 ug/g dry	0.18	0.02	0.14	0.04
Benzo [k] fluoranthene	0.02 ug/g dry	0.15	<0.02	0.11	<0.02
Chrysene	0.02 ug/g dry	0.22	0.03	0.12	0.04
Dibenzo [a,h] anthracene	0.02 ug/g dry	0.04	<0.02	0.03	<0.02
Fluoranthene	0.02 ug/g dry	0.42	0.04	0.21	0.06
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.15	<0.02	0.11	0.03
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	0.16	<0.02	0.09	0.03
Pyrene	0.02 ug/g dry	0.34	0.03	0.19	0.05
2-Fluorobiphenyl	Surrogate	88.5%	94.9%	119%	96.3%
Terphenyl-d14	Surrogate	90.8%	91.0%	105%	104%

Certificate of Analysis

Report Date: 15-Oct-2019

Client: exp Services Inc. (Ottawa)

Order Date: 4-Oct-2019

Client PO:

Project Description: OTT0018293J5

	Client ID:	TP54 S1	-	-	-
	Sample Date:	03-Oct-19 12:00	-	-	-
	Sample ID:	1941050-25	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	94.9	-	-	-
Metals					
Antimony	1.0 ug/g dry	<1.0	-	-	-
Arsenic	1.0 ug/g dry	3.1	-	-	-
Barium	1.0 ug/g dry	52.8	-	-	-
Beryllium	0.5 ug/g dry	<0.5	-	-	-
Boron	5.0 ug/g dry	6.4	-	-	-
Boron, available	0.5 ug/g dry	<0.5	-	-	-
Cadmium	0.5 ug/g dry	<0.5	-	-	-
Chromium	5.0 ug/g dry	23.3	-	-	-
Chromium (VI)	0.2 ug/g dry	<0.2	-	-	-
Cobalt	1.0 ug/g dry	4.8	-	-	-
Copper	5.0 ug/g dry	17.3	-	-	-
Lead	1.0 ug/g dry	19.7	-	-	-
Mercury	0.1 ug/g dry	<0.1	-	-	-
Molybdenum	1.0 ug/g dry	1.6	-	-	-
Nickel	5.0 ug/g dry	10.5	-	-	-
Selenium	1.0 ug/g dry	<1.0	-	-	-
Silver	0.3 ug/g dry	<0.3	-	-	-
Thallium	1.0 ug/g dry	<1.0	-	-	-
Uranium	1.0 ug/g dry	<1.0	-	-	-
Vanadium	10.0 ug/g dry	22.1	-	-	-
Zinc	20.0 ug/g dry	65.7	-	-	-
Volatiles					
Benzene	0.02 ug/g dry	<0.02	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Toluene	0.05 ug/g dry	<0.05	-	-	-
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	-	-	-
Toluene-d8	Surrogate	109%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	29	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	34	-	-	-

Certificate of Analysis

Report Date: 15-Oct-2019

Client: exp Services Inc. (Ottawa)

Order Date: 4-Oct-2019

Client PO:

Project Description: OTT0018293J5

	Client ID:	TP54 S1	-	-	-
	Sample Date:	03-Oct-19 12:00	-	-	-
	Sample ID:	1941050-25	-	-	-
	MDL/Units	Soil	-	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	0.02	-	-	-
Acenaphthylene	0.02 ug/g dry	<0.02	-	-	-
Anthracene	0.02 ug/g dry	0.04	-	-	-
Benzo [a] anthracene	0.02 ug/g dry	0.15	-	-	-
Benzo [a] pyrene	0.02 ug/g dry	0.13	-	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	0.23	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	0.13	-	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	0.17	-	-	-
Chrysene	0.02 ug/g dry	0.23	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	0.02	-	-	-
Fluoranthene	0.02 ug/g dry	0.37	-	-	-
Fluorene	0.02 ug/g dry	0.02	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.10	-	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	-	-
Naphthalene	0.01 ug/g dry	<0.01	-	-	-
Phenanthrene	0.02 ug/g dry	0.23	-	-	-
Pyrene	0.02 ug/g dry	0.30	-	-	-
2-Fluorobiphenyl	Surrogate	118%	-	-	-
Terphenyl-d14	Surrogate	96.7%	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
F4G PHCs (gravimetric)	ND	50	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron, available	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium (VI)	ND	0.2	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.33*		*ug/g*		*100*	*50-140*			
Surrogate: Terphenyl-d14	*1.26*		*ug/g*		*94.5*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	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: Toluene-d8	*8.27*		*ug/g*		*103*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	2140	4	ug/g dry	3890			58.1	30	QR-04
F3 PHCs (C16-C34)	2160	8	ug/g dry	3380			43.8	30	QR-04
F4 PHCs (C34-C50)	41	6	ug/g dry	ND			0.0	30	
Metals									
Antimony	1.6	1.0	ug/g dry	ND			0.0	30	
Arsenic	2.4	1.0	ug/g dry	2.3			5.9	30	
Barium	46.1	1.0	ug/g dry	46.3			0.4	30	
Beryllium	ND	0.5	ug/g dry	ND			0.0	30	
Boron, available	ND	0.5	ug/g dry	ND			0.0	35	
Boron	6.3	5.0	ug/g dry	5.1			21.5	30	
Cadmium	ND	0.5	ug/g dry	ND			0.0	30	
Chromium (VI)	ND	0.2	ug/g dry	ND				35	
Chromium	14.4	5.0	ug/g dry	14.8			2.3	30	
Cobalt	3.8	1.0	ug/g dry	3.8			0.4	30	
Copper	11.1	5.0	ug/g dry	10.1			9.5	30	
Lead	13.2	1.0	ug/g dry	11.9			10.8	30	
Mercury	ND	0.1	ug/g dry	ND			0.0	30	
Molybdenum	ND	1.0	ug/g dry	ND			0.0	30	
Nickel	9.1	5.0	ug/g dry	9.0			1.2	30	
Selenium	ND	1.0	ug/g dry	ND			0.0	30	
Silver	ND	0.3	ug/g dry	ND			0.0	30	
Thallium	ND	1.0	ug/g dry	ND			0.0	30	
Uranium	ND	1.0	ug/g dry	ND			0.0	30	
Vanadium	18.6	10.0	ug/g dry	20.3			8.7	30	
Zinc	66.2	20.0	ug/g dry	61.2			7.9	30	
Physical Characteristics									
% Solids	95.9	0.1	% by Wt.	95.4			0.5	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND			0.0	40	
Acenaphthylene	ND	0.02	ug/g dry	ND			0.0	40	
Anthracene	ND	0.02	ug/g dry	ND			0.0	40	
Benzo [a] anthracene	0.036	0.02	ug/g dry	0.033			8.7	40	
Benzo [a] pyrene	0.039	0.02	ug/g dry	0.037			5.0	40	
Benzo [b] fluoranthene	0.062	0.02	ug/g dry	0.064			3.7	40	
Benzo [g,h,i] perylene	0.051	0.02	ug/g dry	0.056			8.0	40	
Benzo [k] fluoranthene	0.029	0.02	ug/g dry	0.027			6.3	40	
Chrysene	0.068	0.02	ug/g dry	0.034			65.5	40	QR-04
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND			0.0	40	
Fluoranthene	0.076	0.02	ug/g dry	0.056			29.1	40	
Fluorene	ND	0.02	ug/g dry	ND			0.0	40	
Indeno [1,2,3-cd] pyrene	0.034	0.02	ug/g dry	0.035			2.1	40	
1-Methylnaphthalene	0.031	0.02	ug/g dry	ND			0.0	40	
2-Methylnaphthalene	0.038	0.02	ug/g dry	ND			0.0	40	
Naphthalene	ND	0.01	ug/g dry	ND				40	
Phenanthrene	0.037	0.02	ug/g dry	0.030			21.5	40	
Pyrene	0.063	0.02	ug/g dry	0.049			26.3	40	
Surrogate: 2-Fluorobiphenyl	*1.41*		*ug/g dry*		*97.3*	*50-140*			
Surrogate: Terphenyl-d14	*1.33*		*ug/g dry*		*91.9*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	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: Toluene-d8	*9.49*		*ug/g dry*		*109*	*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)	174	7	ug/g		87.1	80-120			
F2 PHCs (C10-C16)	93	4	ug/g	ND	107	60-140			
F3 PHCs (C16-C34)	329	8	ug/g	39	136	60-140			
F4 PHCs (C34-C50)	172	6	ug/g	ND	133	60-140			
F4G PHCs (gravimetric)	840	50	ug/g		84.0	80-120			
Metals									
Antimony	54.3		ug/L	ND	109	70-130			
Arsenic	51.3		ug/L	ND	101	70-130			
Barium	70.6		ug/L	18.5	104	70-130			
Beryllium	50.8		ug/L	ND	101	70-130			
Boron, available	4.29	0.5	ug/g	ND	85.8	70-122			
Boron	52.9		ug/L	ND	102	70-130			
Cadmium	53.6		ug/L	ND	107	70-130			
Chromium (VI)	4.6	0.2	ug/g		92.5	70-130			
Chromium	58.1		ug/L	5.9	104	70-130			
Cobalt	51.2		ug/L	1.5	99.4	70-130			
Copper	49.6		ug/L	ND	91.2	70-130			
Lead	49.9		ug/L	4.8	90.2	70-130			
Mercury	1.70	0.1	ug/g	ND	121	70-130			
Molybdenum	55.3		ug/L	ND	110	70-130			
Nickel	54.5		ug/L	ND	102	70-130			
Selenium	47.6		ug/L	ND	95.1	70-130			
Silver	54.1		ug/L	ND	108	70-130			
Thallium	45.8		ug/L	ND	91.6	70-130			
Uranium	47.7		ug/L	ND	94.9	70-130			
Vanadium	63.3		ug/L	ND	110	70-130			
Zinc	71.8		ug/L	24.5	94.7	70-130			
Semi-Volatiles									
Acenaphthene	0.143	0.02	ug/g	ND	78.7	50-140			
Acenaphthylene	0.135	0.02	ug/g	ND	74.2	50-140			
Anthracene	0.120	0.02	ug/g	ND	66.0	50-140			
Benzo [a] anthracene	0.182	0.02	ug/g	0.033	82.5	50-140			
Benzo [a] pyrene	0.152	0.02	ug/g	0.037	63.6	50-140			
Benzo [b] fluoranthene	0.233	0.02	ug/g	0.064	93.4	50-140			
Benzo [g,h,i] perylene	0.197	0.02	ug/g	0.056	78.3	50-140			
Benzo [k] fluoranthene	0.193	0.02	ug/g	0.027	91.6	50-140			
Chrysene	0.216	0.02	ug/g	0.034	100	50-140			
Dibenzo [a,h] anthracene	0.166	0.02	ug/g	ND	91.3	50-140			
Fluoranthene	0.192	0.02	ug/g	0.056	74.8	50-140			
Fluorene	0.148	0.02	ug/g	ND	81.7	50-140			
Indeno [1,2,3-cd] pyrene	0.164	0.02	ug/g	0.035	71.4	50-140			
1-Methylnaphthalene	0.163	0.02	ug/g	ND	89.7	50-140			
2-Methylnaphthalene	0.181	0.02	ug/g	ND	100	50-140			
Naphthalene	0.164	0.01	ug/g	ND	90.2	50-140			
Phenanthrene	0.170	0.02	ug/g	0.030	77.3	50-140			
Pyrene	0.186	0.02	ug/g	0.049	75.9	50-140			
Surrogate: 2-Fluorobiphenyl	*1.27*		*ug/g*		*87.3*	*50-140*			
Volatiles									
Benzene	3.77	0.02	ug/g		94.2	60-130			
Ethylbenzene	4.70	0.05	ug/g		118	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Toluene	4.48	0.05	ug/g		112	60-130			
m,p-Xylenes	9.33	0.05	ug/g		117	60-130			
o-Xylene	4.79	0.05	ug/g		120	60-130			

Qualifier Notes:

Login Qualifiers :

Container(s) - Labeled improperly/insufficient information -
Applies to samples: TP51 S2

Sample Qualifiers :

2 : GC-FID signal did not return to baseline by C50

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

QC Qualifiers :

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.
- When reported, data for F4G has been processed using a silica gel cleanup.

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TF
RE
RE

Paracel ID: 1941050

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awa, Ontario K1G 4J8
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Chain of Custody
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№ 123794

Page 1 of 3

Client Name: EXP Services Inc.	Project Reference: OTT-00183293-J5
Contact Name: Chris Kimmerly	Quote # City of Ottawa SOA 19617-91843-501
Address: 2650 Queensview Dr Ottawa Ont K2B 8H6	PO #
Telephone: 613-688-1899	Email Address: chris.kimmerly@exp.com

Turnaround Time:
☐ 1 Day ☐ 3 Day
☐ 2 Day ☒ Regular
Date Required:

Criteria: ☒ 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: 1941050

	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	TP-1 S2	BGM418	S		2	Oct 2/19	AM	✓		✓	✓	✓	✓	✓							
2	TP-2 S3	419	S		2	Oct 2/19	AM	✓		✓	✓	✓	✓	✓							
3	TP-4 S3	420	S		2	Oct 2/19	AM	✓		✓	✓	✓	✓	✓							
4	TP6 S2	421	S		2	Oct 2/19	AM	✓		✓	✓	✓	✓	✓							
5	TP8 S2	422	S		2	Oct 2/19	AM	✓		✓	✓	✓	✓	✓							
6	TP10 S2	423	S		2	Oct 2/19	PM	✓		✓	✓	✓	✓	✓							
7	TP11 S1	424	S		2	Oct 2/19	PM	✓		✓	✓	✓	✓	✓							
8	TP14 S1	425	S		2	Oct 2/19	PM	✓		✓	✓	✓	✓	✓							
9	TP17 S1	426	S		2	Oct 2/19	PM	✓		✓	✓	✓	✓	✓							
10	TP19 S1	427	S		2	Oct 3/19	PM	✓		✓	✓	✓	✓	✓							

Comments:

Method of Delivery: Walker

Relinquished By (Sign): Chris Kimmerly	Received by Driver/Depot:	Received at Lab: Sreepavan Bhimai	Verified By:
Relinquished By (Print): Chris Kimmerly	Date/Time: Oct 4/19 15:57	Date/Time: OCT 07 2019 12:16	Date/Time: 10-7-19 13:35
Date/Time: Oct. 4/2019	Temperature: 18.2 °C	Temperature: 9.8 °C	pH Verified [ ] By:

PARACEL LABORATORIES L

Paracel ID: 1941050

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Ottawa, Ontario K1G 4J8
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e: paracel@paracellabs.com

Chain of Custody
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№ 123793

Page 2 of 3

Client Name: EXP Services Inc	Project Reference: OTT-0018293-J5	**Turnaround Time:**	
Contact Name: Chris Kimmerly	Quote #: City of Ottawa SOA 19817-9/843-Sept	☐ 1 Day	☐ 3 Day
Address: 2650 Queensview Dr. Ottawa Ont K2B 8H6	PO #:	☐ 2 Day	☒ Regular
Telephone: 613-698-1899	Email Address: Chris.Kimmerly@exp.com	Date Required:	

Criteria: ☑ 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: 1941050

	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	TP22 S3	BGM 428	S		2	Oct 3/19	Am	✓	✓	✓	✓	✓	✓	✓							
2	TP23 S3	429	S		2	Oct 3/19	Am	✓		✓	✓	✓	✓	✓							
3	TP26 S2	430	S		2	Oct 3/19	Am	✓		✓	✓	✓	✓	✓							
4	TP27 S1	431	S		2	Oct 3/19	Am	✓		✓	✓	✓	✓	✓							
5	TP30 S3	432	S		2	Oct 3/19	Pm	✓		✓	✓	✓	✓	✓							
6	TP33 S2	433	S		2	Oct 3/19	Pm	✓		✓	✓	✓	✓	✓							
7	TP35 S2	434	S		2	Oct 3/19	Pm	✓		✓	✓	✓	✓	✓							
8	TP36 S3	435	S		2	Oct 3/19	Pm	✓		✓	✓	✓	✓	✓							
9	TP37 S1	436	S		2	Oct 3/19	Pm	✓		✓	✓	✓	✓	✓							
10	TP40 S1	437	S		2	Oct 3/19	Pm	✓		✓	✓	✓	✓	✓							

Comments:

Method of Delivery: Walk-

Relinquished By (Sign): Chris Kim	Received by Driver/Depot: Ney	Received at Lab: Sureeporn Dokmai	Verified By:
Relinquished By (Print): Chris Kimmerly	Date/Time: Oct 4/19 1557	Date/Time: Oct 07, 2019 13:15	Date/Time: 10-7-19 13:39
Date/Time: Oct. 4/2019	Temperature: 17.2 °C	Temperature: 9.2 °C	pH Verified ☐ By:

PARACEL LABORATORIES LTD.

Paracel ID: 1941050

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e: paracel@paracellabs.com

Chain of Custody
(Lab Use Only)
№ 123349

Page 3 of 3

Client Name: EXP Services Inc	Project Reference: OTT-00018293-J5
Contact Name: Chris Kimmerly	Quote #: City of Ottawa SOA 19617-91843-50
Address: 2650 Queensview Dr Ottawa K2B8H6	PO #:
Telephone: 613-688-1899	Email Address: chris.kimmerly@exp.com

Turnaround Time:
☐ 1 Day ☐ 3 Day
☐ 2 Day ☒ Regular
Date Required:

Criteria: ☒ 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: 1941050

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analyses: PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)
1	TP41 S2 BGM438	S		2	Oct 3/19	PM	✓		✓	✓	✓	✓	✓
2	TP42 S3 439	S		2	Oct 3/19	PM	✓		✓	✓	✓	✓	✓
3	TP50 S2 440	S		2	Oct 2/19	AM	✓		✓	✓	✓	✓	✓
4	TP51 S2 441	S		2	Oct 3/19	PM	✓		✓	✓	✓	✓	✓
5	TP54 S1 442	S		2	Oct 3/19	PM	✓		✓	✓	✓	✓	✓
6													
7													
8													
9													
10													

= date read - OCT 07 2019

Comments:

Method of Delivery: walk

Relinquished By (Sign): Chris Kimmerly	Received by Driver/Depot:	Received at Lab: Suneeparn Bohmai	Verified By:
Relinquished By (Print): Chris Kimmerly	Date/Time: Oct 4/19 15:57	Date/Time: OCT 07 2019 12:16	Date/Time: 10-7-19 13:39
Date/Time: Oct 4/2019	Temperature: 11.2 °C	Temperature: 9.2 °C	pH Verified [ ] By:

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO:
Project: OTT00018293J5
Custody: 123771

Report Date: 16-Oct-2019
Order Date: 9-Oct-2019

Order #: 1941373

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

Paracel ID	Client ID
1941373-01	MW14-7
1941373-02	MW14-5
1941373-03	MW14-6
1941373-04	MW16-2
1941373-05	MW14-2
1941373-06	MW08-9
1941373-07	MW15-4
1941373-08	MW15-5
1941373-09	MW15-11
1941373-10	MW15-12
1941373-11	MW15-7
1941373-12	MW16-4
1941373-13	MW15-6
1941373-14	Trip Blank

Approved By:



Dale Robertson, BSc
Laboratory Director

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

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC	11-Oct-19	11-Oct-19
Metals, ICP-MS	EPA 200.8 - ICP-MS	10-Oct-19	11-Oct-19
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	11-Oct-19	13-Oct-19

Certificate of Analysis

Client: exp Services Inc. (Ottawa)

Client PO:

Report Date: 16-Oct-2019

Order Date: 9-Oct-2019

Project Description: OTT00018293J5

	Client ID:	MW14-7	MW14-5	MW14-6	MW16-2
	Sample Date:	08-Oct-19 10:40	08-Oct-19 11:30	08-Oct-19 12:15	08-Oct-19 13:00
	Sample ID:	1941373-01	1941373-02	1941373-03	1941373-04
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<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	6.9	<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	<0.5	<0.5
Ethylene dibromide (dibromoethan	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

Client: exp Services Inc. (Ottawa)

Client PO:

Report Date: 16-Oct-2019

Order Date: 9-Oct-2019

Project Description: OTT00018293J5

	Client ID:	MW14-7	MW14-5	MW14-6	MW16-2
	Sample Date:	08-Oct-19 10:40	08-Oct-19 11:30	08-Oct-19 12:15	08-Oct-19 13:00
	Sample ID:	1941373-01	1941373-02	1941373-03	1941373-04
	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	<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
4-Bromofluorobenzene	Surrogate	108%	112%	102%	105%
Dibromofluoromethane	Surrogate	93.4%	102%	91.6%	95.7%
Toluene-d8	Surrogate	94.5%	102%	96.9%	95.8%

Certificate of Analysis

Client: exp Services Inc. (Ottawa)

Client PO:

Report Date: 16-Oct-2019

Order Date: 9-Oct-2019

Project Description: OTT00018293J5

	Client ID:	MW14-2	MW08-9	MW15-4	MW15-5
	Sample Date:	08-Oct-19 14:45	08-Oct-19 15:55	08-Oct-19 16:50	09-Oct-19 08:50
	Sample ID:	1941373-05	1941373-06	1941373-07	1941373-08
	MDL/Units	Water	Water	Water	Water
Anions					
Chloride	1 mg/L	-	-	6800	2960
Metals					
Sodium	200 ug/L	-	-	3100000	1380000
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	-	-
Benzene	0.5 ug/L	<0.5	<0.5	-	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	-	-
Bromoform	0.5 ug/L	<0.5	<0.5	-	-
Bromomethane	0.5 ug/L	<0.5	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	-	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
Chloroform	0.5 ug/L	<0.5	<0.5	-	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Ethylene dibromide (dibromoethar	0.2 ug/L	<0.2	<0.2	-	-
Hexane	1.0 ug/L	<1.0	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	-	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	-	-
Styrene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-

Certificate of Analysis

Report Date: 16-Oct-2019

Client: exp Services Inc. (Ottawa)

Order Date: 9-Oct-2019

Client PO:

Project Description: OTT00018293J5

	Client ID:	MW14-2	MW08-9	MW15-4	MW15-5
	Sample Date:	08-Oct-19 14:45	08-Oct-19 15:55	08-Oct-19 16:50	09-Oct-19 08:50
	Sample ID:	1941373-05	1941373-06	1941373-07	1941373-08
	MDL/Units	Water	Water	Water	Water
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	-	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-
4-Bromofluorobenzene	Surrogate	107%	102%	-	-
Dibromofluoromethane	Surrogate	96.3%	96.6%	-	-
Toluene-d8	Surrogate	94.7%	92.8%	-	-

	Client ID:	MW15-11	MW15-12	MW15-7	MW16-4
	Sample Date:	09-Oct-19 10:25	09-Oct-19 11:20	09-Oct-19 12:50	09-Oct-19 13:30
	Sample ID:	1941373-09	1941373-10	1941373-11	1941373-12
	MDL/Units	Water	Water	Water	Water
Anions					
Chloride	1 mg/L	2790	747	7300	7440
Metals					
Sodium	200 ug/L	1840000	434000	2500000	2530000

Certificate of Analysis

Report Date: 16-Oct-2019

Client: exp Services Inc. (Ottawa)

Order Date: 9-Oct-2019

Client PO:

Project Description: OTT00018293J5

	Client ID:	MW15-6	Trip Blank	-	-
	Sample Date:	09-Oct-19 14:15	01-Oct-19 09:00	-	-
	Sample ID:	1941373-13	1941373-14	-	-
	MDL/Units	Water	Water	-	-
Anions					
Chloride	1 mg/L	5120	-	-	-
Metals					
Sodium	200 ug/L	2010000	-	-	-
Volatiles					
Acetone	5.0 ug/L	-	<5.0	-	-
Benzene	0.5 ug/L	-	<0.5	-	-
Bromodichloromethane	0.5 ug/L	-	<0.5	-	-
Bromoform	0.5 ug/L	-	<0.5	-	-
Bromomethane	0.5 ug/L	-	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	-	<0.2	-	-
Chlorobenzene	0.5 ug/L	-	<0.5	-	-
Chloroform	0.5 ug/L	-	<0.5	-	-
Dibromochloromethane	0.5 ug/L	-	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	-	<1.0	-	-
1,2-Dichlorobenzene	0.5 ug/L	-	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	-	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	-	<0.5	-	-
1,1-Dichloroethane	0.5 ug/L	-	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	-	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	-	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	-	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	-	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	-	<0.5	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	-	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	-	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	-	<0.5	-	-
Ethylbenzene	0.5 ug/L	-	<0.5	-	-
Ethylene dibromide (dibromoethar	0.2 ug/L	-	<0.2	-	-
Hexane	1.0 ug/L	-	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	-	<5.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	-	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	-	<2.0	-	-
Methylene Chloride	5.0 ug/L	-	<5.0	-	-
Styrene	0.5 ug/L	-	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	-	<0.5	-	-

Certificate of Analysis

Client: exp Services Inc. (Ottawa)

Client PO:

Report Date: 16-Oct-2019

Order Date: 9-Oct-2019

Project Description: OTT00018293J5

	Client ID:	MW15-6	Trip Blank	-	-
	Sample Date:	09-Oct-19 14:15	01-Oct-19 09:00	-	-
	Sample ID:	1941373-13	1941373-14	-	-
	MDL/Units	Water	Water	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	-	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	-	<0.5	-	-
Toluene	0.5 ug/L	-	<0.5	-	-
1,1,1-Trichloroethane	0.5 ug/L	-	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	-	<0.5	-	-
Trichloroethylene	0.5 ug/L	-	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	-	<1.0	-	-
Vinyl chloride	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	-	-
4-Bromofluorobenzene	Surrogate	-	104%	-	-
Dibromofluoromethane	Surrogate	-	96.3%	-	-
Toluene-d8	Surrogate	-	97.7%	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Metals									
Sodium	ND	200	ug/L						
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	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*91.7*		*ug/L*		*115*	*50-140*			
Surrogate: Dibromofluoromethane	*64.9*		*ug/L*		*81.2*	*50-140*			
Surrogate: Toluene-d8	*80.1*		*ug/L*		*100*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	389	10	mg/L	383			1.5	10	
Metals									
Sodium	ND	200	ug/L	3690			0.0	20	
Volatiles									
Acetone	ND	5.0	ug/L	ND				30	
Benzene	ND	0.5	ug/L	ND				30	
Bromodichloromethane	ND	0.5	ug/L	ND				30	
Bromoform	ND	0.5	ug/L	ND				30	
Bromomethane	ND	0.5	ug/L	ND				30	
Carbon Tetrachloride	ND	0.2	ug/L	ND				30	
Chlorobenzene	ND	0.5	ug/L	ND				30	
Chloroform	ND	0.5	ug/L	ND				30	
Dibromochloromethane	ND	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,1-Dichloroethane	ND	0.5	ug/L	ND				30	
1,2-Dichloroethane	ND	0.5	ug/L	ND				30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND				30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
1,2-Dichloropropane	ND	0.5	ug/L	ND				30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND				30	
Ethylene dibromide (dibromoethane	ND	0.2	ug/L	ND				30	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND				30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND				30	
Methylene Chloride	ND	5.0	ug/L	ND				30	
Styrene	ND	0.5	ug/L	ND				30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
Tetrachloroethylene	ND	0.5	ug/L	ND				30	
Toluene	ND	0.5	ug/L	ND				30	
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	*88.1*		*ug/L*		*110*	*50-140*			
Surrogate: Dibromofluoromethane	*61.0*		*ug/L*		*76.2*	*50-140*			
Surrogate: Toluene-d8	*76.3*		*ug/L*		*95.4*	*50-140*			

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 16-Oct-2019
Order Date: 9-Oct-2019
Project Description: OTT00018293J5

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	9.81	1	mg/L	1.05	87.7	77-123			
Metals									
Sodium	9810		ug/L	3690	61.2	80-120			QM-07
Volatiles									
Acetone	112	5.0	ug/L		112	50-140			
Benzene	37.4	0.5	ug/L		93.4	60-130			
Bromodichloromethane	29.8	0.5	ug/L		74.6	60-130			
Bromoform	31.0	0.5	ug/L		77.5	60-130			
Bromomethane	26.6	0.5	ug/L		66.6	50-140			
Carbon Tetrachloride	27.8	0.2	ug/L		69.6	60-130			
Chlorobenzene	33.7	0.5	ug/L		84.2	60-130			
Chloroform	31.6	0.5	ug/L		79.0	60-130			
Dibromochloromethane	29.4	0.5	ug/L		73.6	60-130			
Dichlorodifluoromethane	31.8	1.0	ug/L		79.4	50-140			
1,2-Dichlorobenzene	33.0	0.5	ug/L		82.4	60-130			
1,3-Dichlorobenzene	32.1	0.5	ug/L		80.2	60-130			
1,4-Dichlorobenzene	33.6	0.5	ug/L		84.0	60-130			
1,1-Dichloroethane	34.1	0.5	ug/L		85.4	60-130			
1,2-Dichloroethane	29.6	0.5	ug/L		74.0	60-130			
1,1-Dichloroethylene	36.1	0.5	ug/L		90.3	60-130			
cis-1,2-Dichloroethylene	37.2	0.5	ug/L		92.9	60-130			
trans-1,2-Dichloroethylene	36.9	0.5	ug/L		92.2	60-130			
1,2-Dichloropropane	37.6	0.5	ug/L		94.1	60-130			
cis-1,3-Dichloropropylene	34.3	0.5	ug/L		85.7	60-130			
trans-1,3-Dichloropropylene	34.1	0.5	ug/L		85.3	60-130			
Ethylbenzene	32.7	0.5	ug/L		81.8	60-130			
Ethylene dibromide (dibromoethane	33.5	0.2	ug/L		83.8	60-130			
Hexane	30.8	1.0	ug/L		77.0	60-130			
Methyl Ethyl Ketone (2-Butanone)	81.6	5.0	ug/L		81.6	50-140			
Methyl Isobutyl Ketone	78.8	5.0	ug/L		78.8	50-140			
Methyl tert-butyl ether	71.9	2.0	ug/L		71.9	50-140			
Methylene Chloride	44.5	5.0	ug/L		111	60-130			
Styrene	34.0	0.5	ug/L		84.9	60-130			
1,1,1,2-Tetrachloroethane	30.9	0.5	ug/L		77.2	60-130			
1,1,2,2-Tetrachloroethane	43.4	0.5	ug/L		109	60-130			
Tetrachloroethylene	32.9	0.5	ug/L		82.2	60-130			
Toluene	33.9	0.5	ug/L		84.7	60-130			
1,1,1-Trichloroethane	27.0	0.5	ug/L		67.6	60-130			
1,1,2-Trichloroethane	38.1	0.5	ug/L		95.3	60-130			
Trichloroethylene	29.1	0.5	ug/L		72.8	60-130			
Trichlorofluoromethane	26.8	1.0	ug/L		66.9	60-130			
Vinyl chloride	29.6	0.5	ug/L		74.0	50-140			
m,p-Xylenes	69.9	0.5	ug/L		87.4	60-130			
o-Xylene	31.2	0.5	ug/L		77.9	60-130			
Surrogate: 4-Bromofluorobenzene	*81.9*		*ug/L*		*102*	*50-140*			

Qualifier Notes:

QC Qualifiers :

QM-07 : The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.

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.

Paracel ID: 1941373

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awa, Ontario K1G 4J8
1-800-749-1947
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Chain of Custody
(Lab Use Only)
№ 123771

Page 1 of 2

Client Name: EXP SERVICES	Project Reference: OTT-00018793-J5
Contact Name: CHRIS Kimmerly	Quote #
Address: 2650 QUEENSVIEW DR. OTTAWA	PO #
Telephone: 613-688-1899	Email Address: Chris.Kimmerly@exp.com

Turnaround Time:
☐ 1 Day ☐ 3 Day
☐ 2 Day ☒ Regular
Date Required:

Criteria: ☒ O. Reg. 153/04 (As Amended) Table _ ☐ 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: 1941373

	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)	Chloride (Cl)	Sodium (Na)					
1	MW14-7	GW		2	Oct.08,2019	10h40		X												
2	MW14-5	GW		2	Oct.08.2019	11h30		X												
3	MW14-6	GW		2	Oct.08,2019	12h15		X												
4	MW16-2	GW		2	Oct.08,2019	13h00		X												
5	MW14-2	GW		2	Oct.08,2019	14h45		X												
6	MW08-9	GW		2	Oct.08,2019	15h55		X												
7	MW15-4	GW		2	Oct.08,2019	16h50								X	X					
8	MW15-5	GW		2	Oct.09,2019	8h50								X	X					
9	MW15-11	GW		2	Oct.09,2019	10h25								X	X					
10	MW15-12	GW		2	Oct.09.2019	11h20								X	X					

Comments: Metals field filtered.

Method of Delivery: Walk-in

Relinquished By (Sign): Philip Dwyer	Received by Driver/Depot:	Received at Lab: SC Oct 9/19	Verified By: SC Oct 9/19
Relinquished By (Print): Philip Dwyer	Date/Time:	Date/Time: 14.9°C 3:33p	Date/Time: 4:40p
Date/Time: Oct. 09, 2019 15h30	Temperature: °C	Temperature:	pH Verified ☐ By:

Paracel ID: 1941373

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awa, Ontario K1G 4J8
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paracel@paracellabs.com

Chain of Custody
(Lab Use Only)
Nº 123770

Page 2 of 2

Client Name: EXP Services	Project Reference: OTT-000183793-J5
Contact Name: Chris Kimmerly	Quote #
Address: 2650 Queensview Dr. Ottawa.	PO #
Telephone: 613-688-1899	Email Address: Chris.Kimmerly@exp.com.

Turnaround Time:
☐ 1 Day ☐ 3 Day
☐ 2 Day ☒ Regular
Date Required:

Criteria: ☐ O. Reg. 153/04 (As Amended) Table __ ☐ 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: 1941373

	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)	Chloride (Cl)	Sodium (Na)					
1	MW15-7	GW		2	Oct.09,2019	12h50								X	X					
2	MW16-4	GW		2	Oct.09,2019	13h30								X	X					
3	MW15-6	GW		2	Oct.09,2019	14h15								X	X					
4	TRIP BLANK				Oct1/19									X	X	→ only VOC vial Submitted for trip?				
5																				
6																				
7																				
8																				
9																				
10																				

Comments:

Method of Delivery: walk-in

Relinquished By (Sign): Philippe Morin	Received by Driver/Depot:	Received at Lab: SCF	Verified By: SCF
Relinquished By (Print): Philippe Morin	Date/Time:	Date/Time: Oct 9/19	Date/Time: Oct 9/19
Date/Time: Oct.09,2019 15h30	Temperature: °C	Temperature: 14.9 °C 3:33p	pH Verified By: SC 4:40p

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO:
Project: OTT0001829 3J5
Custody: 53322

Report Date: 30-Dec-2019
Order Date: 20-Dec-2019

Order #: 1951573

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

Paracel ID	Client ID
1951573-01	MW15-2

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 30-Dec-2019
Order Date: 20-Dec-2019
Project Description: OTT00018293J5

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	23-Dec-19	24-Dec-19

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 30-Dec-2019
Order Date: 20-Dec-2019
Project Description: OTT00018293J5

	Client ID:	MW15-2	-	-	-
	Sample Date:	20-Dec-19 13:00	-	-	-
	Sample ID:	1951573-01	-	-	-
	MDL/Units	Water	-	-	-
Volatiles					
Acetone	5.0 ug/L	<5.0	-	-	-
Benzene	0.5 ug/L	<0.5	-	-	-
Bromodichloromethane	0.5 ug/L	<0.5	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-
Bromomethane	0.5 ug/L	<0.5	-	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-
Chlorobenzene	0.5 ug/L	<0.5	-	-	-
Chloroform	0.5 ug/L	<0.5	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Ethylene dibromide (dibromoethan	0.2 ug/L	<0.2	-	-	-
Hexane	1.0 ug/L	<1.0	-	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	-
Methylene Chloride	5.0 ug/L	<5.0	-	-	-
Styrene	0.5 ug/L	<0.5	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 30-Dec-2019
Order Date: 20-Dec-2019
Project Description: OTT00018293J5

	Client ID:	MW15-2	-	-	-
	Sample Date:	20-Dec-19 13:00	-	-	-
	Sample ID:	1951573-01	-	-	-
	MDL/Units	Water	-	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-
Trichloroethylene	0.5 ug/L	<0.5	-	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-
Vinyl chloride	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	-	-	-
4-Bromofluorobenzene	Surrogate	106%	-	-	-
Dibromofluoromethane	Surrogate	99.5%	-	-	-
Toluene-d8	Surrogate	73.2%	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*82.9*		*ug/L*		*104*	*50-140*			
Surrogate: Dibromofluoromethane	*93.0*		*ug/L*		*116*	*50-140*			
Surrogate: Toluene-d8	*70.2*		*ug/L*		*87.7*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	ND	5.0	ug/L	ND				30	
Benzene	ND	0.5	ug/L	ND				30	
Bromodichloromethane	3.91	0.5	ug/L	3.82			2.3	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	5.58	0.5	ug/L	5.69			2.0	30	
Dibromochloromethane	ND	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,1-Dichloroethane	ND	0.5	ug/L	ND				30	
1,2-Dichloroethane	ND	0.5	ug/L	ND				30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND				30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
1,2-Dichloropropane	ND	0.5	ug/L	ND				30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND				30	
Ethylene dibromide (dibromoethane	ND	0.2	ug/L	ND				30	
Hexane	ND	1.0	ug/L	ND				30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND				30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND				30	
Methylene Chloride	ND	5.0	ug/L	ND				30	
Styrene	ND	0.5	ug/L	ND				30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
Tetrachloroethylene	ND	0.5	ug/L	ND				30	
Toluene	ND	0.5	ug/L	ND				30	
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	*87.8*		*ug/L*		*110*	*50-140*			
Surrogate: Dibromofluoromethane	*72.2*		*ug/L*		*90.2*	*50-140*			
Surrogate: Toluene-d8	*69.4*		*ug/L*		*86.8*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Volatiles									
Acetone	85.4	5.0	ug/L		85.4	50-140			
Benzene	39.0	0.5	ug/L		97.5	60-130			
Bromodichloromethane	41.2	0.5	ug/L		103	60-130			
Bromoform	33.3	0.5	ug/L		83.3	60-130			
Bromomethane	36.9	0.5	ug/L		92.2	50-140			
Carbon Tetrachloride	34.5	0.2	ug/L		86.2	60-130			
Chlorobenzene	35.5	0.5	ug/L		88.8	60-130			
Chloroform	42.4	0.5	ug/L		106	60-130			
Dibromochloromethane	36.8	0.5	ug/L		92.0	60-130			
Dichlorodifluoromethane	26.0	1.0	ug/L		65.0	50-140			
1,2-Dichlorobenzene	33.7	0.5	ug/L		84.2	60-130			
1,3-Dichlorobenzene	34.8	0.5	ug/L		87.1	60-130			
1,4-Dichlorobenzene	32.1	0.5	ug/L		80.3	60-130			
1,1-Dichloroethane	44.4	0.5	ug/L		111	60-130			
1,2-Dichloroethane	28.5	0.5	ug/L		71.2	60-130			
1,1-Dichloroethylene	51.2	0.5	ug/L		128	60-130			
cis-1,2-Dichloroethylene	50.3	0.5	ug/L		126	60-130			
trans-1,2-Dichloroethylene	51.2	0.5	ug/L		128	60-130			
1,2-Dichloropropane	31.2	0.5	ug/L		78.1	60-130			
cis-1,3-Dichloropropylene	38.3	0.5	ug/L		95.7	60-130			
trans-1,3-Dichloropropylene	38.3	0.5	ug/L		95.7	60-130			
Ethylbenzene	32.3	0.5	ug/L		80.7	60-130			
Ethylene dibromide (dibromoethane	29.2	0.2	ug/L		73.0	60-130			
Hexane	45.2	1.0	ug/L		113	60-130			
Methyl Ethyl Ketone (2-Butanone)	80.6	5.0	ug/L		80.6	50-140			
Methyl Isobutyl Ketone	86.3	5.0	ug/L		86.3	50-140			
Methyl tert-butyl ether	105	2.0	ug/L		105	50-140			
Methylene Chloride	41.0	5.0	ug/L		103	60-130			
Styrene	35.1	0.5	ug/L		87.8	60-130			
1,1,1,2-Tetrachloroethane	37.0	0.5	ug/L		92.5	60-130			
1,1,2,2-Tetrachloroethane	28.2	0.5	ug/L		70.6	60-130			
Tetrachloroethylene	37.6	0.5	ug/L		94.0	60-130			
Toluene	32.6	0.5	ug/L		81.6	60-130			
1,1,1-Trichloroethane	48.1	0.5	ug/L		120	60-130			
1,1,2-Trichloroethane	36.4	0.5	ug/L		91.1	60-130			
Trichloroethylene	32.9	0.5	ug/L		82.2	60-130			
Trichlorofluoromethane	36.7	1.0	ug/L		91.8	60-130			
Vinyl chloride	42.8	0.5	ug/L		107	50-140			
m,p-Xylenes	67.9	0.5	ug/L		84.8	60-130			
o-Xylene	33.7	0.5	ug/L		84.3	60-130			
Surrogate: 4-Bromofluorobenzene	*91.6*		*ug/L*		*115*	*50-140*			

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.

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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
195173	Nº 53322

Client Name: EXP SERVICES	Project Ref: OTT-000182993-J5	Page 1 of 1
Contact Name: CHRIS KIMMERLY	Quote #:	Turnaround Time
Address: 2650 QUEENSVIEW DR. OTTAWA	PO #:	☐ 1 day ☐ 3 day
Telephone: 613-688-1899	E-mail: Chris.Kimmerly@exp.com	☐ 2 day ☒ Regular
		Date Required:

Regulation 153/04: ☐ Table 1 ☐ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ Table — For RSC: ☐ Yes ☐ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: ☐ Other:

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

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analysis: VOCs											
1	MW15-2	GW		2	Dec. 20, 2019	13h00	X											X
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Comments:

Method of Delivery: Walk-in

Relinquished By (Sign): Philip Olumide	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Philip Olumide	Date/Time:	Date/Time: Dec 20 19 4:25p	Date/Time: 12-20-14 1730
Date/Time: Dec. 20, 2019, 16h25	Temperature: °C	Temperature: 8.3 °C	pH Verified: ☐ By:

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO:
Project: OTT0018293J5/1770 Heatherington Road
Custody: 53323

Report Date: 31-Dec-2019
Order Date: 20-Dec-2019

Order #: 1951584

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

Paracel ID	Client ID
1951584-01	RE-TP8 S2
1951584-02	RE-TP35 S2
1951584-03	RE-TP30 S3
1951584-04	RE-TP4 S3

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis
Client: exp Services Inc. (Ottawa)
Client PO:

Report Date: 31-Dec-2019
Order Date: 20-Dec-2019
Project Description: OTT0018293J5/1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.7 - ICP-OES	24-Dec-19	27-Dec-19
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	21-Dec-19	27-Dec-19
Mercury by CVAA	EPA 7471B - CVAA, digestion	31-Dec-19	31-Dec-19
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	24-Dec-19	24-Dec-19
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	21-Dec-19	24-Dec-19
Solids, %	Gravimetric, calculation	24-Dec-19	24-Dec-19

Certificate of Analysis

Report Date: 31-Dec-2019

Client: exp Services Inc. (Ottawa)

Order Date: 20-Dec-2019

Client PO:

Project Description: OTT0018293J5/1770 Heatherington Road

	Client ID:	RE-TP8 S2	RE-TP35 S2	RE-TP30 S3	RE-TP4 S3
	Sample Date:	20-Dec-19 09:20	20-Dec-19 10:45	20-Dec-19 10:00	20-Dec-19 10:15
	Sample ID:	1951584-01	1951584-02	1951584-03	1951584-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	88.9	86.6	91.0	89.7
Metals					
Antimony	1.0 ug/g dry	-	-	<1.0	<1.0
Arsenic	1.0 ug/g dry	-	-	<1.0	1.4
Barium	1.0 ug/g dry	-	-	<1.0	17.1
Beryllium	0.5 ug/g dry	-	-	<0.5	<0.5
Boron	5.0 ug/g dry	-	-	<5.0	<5.0
Boron, available	0.5 ug/g dry	-	-	<0.5	<0.5
Cadmium	0.5 ug/g dry	-	-	<0.5	<0.5
Chromium	5.0 ug/g dry	-	-	<5.0	5.8
Chromium (VI)	0.2 ug/g dry	-	-	<0.2	<0.2
Cobalt	1.0 ug/g dry	-	-	<1.0	2.1
Copper	5.0 ug/g dry	-	-	<5.0	6.1
Lead	1.0 ug/g dry	-	-	<1.0	2.0
Mercury	0.1 ug/g dry	-	-	<0.1	<0.1
Molybdenum	1.0 ug/g dry	-	-	<1.0	<1.0
Nickel	5.0 ug/g dry	-	-	<5.0	<5.0
Selenium	1.0 ug/g dry	-	-	<1.0	<1.0
Silver	0.3 ug/g dry	-	-	<0.3	<0.3
Thallium	1.0 ug/g dry	-	-	<1.0	<1.0
Uranium	1.0 ug/g dry	-	-	<1.0	<1.0
Vanadium	10.0 ug/g dry	-	-	<10.0	<10.0
Zinc	20.0 ug/g dry	-	-	<20.0	<20.0
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	-	-
Acenaphthylene	0.02 ug/g dry	0.05	<0.02	-	-
Anthracene	0.02 ug/g dry	0.05	<0.02	-	-
Benzo [a] anthracene	0.02 ug/g dry	0.15	0.04	-	-
Benzo [a] pyrene	0.02 ug/g dry	0.14	0.04	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	0.24	0.09	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	0.12	0.06	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	0.15	0.03	-	-
Chrysene	0.02 ug/g dry	0.17	0.05	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	0.02	<0.02	-	-
Fluoranthene	0.02 ug/g dry	0.34	0.09	-	-

Certificate of Analysis

Client: exp Services Inc. (Ottawa)

Client PO:

Report Date: 31-Dec-2019

Order Date: 20-Dec-2019

Project Description: OTT0018293J5/1770 Heatherington Road

	Client ID:	RE-TP8 S2	RE-TP35 S2	RE-TP30 S3	RE-TP4 S3
	Sample Date:	20-Dec-19 09:20	20-Dec-19 10:45	20-Dec-19 10:00	20-Dec-19 10:15
	Sample ID:	1951584-01	1951584-02	1951584-03	1951584-04
	MDL/Units	Soil	Soil	Soil	Soil
Fluorene	0.02 ug/g dry	<0.02	<0.02	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.12	0.04	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	-	-
Naphthalene	0.01 ug/g dry	0.01	<0.01	-	-
Phenanthrene	0.02 ug/g dry	0.17	0.04	-	-
Pyrene	0.02 ug/g dry	0.28	0.08	-	-
2-Fluorobiphenyl	Surrogate	70.8%	100%	-	-
Terphenyl-d14	Surrogate	82.4%	102%	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron, available	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium (VI)	ND	0.2	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.32*		*ug/g*		*99.1*	*50-140*			
Surrogate: Terphenyl-d14	*1.36*		*ug/g*		*102*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	1.3	1.0	ug/g dry	ND			0.0	30	
Arsenic	3.0	1.0	ug/g dry	2.8			5.2	30	
Barium	36.1	1.0	ug/g dry	39.2			8.1	30	
Beryllium	ND	0.5	ug/g dry	ND			0.0	30	
Boron, available	ND	0.5	ug/g dry	ND			0.0	35	
Boron	10.6	5.0	ug/g dry	10.3			2.5	30	
Cadmium	ND	0.5	ug/g dry	ND			0.0	30	
Chromium (VI)	ND	0.2	ug/g dry	ND				35	
Chromium	14.3	5.0	ug/g dry	18.7			26.5	30	
Cobalt	4.1	1.0	ug/g dry	4.4			5.7	30	
Copper	21.4	5.0	ug/g dry	23.0			7.4	30	
Lead	7.7	1.0	ug/g dry	7.9			2.5	30	
Mercury	ND	0.1	ug/g dry	ND			0.0	30	
Molybdenum	1.3	1.0	ug/g dry	ND			0.0	30	
Nickel	10.8	5.0	ug/g dry	11.5			6.1	30	
Selenium	ND	1.0	ug/g dry	ND			0.0	30	
Silver	ND	0.3	ug/g dry	ND			0.0	30	
Thallium	ND	1.0	ug/g dry	ND			0.0	30	
Uranium	ND	1.0	ug/g dry	ND			0.0	30	
Vanadium	18.8	10.0	ug/g dry	21.0			10.6	30	
Zinc	59.3	20.0	ug/g dry	64.8			8.8	30	
Physical Characteristics									
% Solids	70.3	0.1	% by Wt.	71.3			1.5	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	*1.25*		*ug/g dry*		*87.8*	*50-140*			
Surrogate: Terphenyl-d14	*1.45*		*ug/g dry*		*102*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	46.2		ug/L	ND	92.1	70-130			
Arsenic	51.0		ug/L	1.1	99.6	70-130			
Barium	70.3		ug/L	15.7	109	70-130			
Beryllium	59.3		ug/L	ND	118	70-130			
Boron, available	4.75	0.5	ug/g	ND	95.0	70-122			
Boron	57.3		ug/L	ND	106	70-130			
Cadmium	53.2		ug/L	ND	106	70-130			
Chromium (VI)	5.4	0.2	ug/g	ND	91.5	70-130			
Chromium	70.8		ug/L	7.5	127	70-130			
Cobalt	61.6		ug/L	1.8	120	70-130			
Copper	66.3		ug/L	9.2	114	70-130			
Lead	50.5		ug/L	3.2	94.6	70-130			
Mercury	1.65	0.1	ug/g	ND	110	70-130			
Molybdenum	59.6		ug/L	ND	118	70-130			
Nickel	63.4		ug/L	ND	118	70-130			
Selenium	45.3		ug/L	ND	90.4	70-130			
Silver	44.3		ug/L	ND	88.6	70-130			
Thallium	44.8		ug/L	ND	89.6	70-130			
Uranium	46.4		ug/L	ND	92.3	70-130			
Vanadium	73.3		ug/L	ND	130	70-130			
Zinc	75.9		ug/L	25.9	100	70-130			
Semi-Volatiles									
Acenaphthene	0.174	0.02	ug/g	ND	97.6	50-140			
Acenaphthylene	0.147	0.02	ug/g	ND	82.7	50-140			
Anthracene	0.168	0.02	ug/g	ND	94.5	50-140			
Benzo [a] anthracene	0.149	0.02	ug/g	ND	83.5	50-140			
Benzo [a] pyrene	0.126	0.02	ug/g	ND	70.9	50-140			
Benzo [b] fluoranthene	0.207	0.02	ug/g	ND	116	50-140			
Benzo [g,h,i] perylene	0.143	0.02	ug/g	ND	80.0	50-140			
Benzo [k] fluoranthene	0.195	0.02	ug/g	ND	110	50-140			
Chrysene	0.193	0.02	ug/g	ND	108	50-140			
Dibenzo [a,h] anthracene	0.115	0.02	ug/g	ND	64.3	50-140			
Fluoranthene	0.160	0.02	ug/g	ND	90.0	50-140			
Fluorene	0.171	0.02	ug/g	ND	96.1	50-140			
Indeno [1,2,3-cd] pyrene	0.113	0.02	ug/g	ND	63.3	50-140			
1-Methylnaphthalene	0.130	0.02	ug/g	ND	73.2	50-140			
2-Methylnaphthalene	0.207	0.02	ug/g	ND	116	50-140			
Naphthalene	0.185	0.01	ug/g	ND	104	50-140			
Phenanthrene	0.170	0.02	ug/g	ND	95.2	50-140			
Pyrene	0.164	0.02	ug/g	ND	92.3	50-140			
Surrogate: 2-Fluorobiphenyl	*1.47*		*ug/g*		*103*	*50-140*			

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

PARACEL LABORATORIES LTD.

Paracel ID: 1951584

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
1951584	Nº 53323

Client Name: EXP Services	Project Ref: 04+-0018293-JS	Page 1 of 1
Contact Name: Chris Kimmerly	Quote #: City of Ottawa SOA M617_91843-30	Turnaround Time
Address: 2650 Queenview Dr. Ottawa	PO #:	☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Telephone: 613-688-1899	E-mail: chris.kimmerly@exp.com	Date Required:

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☒ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☐ Table	Mun:
For RSC: ☒ Yes ☐ No	☐ Other:

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

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	Required Analysis: PAH's		Metals by ICP	HG	CrVI	B (HWS)						
1	RE-TP8 S2	BGN 008	S		1	Dec 20, 2019	9h20	X									250mL		✓
2	RE-TP35 S2	009	S		1	Dec 20, 2019	10h45	X									↓		✓
3	RE-TP30 S3	010	S		1	Dec 20, 2019	10h00			X	X	X	X						✓
4	RE-TP4 S3	011	S		1	Dec 20, 2019	10h15			X	X	X	X				↓		✓
5																			
6																			
7																			
8																			
9																			
10																			

Comments:

Method of Delivery: walk-in

Relinquished By (Sign): Philip Oliveira	Received By Driver/Depot:	Received at Lab:	Verified By: Dam
Relinquished By (Print): Philip Oliveira	Date/Time:	Date/Time: Dec 20/19 4:25p	Date/Time: 12/20/19 19:33
Date/Time: Dec. 20, 2019 16h25	Temperature: °C	Temperature: 8.3 °C	pH Verified: ☐ By: NA

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO:
Project: OTT00018293JS/1770 Heatherington Road
Custody: 59668

Report Date: 29-Jan-2021
Order Date: 28-Jan-2021

Order #: 2105402

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

Paracel ID	Client ID
2105402-01	MW09-8
2105402-02	MW08-9
2105402-03	MW15-4
2105402-04	MW15-5

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis

Report Date: 29-Jan-2021

Client: exp Services Inc. (Ottawa)

Order Date: 28-Jan-2021

Client PO:

Project Description: OTT00018293JS/1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC	29-Jan-21	29-Jan-21
Metals, ICP-MS	EPA 200.8 - ICP-MS	29-Jan-21	29-Jan-21

Certificate of Analysis

Report Date: 29-Jan-2021

Client: exp Services Inc. (Ottawa)

Order Date: 28-Jan-2021

Client PO:

Project Description: OTT00018293JS/1770 Heatherington Road

	Client ID:	MW09-8	MW08-9	MW15-4	MW15-5
	Sample Date:	28-Jan-21 09:00	28-Jan-21 10:00	28-Jan-21 14:00	28-Jan-21 13:00
	Sample ID:	2105402-01	2105402-02	2105402-03	2105402-04
	MDL/Units	Water	Water	Water	Water
Anions					
Chloride	1 mg/L	6860	6760	5880	3430
Metals					
Sodium	200 ug/L	2640000	2700000	2890000	1630000

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Metals									
Sodium	ND	200	ug/L						

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	110	1	mg/L	106			3.9	10	
Metals									
Sodium	2630000	2000	ug/L	2640000			0.1	20	

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	115	1	mg/L	106	95.1	77-123			
Metals									
Sodium	9250	200	ug/L	ND	92.5	80-120			

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.
NC: Not Calculated

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Paracel ID: 2105402

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2105402	№ 59668

Client Name: Exp Services Inc	Project Ref: OTT-00018293-J5	Page __ of __
Contact Name: Chris Kimmerly / Mark Devlin	Quote #: City of Ottawa SOA Refer to Proposal attached	Turnaround Time
Address: 100-2650 Queensview Dr. Ottawa, ON	PO #:	☒ 1 day ☐ 3 day ☐ 2 day ☐ Regular
Telephone: (613) 698-1899	E-mail: mark.devlin@exp.com Chris.kimmerly@exp.com	Date Required: Refer to Quote

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☒ Ind/Comm ☒ Coarse	☐ CCME ☐ MISA
☒ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☐ Table ___	Mun:
For RSC: ☒ Yes ☐ No	☐ Other:

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

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	Required Analysis: Na^+/Cl^- sodium / chloride
1	~~MW9-8~~							
2	MW09-8	BG0 332	GW		2	Jan 28, 2021	9:00am	X
3	MW08-9	333	↓		↓	↓	10:00am	X
4	MW15-4	334					2:00pm	X
5	MW15-5	335	↓		↓	↓	1:00pm	X
6								
7								
8								
9								
10								

Comments: sodium sample was Field filtered

Method of Delivery: D/P

Relinquished By (Sign): Mark Devlin	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Mark Devlin	Date/Time:	Date/Time: 1-28-21 15:02	Date/Time: 1-28-21 15:08
Date/Time: Jan 28, 2021 / 3:00pm	Temperature: °C	Temperature: 1.4 °C	pH Verified: ☐ By: ma

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO:
Project: OTT0018293JS/1770 Heatherington Road
Custody: 57745

Report Date: 12-Feb-2021
Order Date: 10-Feb-2021

Order #: 2107251

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

Paracel ID	Client ID
2107251-01	TP-21-1 SS1
2107251-02	TP-21-2 SS1
2107251-03	TP-21-3 SS1
2107251-04	TP-21-4 SS1
2107251-05	TP-21-5 SS1
2107251-06	TP-21-6-SS1
2107251-07	TP-21-7 SS1
2107251-08	TP-21-8 SS1
2107251-09	TP-21-9 SS1
2107251-10	TP-21-10 SS1
2107251-11	TP-21-11-SS1
2107251-12	TP-21-12 SS1
2107251-13	TP-21-13 SS1
2107251-14	TP-21-14 SS1
2107251-15	TP-21-15 SS1
2107251-16	TP-21-16 SS1
2107251-17	TP-21-17 SS1
2107251-18	TP-21-18 SS1
2107251-19	TP-21-19 SS1
2107251-20	TP-21-20 SS1
2107251-21	TP-21-21 SS1
2107251-22	TP-21-22 SS1
2107251-23	TP-21-23 SS1
2107251-24	TP-21-24 SS1
2107251-25	TP-21-27 SS1
2107251-26	TP-21-28 SS1
2107251-27	TP-21-29 SS1

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis

Report Date: 12-Feb-2021

Client: exp Services Inc. (Ottawa)

Order Date: 10-Feb-2021

Client PO:

Project Description: OTT0018293JS/1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Conductivity	MOE E3138 - probe @25 °C, water ext	11-Feb-21	12-Feb-21
SAR	Calculated	12-Feb-21	12-Feb-21
Solids, %	Gravimetric, calculation	10-Feb-21	11-Feb-21

Certificate of Analysis

Report Date: 12-Feb-2021

Client: exp Services Inc. (Ottawa)

Order Date: 10-Feb-2021

Client PO:

Project Description: OTT0018293JS/1770 Heatherington Road

	Client ID:	TP-21-1 SS1	TP-21-2 SS1	TP-21-3 SS1	TP-21-4 SS1
	Sample Date:	08-Feb-21 09:00	08-Feb-21 09:00	08-Feb-21 09:00	08-Feb-21 09:00
	Sample ID:	2107251-01	2107251-02	2107251-03	2107251-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	86.1	97.2	94.2	95.9
General Inorganics					
SAR	0.01 N/A	0.28	0.07	0.56	0.03
Conductivity	5 uS/cm	172	125	305	111
	Client ID:	TP-21-5 SS1	TP-21-6-SS1	TP-21-7 SS1	TP-21-8 SS1
	Sample Date:	08-Feb-21 09:00	08-Feb-21 09:00	08-Feb-21 09:00	08-Feb-21 09:00
	Sample ID:	2107251-05	2107251-06	2107251-07	2107251-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	89.7	87.0	93.1	88.4
General Inorganics					
SAR	0.01 N/A	0.05	0.57	0.13	0.28
Conductivity	5 uS/cm	135	290	150	258
	Client ID:	TP-21-9 SS1	TP-21-10 SS1	TP-21-11-SS1	TP-21-12 SS1
	Sample Date:	08-Feb-21 09:00	08-Feb-21 09:00	08-Feb-21 09:00	08-Feb-21 09:00
	Sample ID:	2107251-09	2107251-10	2107251-11	2107251-12
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	90.4	87.5	97.8	91.4
General Inorganics					
SAR	0.01 N/A	1.06	2.25	0.20	0.62
Conductivity	5 uS/cm	463	633	170	198
	Client ID:	TP-21-13 SS1	TP-21-14 SS1	TP-21-15 SS1	TP-21-16 SS1
	Sample Date:	08-Feb-21 09:00	08-Feb-21 09:00	08-Feb-21 12:00	08-Feb-21 12:00
	Sample ID:	2107251-13	2107251-14	2107251-15	2107251-16
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	92.1	92.3	90.7	93.7
General Inorganics					
SAR	0.01 N/A	0.10	0.09	0.09	0.12
Conductivity	5 uS/cm	282	163	197	154
	Client ID:	TP-21-17 SS1	TP-21-18 SS1	TP-21-19 SS1	TP-21-20 SS1
	Sample Date:	08-Feb-21 12:00	08-Feb-21 12:00	08-Feb-21 12:00	08-Feb-21 12:00
	Sample ID:	2107251-17	2107251-18	2107251-19	2107251-20
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	92.3	85.9	92.3	93.4
General Inorganics					
SAR	0.01 N/A	1.17	3.01	0.59	1.27
Conductivity	5 uS/cm	1100	1120	1950	454

Certificate of Analysis

Report Date: 12-Feb-2021

Client: exp Services Inc. (Ottawa)

Order Date: 10-Feb-2021

Client PO:

Project Description: OTT0018293JS/1770 Heatherington Road

	Client ID:	TP-21-21 SS1	TP-21-22 SS1	TP-21-23 SS1	TP-21-24 SS1
	Sample Date:	08-Feb-21 12:00	08-Feb-21 12:00	08-Feb-21 12:00	08-Feb-21 12:00
	Sample ID:	2107251-21	2107251-22	2107251-23	2107251-24
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	91.1	88.5	93.1	95.9
General Inorganics					
SAR	0.01 N/A	0.02	0.56	0.06	0.10
Conductivity	5 uS/cm	187	280	113	77

	Client ID:	TP-21-27 SS1	TP-21-28 SS1	TP-21-29 SS1	-
	Sample Date:	08-Feb-21 12:00	08-Feb-21 12:00	08-Feb-21 12:00	-
	Sample ID:	2107251-25	2107251-26	2107251-27	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	91.2	90.8	91.3	-
General Inorganics					
SAR	0.01 N/A	0.05	0.10	0.58	-
Conductivity	5 uS/cm	162	173	2040	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Conductivity	ND	5	uS/cm						

Certificate of Analysis

Report Date: 12-Feb-2021

Client: exp Services Inc. (Ottawa)

Order Date: 10-Feb-2021

Client PO:

Project Description: OTT0018293JS/1770 Heatherington Road

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	0.30	0.01	N/A	0.31			3.3	30	
Conductivity	111	5	uS/cm	110			0.9	5	
Physical Characteristics									
% Solids	85.6	0.1	% by Wt.	86.1			0.5	25	

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.
NC: Not Calculated

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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Paracel ID: 2107251

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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2107251-Bulk 2107253-TCLP	№ 57223

Client Name: EXP Services Inc | Project Ref: OTT-0018293-J5 | Page 2 of 3

Contact Name: Chris Kimmerly | Quote #:

Address: 2650 Queensview Dr. Ottawa Ont K2B 8H6 | PO #: SA 30820-91843-501 PM Erin Toit

E-mail: chris.kimmerly

Telephone:

Turnaround Time: ☒ 1 day CTC ☐ 3 day ☐ 2 day ☒ Regular

Date Required:

Regulation 153/04: ☒ Table 1 ☐ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ Table — For RSC: ☒ Yes ☐ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: ☐ Other:

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

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analysis: SAR	Required Analysis: EC
1	TP-21-11-SS1	BG0341	S		1	Feb 8	AM	✓	✓
2	TP-21-12 SS1	342	S		1	Feb 8	AM	✓	✓
3	TP-21-13 SS1	343	S		1	Feb 8	AM	✓	✓
4	TP-21-14 SS1	344	S		1	Feb 8	AM	✓	✓
5	TP-21-15 SS1	345	S		1	Feb 8	PM	✓	✓
6	TP-21-16 SS1	346	S		1	Feb 8	PM	✓	✓
7	TP-21-17 SS1	347	S		1	Feb 8	PM	✓	✓
8	TP-21-18 SS1	348	S		1	Feb 8	PM	✓	✓
9	TP-21-19 SS1	349	S		1	Feb 8	PM	✓	✓
10	TP-21-20 SS1	350	S		1	Feb 8	PM	✓	✓

Comments:

Method of Delivery: PARACEL COURIER

Relinquished By (Sign): Chris Kimmerly	Received By Driver/Depot: A. Scouie	Received at Lab: Sunnyvale Ottawa	Verified By:
Relinquished By (Print): Chris Kimmerly	Date/Time: 10/02/21 10:50	Date/Time: Feb 10, 2021 11:50	Date/Time: 2-10-21 12:53
Date/Time: Feb 10/2021 8:30am	Temperature: °C AM	Temperature: 14.1 °C	pH Verified: ☐ By:

PARACEL LABORATORIES LTD.

Paracel ID: 2107251

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2107251-BUK 2107253-TCLP	№ 57745

Client Name: EXP Services Inc
Contact Name: Chris Kimmerly
Address: 2650 Queensview Dr Ottawa Ont. K2B 8H6
Telephone: 613-688-1899

Project Ref: OTT-00182793-J5
Quote #:
PO #: SOA 30820-91843-541 PM. Erin Tait
E-mail: chris.kimmerly@exp.com

Page 1 of 3

Turnaround Time
☒ 1 day EIK ☐ 3 day
☐ 2 day ☒ Regular
Date Required:

Regulation 153/04: ☒ Table 1 ☐ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ Table
For RSC: ☒ Yes ☐ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

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

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analysis: SAR	Required Analysis: EC
1	TP-21-1 SS1	BG0 351	S		1	Feb 8	AM	✓	✓
2	TP-21-2 SS1	352	S		1	Feb 8	AM	✓	✓
3	TP-21-3 SS1	353	S		1	Feb 8	AM	✓	✓
4	TP-21-4 SS1	354	S		1	Feb 8	AM	✓	✓
5	TP-21-5 SS1	355	S		1	Feb 8	AM	✓	✓
6	TP-21-6 -SS1	356	S		1	Feb 8	AM	✓	✓
7	TP-21-7 SS1	357	S		1	Feb 8	AM	✓	✓
8	TP-21-8 SS1	358	S		1	Feb 8	AM	✓	✓
9	TP-21-9 SS1	359	S		1	Feb 8	AM	✓	✓
10	TP-21-10 SS1	360	S		1	Feb 8	AM	✓	✓

Comments:

Method of Delivery: PARACEL COURIER

Relinquished By (Sign): Chris Kimmerly	Received By Driver/Depot: M. Jeffrey	Received at Lab: Sumeepam Dehmoi	Verified By:
Relinquished By (Print): Chris Kimmerly	Date/Time: 10/02/21 10:50	Date/Time: Feb 10, 2021 11:50	Date/Time: 2-10-21 12:15
Date/Time: Feb 10/2021 8:30am	Temperature: °C AM.	Temperature: 14.1 °C	pH Verified: ☐ By:

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Paracel ID: 2107251

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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2107251-Bulk 2107253-TCLP	№ 57224

Client Name: EXP Services Inc	Project Ref: OTT-0018293-J5	Page 3 of 3
Contact Name: Chris Kimmerly	Quote #:	
Address: 2650 Queensview Dr. Ottawa Ont K2B 8H6	PO #: SOA 30820-91843-S01 Pwl. Erin Tait	Turnaround Time: ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Telephone:	E-mail: Chris.Kimmerly@exp.com	Date Required:

Regulation 153/04: ☒ Table 1 ☐ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ Table — For RSC: ☒ Yes ☐ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: ☐ Other:

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

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analysis: SAR	EC	TCLP-Inorganics Leach (general)	TCLP-Zero Headspace Leach (general)	TCLP-Metals & Inorganics	TCLP-Metals	TCLP-VOC	TCLP-Benzo(a) pyrene				
1	TP-21-21 SS1	BG0363	S		1	Feb8	PM	✓	✓										
2	TP-21-22 SS1	362	S		1	Feb 8	PM	✓	✓										
3	TP-21-23 SS1	363	S		1	Feb8	PM	✓	✓										
4	TP-21-24 SS1	364	S		1	Feb 8	PM	✓	✓										
5	TP-21-27 SS1	365	S		1	Feb 8	PM	✓	✓										
6	TP-21-28 SS1	366	S		1	Feb 8	PM	✓	✓										
7	TP-21-29 SS1	367	S		1	Feb 8	PM	✓	✓										
8	BERM 1 Leach	372	S		2	Feb 8	PM			✓	✓	✓	✓	✓	✓				
9	BERM 2 Leach	373	S		2	Feb 8	PM			✓	✓	✓	✓	✓	✓				
10																			

Comments:

Method of Delivery: PARACEL COURIER

Relinquished By (Sign): Chris Kim	Received By Driver/Depot: M. DeLouse	Received at Lab: Sunreform Dolores	Verified By:
Relinquished By (Print): Chris Kimmerly	Date/Time: 10/02/21 10:50	Date: Feb 10, 2021 11.50	Date/Time: 2-10-21 12:52
Date/Time: Feb 10/2021 8:30am	Temperature: °C AM.	Temperature: 14.1 °C	pH Verified: ☐ By:

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO:
Project: OTT00018293J5/1770 Heatherington Road
Custody: 59026

Report Date: 19-Feb-2021
Order Date: 18-Feb-2021

Order #: 2108311

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

Paracel ID	Client ID
2108311-01	MW15-11
2108311-02	MW15-12
2108311-03	MW15-1
2108311-04	MW15-2
2108311-05	MW15-5

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis

Report Date: 19-Feb-2021

Client: exp Services Inc. (Ottawa)

Order Date: 18-Feb-2021

Client PO:

Project Description: OTT00018293J5/1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC	19-Feb-21	19-Feb-21
Metals, ICP-MS	EPA 200.8 - ICP-MS	19-Feb-21	19-Feb-21

Certificate of Analysis

Report Date: 19-Feb-2021

Client: exp Services Inc. (Ottawa)

Order Date: 18-Feb-2021

Client PO:

Project Description: OTT00018293J5/1770 Heatherington Road

	Client ID:	MW15-11	MW15-12	MW15-1	MW15-2
	Sample Date:	18-Feb-21 16:20	18-Feb-21 15:10	18-Feb-21 10:35	18-Feb-21 14:00
	Sample ID:	2108311-01	2108311-02	2108311-03	2108311-04
	MDL/Units	Water	Water	Water	Water
Anions					
Chloride	1 mg/L	2560	627	799	2470
Metals					
Sodium	200 ug/L	1590000	352000	398000	1560000

	Client ID:	MW15-5	-	-	-
	Sample Date:	18-Feb-21 16:00	-	-	-
	Sample ID:	2108311-05	-	-	-
	MDL/Units	Water	-	-	-
Anions					
Chloride	1 mg/L	4240	-	-	-
Metals					
Sodium	200 ug/L	1880000	-	-	-

Certificate of Analysis

Report Date: 19-Feb-2021

Client: exp Services Inc. (Ottawa)

Order Date: 18-Feb-2021

Client PO:

Project Description: OTT00018293J5/1770 Heatherington Road

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Metals									
Sodium	ND	200	ug/L						

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Sodium	1580000	2000	ug/L	1590000			0.3	20	

Certificate of Analysis

Report Date: 19-Feb-2021

Client: exp Services Inc. (Ottawa)

Order Date: 18-Feb-2021

Client PO:

Project Description: OTT00018293J5/1770 Heatherington Road

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	9.49	1	mg/L	ND	94.9	85-115			
Metals									
Sodium	8520	200	ug/L	ND	85.2	80-120			

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.
NC: Not Calculated

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Paracel ID: 2108311

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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2108311	№ 59026

Client Name: Exp Services Inc.
Project Ref: OTT-00018293-J5
Page 1 of 1

Contact Name: Accounts Payable
Quote #: City of Ottawa SoA

Address: 100-2650 Queensview Dr. Ottawa ON K2B 8H6
PO #: Heatherington
E-mail: chris.Kimmerly@exp.com

Telephone:

Turnaround Time
☒ 1 day ☐ 3 day
☐ 2 day ☐ Regular
Date Required: Feb. 19, 2021

Regulation 153/04	Other Regulation
☐ Table 1 ☐ Res/Park ☒ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☒ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☒ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☐ Table —	Mun:
For RSC: ☒ Yes ☐ No	☐ Other:

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

	Sample ID/Location Name			Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analysis: Na+	Required Analysis: Cl-(chloride)
1	MW15-11	BGO	386	GW		2	2021/02/18	1620	X	X
2	MW15-12		387	GW		2		1510	X	X
3	MW15-1		388	GW		2		1035	X	X
4	MW15-2		389	GW		2		1400	X	X
5	MW15-5		390	GW		2		1600	X	X
6										
7										
8										
9										
10										

Comments:

Method of Delivery: D/B

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Jeremy Eckert	Date/Time:	Date/Time: 2-18-21 17:25	Date/Time: 2-18-21 17:30
Date/Time: Feb. 18, 2021 1700	Temperature: °C	Temperature: 8.6 °C	pH Verified: ☒ By: MX

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO:
Project: OTT00018293J5/1770 Heatherington Road
Custody: 59028

Report Date: 19-Feb-2021
Order Date: 18-Feb-2021

Order #: 2108312

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

Paracel ID	Client ID
2108312-01	MW20-7
2108312-02	MW20-5
2108312-03	MW20-3
2108312-04	MW20-8
2108312-05	Field Blank
2108312-06	Trip Blank
2108312-07	MW20-10

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis

Report Date: 19-Feb-2021

Client: exp Services Inc. (Ottawa)

Order Date: 18-Feb-2021

Client PO:

Project Description: OTT00018293J5/1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC	19-Feb-21	19-Feb-21
Metals, ICP-MS	EPA 200.8 - ICP-MS	19-Feb-21	19-Feb-21

Certificate of Analysis

Report Date: 19-Feb-2021

Client: exp Services Inc. (Ottawa)

Order Date: 18-Feb-2021

Client PO:

Project Description: OTT00018293J5/1770 Heatherington Road

	Client ID:	MW20-7	MW20-5	MW20-3	MW20-8
	Sample Date:	18-Feb-21 11:55	18-Feb-21 13:10	18-Feb-21 13:50	18-Feb-21 12:00
	Sample ID:	2108312-01	2108312-02	2108312-03	2108312-04
	MDL/Units	Water	Water	Water	Water
Anions					
Chloride	1 mg/L	8200	8000	6160	6660
Metals					
Sodium	200 ug/L	3290000	2450000	2560000	2440000

	Client ID:	Field Blank	Trip Blank	MW20-10	-
	Sample Date:	18-Feb-21 16:30	10-Feb-21 16:45	18-Feb-21 12:00	-
	Sample ID:	2108312-05	2108312-06	2108312-07	-
	MDL/Units	Water	Water	Water	-
Anions					
Chloride	1 mg/L	<1	<1	8050	-
Metals					
Sodium	200 ug/L	<200	<200	3410000	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Metals									
Sodium	ND	200	ug/L						

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Sodium	1580000	2000	ug/L	1590000			0.3	20	

Certificate of Analysis

Report Date: 19-Feb-2021

Client: exp Services Inc. (Ottawa)

Order Date: 18-Feb-2021

Client PO:

Project Description: OTT00018293J5/1770 Heatherington Road

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	9.49	1	mg/L	ND	94.9	85-115			
Metals									
Sodium	8520	200	ug/L	ND	85.2	80-120			

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.
NC: Not Calculated

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Paracel ID: 2108312

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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2108312	№ 59028

Client Name: EXP Services Inc.
Contact Name: Accounts Payable
Address: 100-2650 Queensview Dr Ottawa, ON, K2B 8H6
Telephone: 613-688-1899

Project Ref: City of Ottawa SoA
Quote #: OTT-00018293-J5
PO #: Heatherington
E-mail: Chris.Kimmerly@exp.com

Page 1 of 1

Turnaround Time
☒ 1 day ☐ 3 day
☐ 2 day ☐ Regular
Date Required: Feb. 19, 2021

Regulation 153/04: ☐ Table 1 ☐ Res/Park ☒ Med/Fine ☐ Table 2 ☒ Ind/Comm ☐ Coarse ☒ Table 3 ☐ Agri/Other ☐ Table — For RSC: ☒ Yes ☐ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: ☐ Other:

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

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analysis: Na +	Required Analysis: Cl - (chloride)
1	MW20-7	BG0 391	GW		2	2021/02/18	1155	X	X
2	MW20-5	392	GW		2		1310	X	X
3	MW20-3	393	GW		2		1350	X	X
4	MW20-8	394	GW		2		1200	X	X
5	Field Blank	395	DI		2		1630	X	X
6	Trip Blank	396	DI		2		1645	X	X
7	MW20-10	397	GW		2		1200	X	X
8									
9									
10									

Comments:

Method of Delivery: 12/18

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Jeremy Eckert	Date/Time:	Date/Time: 2-18-21 17:18	Date/Time: 2-18-21 17:30
Date/Time: Feb. 18, 2021 1700	Temperature: °C	Temperature: 8.6 °C	pH Verified: ☒ By: MA

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO:
Project: OTT00018293J5/1770 Heatherington Road
Custody: 59027

Report Date: 22-Feb-2021
Order Date: 19-Feb-2021

Order #: 2108355

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

Paracel ID	Client ID
2108355-01	MW15-6
2108355-02	MW15-7

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis

Report Date: 22-Feb-2021

Client: exp Services Inc. (Ottawa)

Order Date: 19-Feb-2021

Client PO:

Project Description: OTT00018293J5/1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC	19-Feb-21	19-Feb-21
Metals, ICP-MS	EPA 200.8 - ICP-MS	19-Feb-21	19-Feb-21

Certificate of Analysis

Report Date: 22-Feb-2021

Client: exp Services Inc. (Ottawa)

Order Date: 19-Feb-2021

Client PO:

Project Description: OTT00018293J5/1770 Heatherington Road

	Client ID:	MW15-6	MW15-7	-	-
	Sample Date:	19-Feb-21 09:10	19-Feb-21 10:30	-	-
	Sample ID:	2108355-01	2108355-02	-	-
	MDL/Units	Water	Water	-	-
Anions					
Chloride	1 mg/L	7830	7380	-	-
Metals					
Sodium	200 ug/L	2680000	2200000	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Metals									
Sodium	ND	200	ug/L						

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	5.36	1	mg/L	5.37			0.2	10	
Metals									
Sodium	1580000	2000	ug/L	1590000			0.3	20	

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	14.7	1	mg/L	5.37	92.8	77-123			
Metals									
Sodium	8520	200	ug/L	ND	85.2	80-120			

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.
NC: Not Calculated

PAR LABORAT

Paracel ID: 2108355

d Office
-2319 St. Laurent Blvd.
iwa, Ontario K1G 4J8
-800-749-1947
aracel@paracellabs.com
w.paracellabs.com

Paracel Order Number (Lab Use Only): 2108355

Chain Of Custody (Lab Use Only) № 59027

Client Name: EXP Services Inc.
Contact Name: Accounts Payable
Address: 100-2650 Queensview Dr Ottawa ON K2B 8H6
Telephone: 613-688-1899

Project Ref: OTT-00018293-J5
Quote #: City of Ottawa SOA
PO #: Heatherington
E-mail: chris.Kimmerly@exp.com accounting.ottawa@exp.com

Page 1 of 1

Turnaround Time: [X] 1 day [ ] 3 day [ ] 2 day [ ] Regular
Date Required:

Regulation 153/04: [ ] Table 1 [ ] Res/Park [X] Med/Fine [ ] Table 2 [X] Ind/Comm [ ] Coarse [X] Table 3 [ ] Agri/Other [ ] Table ___ For RSC: [X] Yes [ ] No

Other Regulation: [ ] REG 558 [ ] PWQO [ ] CCME [ ] MISA [ ] SU - Sani [ ] SU - Storm Mun: ___ [ ] Other:

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

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analysis: Na+	Required Analysis: Cl- (Chloride)
1	MW15-6 B60398	GW		2	2021/02/19	910	X	X
2	MW15-7 B60399	GW		2	2021/02/19	1030	X	X
3								
4								
5								
6								
7								
8								
9								
10								

Comments:

Method of Delivery: DropBox

Relinquished By (Sign):
Relinquished By (Print): Jeremy Eckert
Date/Time: 2021/02/19 1100

Received By Driver/Depot:
Date/Time:
Temperature: °C

Received at Lab:
Date/Time: Feb 19 2021 1120
Temperature: 5.9 °C

Verified By:
Date/Time: Feb 19 2021 11:31
pH Verified: [ ] By:

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www.paracellabs.com

Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO:
Project: OTT00018293J5/1770 Heatherington Road
Custody: 132342

Report Date: 23-Jun-2021
Order Date: 22-Jun-2021

Order #: 2126255

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

Paracel ID	Client ID
2126255-01	S3
2126255-02	S4

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis

Report Date: 23-Jun-2021

Client: exp Services Inc. (Ottawa)

Order Date: 22-Jun-2021

Client PO:

Project Description: OTT00018293J5/1770 Heatherington Road

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.7 - ICP-OES	23-Jun-21	23-Jun-21
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	23-Jun-21	23-Jun-21
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	22-Jun-21	23-Jun-21
Conductivity	MOE E3138 - probe @25 °C, water ext	23-Jun-21	23-Jun-21
Mercury by CVAA	EPA 7471B - CVAA, digestion	23-Jun-21	23-Jun-21
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	23-Jun-21	23-Jun-21
PHC F1	CWS Tier 1 - P&T GC-FID	23-Jun-21	23-Jun-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	23-Jun-21	23-Jun-21
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	23-Jun-21	23-Jun-21
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	23-Jun-21	23-Jun-21
SAR	Calculated	23-Jun-21	23-Jun-21
Solids, %	Gravimetric, calculation	23-Jun-21	23-Jun-21

Certificate of Analysis

Report Date: 23-Jun-2021

Client: exp Services Inc. (Ottawa)

Order Date: 22-Jun-2021

Client PO:

Project Description: OTT00018293J5/1770 Heatherington Road

	Client ID:	S3	S4	-	-
	Sample Date:	22-Jun-21 16:25	22-Jun-21 16:40	-	-
	Sample ID:	2126255-01	2126255-02	-	-
	MDL/Units	Soil	Soil	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	96.1	92.3	-	-
General Inorganics					
SAR	0.01 N/A	0.30	1.07	-	-
Conductivity	5 uS/cm	275	209	-	-
pH	0.05 pH Units	7.59	6.92	-	-
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	-	-
Arsenic	1.0 ug/g dry	3.1	2.8	-	-
Barium	1.0 ug/g dry	65.1	56.2	-	-
Beryllium	0.5 ug/g dry	<0.5	<0.5	-	-
Boron	5.0 ug/g dry	6.6	<5.0	-	-
Boron, available	0.5 ug/g dry	<0.5	0.5	-	-
Cadmium	0.5 ug/g dry	<0.5	<0.5	-	-
Chromium	5.0 ug/g dry	16.7	15.4	-	-
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	-	-
Cobalt	1.0 ug/g dry	5.5	4.6	-	-
Copper	5.0 ug/g dry	14.7	13.4	-	-
Lead	1.0 ug/g dry	13.5	13.8	-	-
Mercury	0.1 ug/g dry	<0.1	<0.1	-	-
Molybdenum	1.0 ug/g dry	1.8	<1.0	-	-
Nickel	5.0 ug/g dry	12.7	11.0	-	-
Selenium	1.0 ug/g dry	<1.0	<1.0	-	-
Silver	0.3 ug/g dry	<0.3	<0.3	-	-
Thallium	1.0 ug/g dry	<1.0	<1.0	-	-
Uranium	1.0 ug/g dry	<1.0	<1.0	-	-
Vanadium	10.0 ug/g dry	18.5	19.0	-	-
Zinc	20.0 ug/g dry	44.4	49.3	-	-
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene	0.05 ug/g dry	<0.05	<0.05	-	-
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	-	-
Toluene-d8	Surrogate	94.6%	97.2%	-	-

Certificate of Analysis

Report Date: 23-Jun-2021

Client: exp Services Inc. (Ottawa)

Order Date: 22-Jun-2021

Client PO:

Project Description: OTT00018293J5/1770 Heatherington Road

	Client ID:	S3	S4	-	-
	Sample Date:	22-Jun-21 16:25	22-Jun-21 16:40	-	-
	Sample ID:	2126255-01	2126255-02	-	-
	MDL/Units	Soil	Soil	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	-	-
F3 PHCs (C16-C34)	8 ug/g dry	59	23	-	-
F4 PHCs (C34-C50)	6 ug/g dry	64	17	-	-
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	0.03	-	-
Benzo [a] anthracene	0.02 ug/g dry	0.04	0.09	-	-
Benzo [a] pyrene	0.02 ug/g dry	0.04	0.10	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	0.05	0.11	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	0.04	0.08	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	0.03	0.06	-	-
Chrysene	0.02 ug/g dry	0.04	0.12	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	-	-
Fluoranthene	0.02 ug/g dry	0.09	0.20	-	-
Fluorene	0.02 ug/g dry	<0.02	<0.02	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.03	0.07	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	-	-
Naphthalene	0.01 ug/g dry	<0.01	<0.01	-	-
Phenanthrene	0.02 ug/g dry	0.08	0.11	-	-
Pyrene	0.02 ug/g dry	0.08	0.16	-	-
2-Fluorobiphenyl	Surrogate	92.4%	87.5%	-	-
Terphenyl-d14	Surrogate	106%	103%	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Conductivity	ND	5	uS/cm						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron, available	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium (VI)	ND	0.2	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.14*		*ug/g*		*85.3*	*50-140*			
Surrogate: Terphenyl-d14	*1.48*		*ug/g*		*111*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Toluene-d8	*3.57*		*ug/g*		*112*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	0.30	0.01	N/A	0.30			0.0	30	
pH	7.45	0.05	pH Units	7.52			0.9	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND			NC	30	
F3 PHCs (C16-C34)	41	8	ug/g dry	59			NC	30	
F4 PHCs (C34-C50)	31	6	ug/g dry	64			NC	30	
Metals									
Antimony	ND	1.0	ug/g dry	ND			NC	30	
Arsenic	2.3	1.0	ug/g dry	2.0			11.5	30	
Barium	20.7	1.0	ug/g dry	19.4			6.1	30	
Beryllium	ND	0.5	ug/g dry	ND			NC	30	
Boron, available	ND	0.5	ug/g dry	ND			NC	35	
Boron	ND	5.0	ug/g dry	ND			NC	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g dry	ND			NC	35	
Chromium	9.6	5.0	ug/g dry	8.9			7.8	30	
Cobalt	3.9	1.0	ug/g dry	3.5			11.8	30	
Copper	9.5	5.0	ug/g dry	8.0			17.0	30	
Lead	3.9	1.0	ug/g dry	3.4			14.3	30	
Mercury	0.103	0.1	ug/g dry	ND			NC	30	
Molybdenum	ND	1.0	ug/g dry	ND			NC	30	
Nickel	7.8	5.0	ug/g dry	7.1			9.8	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	18.4	10.0	ug/g dry	17.3			6.6	30	
Zinc	ND	20.0	ug/g dry	ND			NC	30	
Physical Characteristics									
% Solids	85.6	0.1	% by Wt.	86.1			0.6	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g dry	ND			NC	40	
Anthracene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Chrysene	ND	0.02	ug/g dry	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND			NC	40	
Fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Fluorene	ND	0.02	ug/g dry	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND			NC	40	
Naphthalene	ND	0.01	ug/g dry	ND			NC	40	
Phenanthrene	ND	0.02	ug/g dry	ND			NC	40	
Pyrene	ND	0.02	ug/g dry	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	*1.09*		*ug/g dry*		*68.5*	*50-140*			
Surrogate: Terphenyl-d14	*1.50*		*ug/g dry*		*94.3*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			NC	50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Toluene	ND	0.05	ug/g dry	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g dry	ND			NC	50	
o-Xylene	ND	0.05	ug/g dry	ND			NC	50	
Surrogate: Toluene-d8	*2.62*		*ug/g dry*		*81.8*	*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)	225	7	ug/g	ND	112	80-120			
F2 PHCs (C10-C16)	74	4	ug/g	ND	88.4	60-140			
F3 PHCs (C16-C34)	232	8	ug/g	59	84.9	60-140			
F4 PHCs (C34-C50)	166	6	ug/g	64	79.0	60-140			
Metals									
Antimony	55.0	1.0	ug/g	ND	109	70-130			
Arsenic	59.0	1.0	ug/g	ND	116	70-130			
Barium	67.5	1.0	ug/g	7.8	120	70-130			
Beryllium	55.6	0.5	ug/g	ND	111	70-130			
Boron, available	4.54	0.5	ug/g	ND	90.8	70-122			
Boron	52.4	5.0	ug/g	ND	103	70-130			
Cadmium	57.4	0.5	ug/g	ND	115	70-130			
Chromium (VI)	0.1	0.2	ug/g	ND	66.0	70-130			QM-05
Chromium	62.0	5.0	ug/g	ND	117	70-130			
Cobalt	59.5	1.0	ug/g	1.4	116	70-130			
Copper	58.6	5.0	ug/g	ND	111	70-130			
Lead	54.8	1.0	ug/g	1.3	107	70-130			
Mercury	1.48	0.1	ug/g	ND	98.7	70-130			
Molybdenum	56.7	1.0	ug/g	ND	113	70-130			
Nickel	59.5	5.0	ug/g	ND	113	70-130			
Selenium	54.0	1.0	ug/g	ND	108	70-130			
Silver	47.0	0.3	ug/g	ND	94.0	70-130			
Thallium	56.2	1.0	ug/g	ND	112	70-130			
Uranium	57.1	1.0	ug/g	ND	114	70-130			
Vanadium	66.1	10.0	ug/g	ND	118	70-130			
Zinc	61.0	20.0	ug/g	ND	108	70-130			
Semi-Volatiles									
Acenaphthene	0.152	0.02	ug/g	ND	76.6	50-140			
Acenaphthylene	0.128	0.02	ug/g	ND	64.5	50-140			
Anthracene	0.152	0.02	ug/g	ND	76.3	50-140			
Benzo [a] anthracene	0.125	0.02	ug/g	ND	63.0	50-140			
Benzo [a] pyrene	0.146	0.02	ug/g	ND	73.7	50-140			
Benzo [b] fluoranthene	0.169	0.02	ug/g	ND	85.3	50-140			
Benzo [g,h,i] perylene	0.141	0.02	ug/g	ND	71.1	50-140			
Benzo [k] fluoranthene	0.159	0.02	ug/g	ND	79.9	50-140			
Chrysene	0.160	0.02	ug/g	ND	80.6	50-140			
Dibenzo [a,h] anthracene	0.142	0.02	ug/g	ND	71.7	50-140			
Fluoranthene	0.139	0.02	ug/g	ND	70.0	50-140			
Fluorene	0.136	0.02	ug/g	ND	68.3	50-140			
Indeno [1,2,3-cd] pyrene	0.133	0.02	ug/g	ND	67.2	50-140			
1-Methylnaphthalene	0.154	0.02	ug/g	ND	77.4	50-140			
2-Methylnaphthalene	0.168	0.02	ug/g	ND	84.6	50-140			
Naphthalene	0.166	0.01	ug/g	ND	83.8	50-140			
Phenanthrene	0.143	0.02	ug/g	ND	72.2	50-140			
Pyrene	0.141	0.02	ug/g	ND	71.0	50-140			
Surrogate: 2-Fluorobiphenyl	*1.28*		*ug/g*		*80.5*	*50-140*			
Surrogate: Terphenyl-d14	*1.45*		*ug/g*		*91.4*	*50-140*			
Volatiles									

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzene	4.52	0.02	ug/g	ND	113	60-130			
Ethylbenzene	3.30	0.05	ug/g	ND	82.6	60-130			
Toluene	3.51	0.05	ug/g	ND	87.8	60-130			
m,p-Xylenes	6.85	0.05	ug/g	ND	85.7	60-130			
o-Xylene	3.69	0.05	ug/g	ND	92.3	60-130			
Surrogate: Toluene-d8	*2.26*		*ug/g*		*70.7*	*50-140*			

Qualifier Notes:

QC Qualifiers :

QM-05 : The spike recovery was outside acceptance limits for the matrix spike due to matrix interference.

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.
NC: Not Calculated

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.
- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD.

Paracel ID: 2126255

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2126255	№ 132342

Client Name: EXP Services Inc.	Project Ref: 1770 Heatherington Road	Page 1 of 1
Contact Name: Chris Kinsmerly	Quote #: City of Ottawa SA (Erin Tait) PM	Turnaround Time
Address: 100-2650 Queensview Drive, Ottawa	PO #:	☑ 1 day ☐ 3 day ☐ 2 day ☐ Regular
Telephone: 613-688-1899	E-mail:	Date Required:

Regulation 153/04: ☐ Table 1 ☐ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☑ Table 3 ☐ Agri/Other ☐ Table ___ For RSC: ☐ Yes ☐ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: ___ ☐ Other:

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

	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)	pH	SAR	EC			
1	S3 BJTMOG	S		3	2021/06/23	4:25	X		X	X	X	X	X	X	X	X			
2	S4 ↓ HD	S		3	2021/06/23	4:40	X		X	X	X	X	X	X	X	X			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: BFim	Verified By: BFim
Relinquished By (Print): Leah Walls	Date/Time:	Date/Time: June 22, 2021 17:00	Date/Time: June 22, 2021 17:51
Date/Time: 2021/06/23 5:00	Temperature: °C	Temperature: 15.5 °C	pH Verified: ☐ By:

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO:
Project: OTT00018293J5/1770 Heatherington
Custody: 136729

Report Date: 3-Jun-2022
Order Date: 20-May-2022

Order #: 2221661

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

Paracel ID	Client ID
2221661-01	MW14-8
2221661-03	MW15-1 (OB)
2221661-04	MW1
2221661-05	MW15-9 (OB)
2221661-06	MW14-7
2221661-07	MW2
2221661-08	MW15-1 (OB)
2221661-09	MW1
2221661-10	Trip Blank

Approved By:



Dale Robertson, BSc
Laboratory Director

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

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	26-May-22	26-May-22
PHC F1	CWS Tier 1 - P&T GC-FID	25-May-22	26-May-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	1-Jun-22	1-Jun-22
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	31-May-22	31-May-22
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	25-May-22	26-May-22

Certificate of Analysis

Report Date: 03-Jun-2022

Client: exp Services Inc. (Ottawa)

Order Date: 20-May-2022

Client PO:

Project Description: OTT00018293J5/1770 Heatherington

	Client ID:	MW14-8	MW15-1 (OB)	MW1	MW15-9 (OB)
	Sample Date:	19-May-22 14:00	19-May-22 13:00	19-May-22 13:00	19-May-22 11:30
	Sample ID:	2221661-01	2221661-03	2221661-04	2221661-05
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	-	-	-
Benzene	0.5 ug/L	<0.5	-	-	-
Bromodichloromethane	0.5 ug/L	<0.5	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-
Bromomethane	0.5 ug/L	<0.5	-	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-
Chlorobenzene	0.5 ug/L	<0.5	-	-	-
Chloroform	0.5 ug/L	<0.5	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	-	-	-
Hexane	1.0 ug/L	<1.0	-	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	-
Methylene Chloride	5.0 ug/L	<5.0	-	-	-
Styrene	0.5 ug/L	<0.5	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-

Certificate of Analysis

Report Date: 03-Jun-2022

Client: exp Services Inc. (Ottawa)

Order Date: 20-May-2022

Client PO:

Project Description: OTT00018293J5/1770 Heatherington

	Client ID:	MW14-8	MW15-1 (OB)	MW1	MW15-9 (OB)
	Sample Date:	19-May-22 14:00	19-May-22 13:00	19-May-22 13:00	19-May-22 11:30
	Sample ID:	2221661-01	2221661-03	2221661-04	2221661-05
	MDL/Units	Water	Water	Water	Water
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-
Trichloroethylene	0.5 ug/L	<0.5	-	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-
Vinyl chloride	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	-	-	-
4-Bromofluorobenzene	Surrogate	101%	-	-	-
Dibromofluoromethane	Surrogate	96.3%	-	-	-
Toluene-d8	Surrogate	112%	-	-	-
Benzene	0.5 ug/L	-	<0.5	<0.5	-
Ethylbenzene	0.5 ug/L	-	<0.5	<0.5	-
Toluene	0.5 ug/L	-	<0.5	<0.5	-
m,p-Xylenes	0.5 ug/L	-	<0.5	<0.5	-
o-Xylene	0.5 ug/L	-	<0.5	<0.5	-
Xylenes, total	0.5 ug/L	-	<0.5	<0.5	-
Toluene-d8	Surrogate	-	111%	111%	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	-	<25	<25	-
F2 PHCs (C10-C16)	100 ug/L	-	<100	<100	<100
F3 PHCs (C16-C34)	100 ug/L	-	<100	<100	<100
F4 PHCs (C34-C50)	100 ug/L	-	<100	<100	<100

Certificate of Analysis

Report Date: 03-Jun-2022

Client: exp Services Inc. (Ottawa)

Order Date: 20-May-2022

Client PO:

Project Description: OTT00018293J5/1770 Heatherington

	Client ID:	MW14-7	MW2	MW15-1 (OB)	MW1
	Sample Date:	19-May-22 17:00	19-May-22 17:30	20-May-22 10:00	20-May-22 10:00
	Sample ID:	2221661-06	2221661-07	2221661-08	2221661-09
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	-	-
Benzene	0.5 ug/L	<0.5	<0.5	-	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	-	-
Bromoform	0.5 ug/L	<0.5	<0.5	-	-
Bromomethane	0.5 ug/L	<0.5	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	-	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
Chloroform	0.5 ug/L	<0.5	<0.5	-	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	5.4	5.3	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Ethylene dibromide (dibromoethane, 1	0.2 ug/L	<0.2	<0.2	-	-
Hexane	1.0 ug/L	<1.0	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	-	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	-	-
Styrene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-

Certificate of Analysis

Report Date: 03-Jun-2022

Client: exp Services Inc. (Ottawa)

Order Date: 20-May-2022

Client PO:

Project Description: OTT00018293J5/1770 Heatherington

	Client ID:	MW14-7	MW2	MW15-1 (OB)	MW1
	Sample Date:	19-May-22 17:00	19-May-22 17:30	20-May-22 10:00	20-May-22 10:00
	Sample ID:	2221661-06	2221661-07	2221661-08	2221661-09
	MDL/Units	Water	Water	Water	Water
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	-	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-
4-Bromofluorobenzene	Surrogate	100%	98.8%	-	-
Dibromofluoromethane	Surrogate	86.2%	84.6%	-	-
Toluene-d8	Surrogate	98.9%	98.8%	-	-
Semi-Volatiles					
Acenaphthene	0.05 ug/L	-	-	<0.05	<0.05
Acenaphthylene	0.05 ug/L	-	-	<0.05	<0.05
Anthracene	0.01 ug/L	-	-	<0.01	<0.01
Benzo [a] anthracene	0.01 ug/L	-	-	<0.01	<0.01
Benzo [a] pyrene	0.01 ug/L	-	-	<0.01	<0.01
Benzo [b] fluoranthene	0.05 ug/L	-	-	<0.05	<0.05
Benzo [g,h,i] perylene	0.05 ug/L	-	-	<0.05	<0.05
Benzo [k] fluoranthene	0.05 ug/L	-	-	<0.05	<0.05
Chrysene	0.05 ug/L	-	-	<0.05	<0.05
Dibenzo [a,h] anthracene	0.05 ug/L	-	-	<0.05	<0.05
Fluoranthene	0.01 ug/L	-	-	<0.01	<0.01
Fluorene	0.05 ug/L	-	-	<0.05	<0.05
Indeno [1,2,3-cd] pyrene	0.05 ug/L	-	-	<0.05	<0.05
1-Methylnaphthalene	0.05 ug/L	-	-	<0.05	0.17
2-Methylnaphthalene	0.05 ug/L	-	-	<0.05	<0.05
Methylnaphthalene (1&2)	0.10 ug/L	-	-	<0.10	0.17
Naphthalene	0.05 ug/L	-	-	<0.05	0.07
Phenanthrene	0.05 ug/L	-	-	<0.05	<0.05
Pyrene	0.01 ug/L	-	-	<0.01	<0.01
2-Fluorobiphenyl	Surrogate	-	-	113%	101%
Terphenyl-d14	Surrogate	-	-	118%	117%

Certificate of Analysis

Report Date: 03-Jun-2022

Client: exp Services Inc. (Ottawa)

Order Date: 20-May-2022

Client PO:

Project Description: OTT00018293J5/1770 Heatherington

	Client ID:	Trip Blank	-	-	-
	Sample Date:	18-May-22 09:00	-	-	-
	Sample ID:	2221661-10	-	-	-
	MDL/Units	Water	-	-	-
Volatiles					
Acetone	5.0 ug/L	<5.0	-	-	-
Benzene	0.5 ug/L	<0.5	-	-	-
Bromodichloromethane	0.5 ug/L	<0.5	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-
Bromomethane	0.5 ug/L	<0.5	-	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-
Chlorobenzene	0.5 ug/L	<0.5	-	-	-
Chloroform	0.5 ug/L	<0.5	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Ethylene dibromide (dibromoethane, 1	0.2 ug/L	<0.2	-	-	-
Hexane	1.0 ug/L	<1.0	-	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	-
Methylene Chloride	5.0 ug/L	<5.0	-	-	-
Styrene	0.5 ug/L	<0.5	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-

Certificate of Analysis

Report Date: 03-Jun-2022

Client: exp Services Inc. (Ottawa)

Order Date: 20-May-2022

Client PO:

Project Description: OTT00018293J5/1770 Heatherington

	Client ID:	Trip Blank	-	-	-
	Sample Date:	18-May-22 09:00	-	-	-
	Sample ID:	2221661-10	-	-	-
	MDL/Units	Water	-	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-
Trichloroethylene	0.5 ug/L	<0.5	-	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-
Vinyl chloride	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	-	-	-
4-Bromofluorobenzene	Surrogate	95.8%	-	-	-
Dibromofluoromethane	Surrogate	77.8%	-	-	-
Toluene-d8	Surrogate	97.7%	-	-	-
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	-	-	-

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	*21.6*		*ug/L*		*108*	*50-140*			
Surrogate: Terphenyl-d14	*20.6*		*ug/L*		*103*	*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						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*74.7*		*ug/L*		*93.3*	*50-140*			
Surrogate: Dibromofluoromethane	*61.1*		*ug/L*		*76.3*	*50-140*			
Surrogate: Toluene-d8	*92.7*		*ug/L*		*116*	*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	*92.7*		*ug/L*		*116*	*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			NC	30	
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	0.58	0.5	ug/L	0.72			21.5	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	1.25	0.5	ug/L	1.21			3.3	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	*81.7*		*ug/L*		*102*	*50-140*			
Surrogate: Dibromofluoromethane	*87.3*		*ug/L*		*109*	*50-140*			
Surrogate: Toluene-d8	*88.8*		*ug/L*		*111*	*50-140*			
Benzene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: Toluene-d8	*88.8*		*ug/L*		*111*	*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)	1980	25	ug/L	ND	98.8	68-117			
F2 PHCs (C10-C16)	1440	100	ug/L	ND	90.0	60-140			
F3 PHCs (C16-C34)	3840	100	ug/L	ND	98.0	60-140			
F4 PHCs (C34-C50)	2260	100	ug/L	ND	91.2	60-140			
Semi-Volatiles									
Acenaphthene	4.35	0.05	ug/L	ND	87.0	50-140			
Acenaphthylene	3.65	0.05	ug/L	ND	73.0	50-140			
Anthracene	4.05	0.01	ug/L	ND	81.1	50-140			
Benzo [a] anthracene	3.96	0.01	ug/L	ND	79.2	50-140			
Benzo [a] pyrene	4.06	0.01	ug/L	ND	81.1	50-140			
Benzo [b] fluoranthene	5.02	0.05	ug/L	ND	100	50-140			
Benzo [g,h,i] perylene	3.27	0.05	ug/L	ND	65.4	50-140			
Benzo [k] fluoranthene	5.01	0.05	ug/L	ND	100	50-140			
Chrysene	4.56	0.05	ug/L	ND	91.2	50-140			
Dibenzo [a,h] anthracene	3.59	0.05	ug/L	ND	71.8	50-140			
Fluoranthene	3.90	0.01	ug/L	ND	78.1	50-140			
Fluorene	4.21	0.05	ug/L	ND	84.2	50-140			
Indeno [1,2,3-cd] pyrene	3.66	0.05	ug/L	ND	73.3	50-140			
1-Methylnaphthalene	4.82	0.05	ug/L	ND	96.5	50-140			
2-Methylnaphthalene	5.19	0.05	ug/L	ND	104	50-140			
Naphthalene	4.84	0.05	ug/L	ND	96.8	50-140			
Phenanthrene	3.95	0.05	ug/L	ND	79.0	50-140			
Pyrene	4.09	0.01	ug/L	ND	81.8	50-140			
Surrogate: 2-Fluorobiphenyl	*20.9*		*ug/L*		*104*	*50-140*			
Surrogate: Terphenyl-d14	*22.3*		*ug/L*		*111*	*50-140*			
Volatiles									
Acetone	103	5.0	ug/L	ND	103	50-140			
Benzene	32.0	0.5	ug/L	ND	79.9	60-130			
Bromodichloromethane	33.1	0.5	ug/L	ND	82.8	60-130			
Bromoform	41.0	0.5	ug/L	ND	102	60-130			
Bromomethane	40.5	0.5	ug/L	ND	101	50-140			
Carbon Tetrachloride	36.8	0.2	ug/L	ND	91.9	60-130			
Chlorobenzene	38.3	0.5	ug/L	ND	95.7	60-130			
Chloroform	34.4	0.5	ug/L	ND	86.0	60-130			
Dibromochloromethane	43.9	0.5	ug/L	ND	110	60-130			
Dichlorodifluoromethane	31.7	1.0	ug/L	ND	79.3	50-140			
1,2-Dichlorobenzene	37.3	0.5	ug/L	ND	93.2	60-130			
1,3-Dichlorobenzene	33.8	0.5	ug/L	ND	84.5	60-130			
1,4-Dichlorobenzene	35.5	0.5	ug/L	ND	88.8	60-130			
1,1-Dichloroethane	39.7	0.5	ug/L	ND	99.2	60-130			
1,2-Dichloroethane	35.6	0.5	ug/L	ND	89.0	60-130			
1,1-Dichloroethylene	36.5	0.5	ug/L	ND	91.2	60-130			
cis-1,2-Dichloroethylene	35.9	0.5	ug/L	ND	89.8	60-130			
trans-1,2-Dichloroethylene	36.0	0.5	ug/L	ND	89.9	60-130			
1,2-Dichloropropane	33.5	0.5	ug/L	ND	83.8	60-130			
cis-1,3-Dichloropropylene	43.3	0.5	ug/L	ND	108	60-130			
trans-1,3-Dichloropropylene	36.4	0.5	ug/L	ND	91.0	60-130			
Ethylbenzene	34.6	0.5	ug/L	ND	86.6	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Ethylene dibromide (dibromoethane, 1,2-	35.1	0.2	ug/L	ND	87.8	60-130			
Hexane	30.7	1.0	ug/L	ND	76.8	60-130			
Methyl Ethyl Ketone (2-Butanone)	101	5.0	ug/L	ND	101	50-140			
Methyl Isobutyl Ketone	84.1	5.0	ug/L	ND	84.1	50-140			
Methyl tert-butyl ether	126	2.0	ug/L	ND	126	50-140			
Methylene Chloride	31.3	5.0	ug/L	ND	78.3	60-130			
Styrene	38.3	0.5	ug/L	ND	95.8	60-130			
1,1,1,2-Tetrachloroethane	39.8	0.5	ug/L	ND	99.6	60-130			
1,1,2,2-Tetrachloroethane	35.5	0.5	ug/L	ND	88.8	60-130			
Tetrachloroethylene	37.5	0.5	ug/L	ND	93.8	60-130			
Toluene	36.0	0.5	ug/L	ND	89.9	60-130			
1,1,1-Trichloroethane	34.9	0.5	ug/L	ND	87.3	60-130			
1,1,2-Trichloroethane	35.2	0.5	ug/L	ND	88.0	60-130			
Trichloroethylene	36.4	0.5	ug/L	ND	90.9	60-130			
Trichlorofluoromethane	37.6	1.0	ug/L	ND	93.9	60-130			
Vinyl chloride	37.4	0.5	ug/L	ND	93.5	50-140			
m,p-Xylenes	70.0	0.5	ug/L	ND	87.6	60-130			
o-Xylene	36.5	0.5	ug/L	ND	91.2	60-130			
Surrogate: 4-Bromofluorobenzene	*78.1*		*ug/L*		*97.6*	*50-140*			
Surrogate: Dibromofluoromethane	*78.5*		*ug/L*		*98.2*	*50-140*			
Surrogate: Toluene-d8	*76.6*		*ug/L*		*95.7*	*50-140*			
Benzene	32.0	0.5	ug/L	ND	79.9	60-130			
Ethylbenzene	34.6	0.5	ug/L	ND	86.6	60-130			
Toluene	36.0	0.5	ug/L	ND	89.9	60-130			
m,p-Xylenes	70.0	0.5	ug/L	ND	87.6	60-130			
o-Xylene	36.5	0.5	ug/L	ND	91.2	60-130			
Surrogate: Toluene-d8	*76.6*		*ug/L*		*95.7*	*50-140*			

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.
NC: Not Calculated

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.
- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD.

Paracel ID: 2221661

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2221661	№ 136729

Client Name: EXP Services Inc (Ottawa)
Contact Name: Chris Kimmerly
Address: 100-2650 Queensview Dr. Ottawa
Telephone: (613) 668 1899

Project Ref: OTT-00018293-05
Quote #: SOA City of Ottawa
PO #:
E-mail: chris.kimmerly@exp.com mark.devlin@exp.com

Page 1 of 1

Turnaround Time: ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Date Required:

☒ REG 153/04 ☐ REG 406/19

☐ Table 1 ☒ Res/Park ☒ Med/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☒ Table 3 ☐ Agri/Other
☐ Table
For RSC: ☐ Yes ☐ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

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

	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)	Required Analysis
1	MW14-8	BKT430	GW		2	May 19, 2022	2:00 pm		X						
2	MW15-2 (BR)	431	GW		2	May 19, 2022	4:00 pm		X						
3	MW15-1 (OB)	432/437	GW		4	May 19/20, 2022	1:00 PM/10:00	X		X					
4	MW1	433/438	GW		4	May 19/20, 2022	1:00 pm/10:00	X		X					
5	MW15-9 (OB)	434	GW		3	May 19, 2022	11:30 am	X							
6	MW14-7	435	GW		2	May 19, 2022	5:00 pm		X						
7	MW2	436	GW		2	May 19, 2022	5:30 pm		X						
8	TB	453				May 18									
9															
10															

Comments:

Method of Delivery: Walk in

Relinquished By (Sign): Mark Devlin
Relinquished By (Print): Mark Devlin
Date/Time: May 20, 2022/4:15 pm

Received By Driver/Depot:
Date/Time:
Temperature: °C

Received at Lab:
Date/Time: May 20/22 4:13 pm
Temperature: 9.1 °C

Verified By: BFam
Date/Time: May 21, 22 9:58
pH Verified: ☐ By:

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO:
Project: OTT00018293J5/1770 Heatherington
Custody: 137107

Report Date: 6-Jun-2022
Order Date: 27-May-2022

Order #: 2222451

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

Paracel ID	Client ID
2222451-01	MW15-2
2222451-02	MW20-2
2222451-03	MW15-9

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis

Report Date: 06-Jun-2022

Client: exp Services Inc. (Ottawa)

Order Date: 27-May-2022

Client PO:

Project Description: OTT00018293J5/1770 Heatherington

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	3-Jun-22	3-Jun-22
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	3-Jun-22	3-Jun-22

Certificate of Analysis

Report Date: 06-Jun-2022

Client: exp Services Inc. (Ottawa)

Order Date: 27-May-2022

Client PO:

Project Description: OTT00018293J5/1770 Heatherington

	Client ID:	MW15-2	MW20-2	MW15-9	-
	Sample Date:	27-May-22 13:30	27-May-22 13:45	27-May-22 14:00	-
	Sample ID:	2222451-01	2222451-02	2222451-03	-
	MDL/Units	Water	Water	Water	-
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	-	-
Benzene	0.5 ug/L	<0.5	<0.5	-	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	-	-
Bromoform	0.5 ug/L	<0.5	<0.5	-	-
Bromomethane	0.5 ug/L	<0.5	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	-	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
Chloroform	0.5 ug/L	<0.5	<0.5	-	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	<0.2	-	-
Hexane	1.0 ug/L	<1.0	<1.0	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	-	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	-	-
Styrene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-

Certificate of Analysis

Report Date: 06-Jun-2022

Client: exp Services Inc. (Ottawa)

Order Date: 27-May-2022

Client PO:

Project Description: OTT00018293J5/1770 Heatherington

	Client ID:	MW15-2	MW20-2	MW15-9	-
	Sample Date:	27-May-22 13:30	27-May-22 13:45	27-May-22 14:00	-
	Sample ID:	2222451-01	2222451-02	2222451-03	-
	MDL/Units	Water	Water	Water	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	-	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	-	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-
4-Bromofluorobenzene	Surrogate	106%	107%	-	-
Dibromofluoromethane	Surrogate	106%	103%	-	-
Toluene-d8	Surrogate	98.4%	97.8%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	-	-	<25	-

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						
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						
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	*84.5*		*ug/L*		*106*	*50-140*			
Surrogate: Dibromofluoromethane	*78.2*		*ug/L*		*97.8*	*50-140*			
Surrogate: Toluene-d8	*80.3*		*ug/L*		*100*	*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			NC	30	
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	3.42	0.5	ug/L	4.61			29.6	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	7.59	0.5	ug/L	10.4			31.5	30	QR-07
Dibromochloromethane	0.86	0.5	ug/L	1.31			41.5	30	QR-07
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	*82.2*		*ug/L*		*103*	*50-140*			
Surrogate: Dibromofluoromethane	*77.7*		*ug/L*		*97.1*	*50-140*			
Surrogate: Toluene-d8	*78.9*		*ug/L*		*98.6*	*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)	1800	25	ug/L	ND	90.0	68-117			
Volatiles									
Acetone	72.7	5.0	ug/L	ND	72.7	50-140			
Benzene	29.6	0.5	ug/L	ND	74.1	60-130			
Bromodichloromethane	40.6	0.5	ug/L	ND	102	60-130			
Bromoform	31.8	0.5	ug/L	ND	79.5	60-130			
Bromomethane	34.8	0.5	ug/L	ND	87.1	50-140			
Carbon Tetrachloride	31.7	0.2	ug/L	ND	79.2	60-130			
Chlorobenzene	31.5	0.5	ug/L	ND	78.8	60-130			
Chloroform	40.7	0.5	ug/L	ND	102	60-130			
Dibromochloromethane	29.3	0.5	ug/L	ND	73.2	60-130			
Dichlorodifluoromethane	34.2	1.0	ug/L	ND	85.4	50-140			
1,2-Dichlorobenzene	30.1	0.5	ug/L	ND	75.3	60-130			
1,3-Dichlorobenzene	32.5	0.5	ug/L	ND	81.3	60-130			
1,4-Dichlorobenzene	29.7	0.5	ug/L	ND	74.3	60-130			
1,1-Dichloroethane	33.5	0.5	ug/L	ND	83.8	60-130			
1,2-Dichloroethane	30.2	0.5	ug/L	ND	75.4	60-130			
1,1-Dichloroethylene	42.5	0.5	ug/L	ND	106	60-130			
cis-1,2-Dichloroethylene	31.4	0.5	ug/L	ND	78.5	60-130			
trans-1,2-Dichloroethylene	29.6	0.5	ug/L	ND	74.0	60-130			
1,2-Dichloropropane	31.6	0.5	ug/L	ND	79.1	60-130			
cis-1,3-Dichloropropylene	40.9	0.5	ug/L	ND	102	60-130			
trans-1,3-Dichloropropylene	37.2	0.5	ug/L	ND	93.0	60-130			
Ethylbenzene	30.6	0.5	ug/L	ND	76.5	60-130			
Ethylene dibromide (dibromoethane, 1,2	36.2	0.2	ug/L	ND	90.5	60-130			
Hexane	42.6	1.0	ug/L	ND	107	60-130			
Methyl Ethyl Ketone (2-Butanone)	74.6	5.0	ug/L	ND	74.6	50-140			
Methyl Isobutyl Ketone	80.9	5.0	ug/L	ND	80.9	50-140			
Methyl tert-butyl ether	70.5	2.0	ug/L	ND	70.5	50-140			
Methylene Chloride	32.5	5.0	ug/L	ND	81.2	60-130			
Styrene	31.5	0.5	ug/L	ND	78.8	60-130			
1,1,1,2-Tetrachloroethane	31.3	0.5	ug/L	ND	78.3	60-130			
1,1,2,2-Tetrachloroethane	40.9	0.5	ug/L	ND	102	60-130			
Tetrachloroethylene	32.0	0.5	ug/L	ND	79.9	60-130			
Toluene	30.6	0.5	ug/L	ND	76.4	60-130			
1,1,1-Trichloroethane	38.0	0.5	ug/L	ND	94.9	60-130			
1,1,2-Trichloroethane	37.6	0.5	ug/L	ND	94.0	60-130			
Trichloroethylene	32.7	0.5	ug/L	ND	81.8	60-130			
Trichlorofluoromethane	34.3	1.0	ug/L	ND	85.8	60-130			
Vinyl chloride	37.6	0.5	ug/L	ND	94.0	50-140			
m,p-Xylenes	59.2	0.5	ug/L	ND	74.0	60-130			
o-Xylene	30.1	0.5	ug/L	ND	75.2	60-130			
Surrogate: 4-Bromofluorobenzene	*83.1*		*ug/L*		*104*	*50-140*			
Surrogate: Dibromofluoromethane	*88.4*		*ug/L*		*110*	*50-140*			
Surrogate: Toluene-d8	*77.6*		*ug/L*		*97.1*	*50-140*			

Qualifier Notes:

QC Qualifiers :

QR-07 : Duplicate result exceeds RPD limits due to non-homogeneity between multiple sample vials. Remainder of QA/QC is acceptable.

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.
NC: Not Calculated

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.
- When reported, data for F4G has been processed using a silica gel cleanup.

PARAC LABORATORIES

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222247	Nº 137107

Client Name: EXP Services Inc.
Contact Name: Chris Kimmerly
Address: 2650 Queensview Dr.
Telephone: 613 6881899

Project Ref: OTT-00018293-J5
Quote #: City of Ottawa SoA (Vahid Arasteh)
PO #: 30820-91843
E-mail: chris.kimmerly@exp.com

Page 1 of 1

Turnaround Time
☐ 1 day ☐ 3 day
☐ 2 day ☒ Regular
Date Required:

☐ REG 153/04 ☐ REG 406/19

Table 1 ☐ Res/Park ☒ Med/Fine
Table 2 ☒ Ind/Comm ☐ Coarse
☒ Table 3 ☐ Agri/Other
☐ Table
For RSC: ☐ Yes ☐ No

Other Regulation
☐ REG 558 ☐ PWQO
☐ CCME ☐ MISA
☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

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

Required Analysis: PHCs F1-F4+BTEX; VOCs; PAHs; Metals by ICP; Hg; CrVI; B (HWS)

	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	MW15-2 BKT 486	GW		2	2022/05/27	13:30		X					
2	MW20-2 487	↓		↓	↓	13:45		X					
3	MW15-9 488	↓		↓	↓	14:00		X					
4													
5													
6													
7													
8													
9													
10													

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Jeremy Eckat	Date/Time:	Date/Time: May 27 2022 1500	Date/Time: May 27 2022
Date/Time: 2022/05/27 14:30	Temperature: °C	Temperature: 7.5 °C	pH Verified: ☐ By: 1534

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Certificate of Analysis

exp Services Inc. (Ottawa)

100-2650 Queensview Dr.
Ottawa, ON K2B 8K2
Attn: Chris Kimmerly

Client PO:
Project: OTT00018293J5/1770 Heatherington
Custody: 61318

Report Date: 19-Jul-2022
Order Date: 5-Jul-2022

Order #: 2228358

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

Paracel ID	Client ID
2228358-01	TP30-A-G1
2228358-02	TP30-B-G1
2228358-03	TP30-C-G1
2228358-04	BH22-1-G2
2228358-05	BH22-2-G1
2228358-06	BH22-3-G2
2228358-07	BH-22-4-G1

Approved By:

Dale Robertson, BSc
Laboratory Director

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

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	18-Jul-22	18-Jul-22
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	6-Jul-22	9-Jul-22
Solids, %	Gravimetric, calculation	11-Jul-22	11-Jul-22

Certificate of Analysis

Report Date: 19-Jul-2022

Client: exp Services Inc. (Ottawa)

Order Date: 5-Jul-2022

Client PO:

Project Description: OTT00018293J5/1770 Heatherington

	Client ID:	TP30-A-G1	TP30-B-G1	TP30-C-G1	BH22-1-G2
	Sample Date:	20-May-22 09:00	20-May-22 09:00	20-May-22 09:00	20-May-22 09:00
	Sample ID:	2228358-01	2228358-02	2228358-03	2228358-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	71.5	71.3	79.5	81.2
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Arsenic	1.0 ug/g dry	2.5	2.8	2.5	-
Barium	1.0 ug/g dry	290	271	332	-
Beryllium	0.5 ug/g dry	0.9	0.9	1.0	-
Boron	5.0 ug/g dry	<5.0	<5.0	<5.0	-
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	-
Chromium	5.0 ug/g dry	102	87.5	94.9	-
Cobalt	1.0 ug/g dry	16.4	18.0	18.4	-
Copper	5.0 ug/g dry	29.6	28.7	31.6	-
Lead	1.0 ug/g dry	6.6	10.3	6.7	-
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Nickel	5.0 ug/g dry	44.6	46.4	47.5	-
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	-
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Uranium	1.0 ug/g dry	1.5	<1.0	1.1	-
Vanadium	10.0 ug/g dry	86.1	81.2	87.0	-
Zinc	20.0 ug/g dry	117	98.7	121	-
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: 19-Jul-2022

Client: exp Services Inc. (Ottawa)

Order Date: 5-Jul-2022

Client PO:

Project Description: OTT00018293J5/1770 Heatherington

	Client ID:	TP30-A-G1	TP30-B-G1	TP30-C-G1	BH22-1-G2
	Sample Date:	20-May-22 09:00	20-May-22 09:00	20-May-22 09:00	20-May-22 09:00
	Sample ID:	2228358-01	2228358-02	2228358-03	2228358-04
	MDL/Units	Soil	Soil	Soil	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	-	-	-	76.6%
Terphenyl-d14	Surrogate	-	-	-	93.8%

	Client ID:	BH22-2-G1	BH22-3-G2	BH-22-4-G1	-
	Sample Date:	20-May-22 09:00	20-May-22 09:00	20-May-22 09:00	-
	Sample ID:	2228358-05	2228358-06	2228358-07	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	87.8	81.9	82.1	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Acenaphthylene	0.02 ug/g dry	0.03	0.03	<0.02	-
Anthracene	0.02 ug/g dry	0.03	0.03	<0.02	-
Benzo [a] anthracene	0.02 ug/g dry	0.04	0.05	0.03	-
Benzo [a] pyrene	0.02 ug/g dry	0.05	0.07	0.04	-
Benzo [b] fluoranthene	0.02 ug/g dry	0.05	0.05	0.04	-
Benzo [g,h,i] perylene	0.02 ug/g dry	0.03	0.04	0.03	-
Benzo [k] fluoranthene	0.02 ug/g dry	0.03	0.02	0.02	-
Chrysene	0.02 ug/g dry	0.06	0.08	0.04	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Fluoranthene	0.02 ug/g dry	0.10	0.12	0.06	-
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.03	0.04	0.02	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	-
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	-
Phenanthrene	0.02 ug/g dry	0.03	0.04	0.03	-
Pyrene	0.02 ug/g dry	0.08	0.10	0.05	-
2-Fluorobiphenyl	Surrogate	101%	96.4%	109%	-
Terphenyl-d14	Surrogate	107%	95.9%	104%	-

Certificate of Analysis

Report Date: 19-Jul-2022

Client: exp Services Inc. (Ottawa)

Order Date: 5-Jul-2022

Client PO:

Project Description: OTT00018293J5/1770 Heatherington

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.20*		*ug/g*		*90.0*	*50-140*			
Surrogate: Terphenyl-d14	*1.41*		*ug/g*		*106*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	1.7	1.0	ug/g	2.1			25.5	30	
Arsenic	5.0	1.0	ug/g	6.2			20.7	30	
Barium	92.7	1.0	ug/g	115			21.5	30	
Beryllium	0.5	0.5	ug/g	0.6			21.5	30	
Boron	12.9	5.0	ug/g	13.1			1.9	30	
Cadmium	1.6	0.5	ug/g	2.0			26.7	30	
Chromium	19.7	5.0	ug/g	22.5			13.2	30	
Cobalt	5.9	1.0	ug/g	6.8			13.8	30	
Copper	124	5.0	ug/g	157			23.4	30	
Lead	74.9	1.0	ug/g	84.2			11.8	30	
Molybdenum	ND	1.0	ug/g	ND			NC	30	
Nickel	15.2	5.0	ug/g	17.6			14.3	30	
Selenium	ND	1.0	ug/g	ND			NC	30	
Silver	ND	0.3	ug/g	ND			NC	30	
Thallium	ND	1.0	ug/g	ND			NC	30	
Uranium	ND	1.0	ug/g	ND			NC	30	
Vanadium	25.5	10.0	ug/g	29.7			15.2	30	
Zinc	331	20.0	ug/g	378			13.2	30	
Physical Characteristics									
% Solids	76.2	0.1	% by Wt.	75.7			0.8	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g	ND			NC	40	
Anthracene	0.028	0.02	ug/g	ND			NC	40	
Benzo [a] anthracene	0.072	0.02	ug/g	0.042			NC	40	
Benzo [a] pyrene	0.092	0.02	ug/g	0.047			NC	40	
Benzo [b] fluoranthene	0.093	0.02	ug/g	0.046			NC	40	
Benzo [g,h,i] perylene	0.084	0.02	ug/g	0.029			NC	40	
Benzo [k] fluoranthene	0.037	0.02	ug/g	ND			NC	40	
Chrysene	0.091	0.02	ug/g	0.056			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g	ND			NC	40	
Fluoranthene	0.217	0.02	ug/g	0.152			35.0	40	
Fluorene	0.024	0.02	ug/g	ND			NC	40	
Indeno [1,2,3-cd] pyrene	0.060	0.02	ug/g	0.021			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
Naphthalene	0.010	0.01	ug/g	ND			NC	40	
Phenanthrene	0.100	0.02	ug/g	0.051			NC	40	
Pyrene	0.157	0.02	ug/g	0.123			24.4	40	
Surrogate: 2-Fluorobiphenyl	*2.01*		*ug/g*		*105*	*50-140*			
Surrogate: Terphenyl-d14	*1.71*		*ug/g*		*89.2*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Metals									
Antimony	35.3	1.0	ug/g	ND	70.6	70-130			
Arsenic	52.1	1.0	ug/g	2.5	99.2	70-130			
Barium	66.9	1.0	ug/g	20.0	94.0	70-130			
Beryllium	53.9	0.5	ug/g	ND	107	70-130			
Boron	55.6	5.0	ug/g	5.2	101	70-130			
Cadmium	37.9	0.5	ug/g	0.8	74.2	70-130			
Chromium	61.3	5.0	ug/g	9.0	105	70-130			
Cobalt	53.5	1.0	ug/g	2.7	102	70-130			
Copper	96.1	5.0	ug/g	62.8	66.5	70-130			QM-07
Lead	81.5	1.0	ug/g	33.7	95.7	70-130			
Molybdenum	49.4	1.0	ug/g	ND	98.0	70-130			
Nickel	55.8	5.0	ug/g	7.0	97.5	70-130			
Selenium	46.7	1.0	ug/g	ND	92.9	70-130			
Silver	38.0	0.3	ug/g	ND	75.7	70-130			
Thallium	39.6	1.0	ug/g	ND	79.1	70-130			
Uranium	56.7	1.0	ug/g	ND	113	70-130			
Vanadium	64.1	10.0	ug/g	11.9	105	70-130			
Zinc	71.3	20.0	ug/g	23.3	96.0	70-130			
Semi-Volatiles									
Acenaphthene	0.217	0.02	ug/g	ND	90.7	50-140			
Acenaphthylene	0.212	0.02	ug/g	ND	88.8	50-140			
Anthracene	0.260	0.02	ug/g	ND	109	50-140			
Benzo [a] anthracene	0.271	0.02	ug/g	0.042	95.6	50-140			
Benzo [a] pyrene	0.294	0.02	ug/g	0.047	103	50-140			
Benzo [b] fluoranthene	0.565	0.02	ug/g	0.046	217	50-140			QM-06
Benzo [g,h,i] perylene	0.229	0.02	ug/g	0.029	83.7	50-140			
Benzo [k] fluoranthene	0.471	0.02	ug/g	ND	197	50-140			QM-06
Chrysene	0.303	0.02	ug/g	0.056	103	50-140			
Dibenzo [a,h] anthracene	0.204	0.02	ug/g	ND	85.4	50-140			
Fluoranthene	0.353	0.02	ug/g	0.152	83.9	50-140			
Fluorene	0.226	0.02	ug/g	ND	94.7	50-140			
Indeno [1,2,3-cd] pyrene	0.209	0.02	ug/g	0.021	78.6	50-140			
1-Methylnaphthalene	0.193	0.02	ug/g	ND	80.6	50-140			
2-Methylnaphthalene	0.226	0.02	ug/g	ND	94.6	50-140			
Naphthalene	0.206	0.01	ug/g	ND	86.2	50-140			
Phenanthrene	0.288	0.02	ug/g	0.051	98.8	50-140			
Pyrene	0.334	0.02	ug/g	0.123	88.4	50-140			
Surrogate: 2-Fluorobiphenyl	*1.71*		*ug/g*		*89.5*	*50-140*			
Surrogate: Terphenyl-d14	*2.01*		*ug/g*		*105*	*50-140*			

Qualifier Notes:

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.

QM-07 : The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.

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.
NC: Not Calculated

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.

Paracel ID: 2228358

PARA LABORATORIES

Office
319 St. Laurent Blvd.
a, Ontario K1G 4J8
00-749-1947
acel@paracellabs.com
aracellabs.com

Paracel Order Number (Lab Use Only): 2228358

Chain Of Custody (Lab Use Only) No. 61318

Client Name: EXP Services Inc	Project Ref: OTT-00018293-I5
Contact Name: Chris Kimmerly	Quote #: SOA City of Ottawa Att: Vahid Arastah.
Address: 2650 Queensview Dr Ottawa Ont	PO #: 30820-9184350l
Telephone: 613-688-1899	E-mail: chris.kimmerly@exp.com

Page 1 of 1

Turnaround Time: ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular

Date Required:

☒ REG 153/04 ☐ REG 406/19

☒ Table 1 ☐ Res/Park ☐ Med/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other
☐ Table

For RSC: ☐ Yes ☐ No

Other Regulation: ☐ REG.558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm ☐ Mun: ☐ Other:

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

	Sample ID/Location Name		Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analysis: Reg 153 metals	Required Analysis: PAH
1	TP30-A-G1	BKT860	S		1	May 20	AM	✓	
2	TP30-B-G1	861	S		1	May 20	AM	✓	
3	TP30-C-G1	862	S		1	May 20	AM	✓	
4	BH22-1-G2	863	S		1	May 20	AM		✓
5	BH22-2-G1	864	S		1	May 20	AM		✓
6	BH22-3-G2	865	S		1	May 20	AM		✓
7	BH-22-4-G1	866	S		1	May 20	AM		✓
8									
9									
10									

Comments:

Method of Delivery: PARACEL COURIER

Relinquished By (Sign): Chris Kimmerly	Received By Driver/Depot: M. Tessier	Received at Lab: Sunreepan Dhamrait	Verified By:
Relinquished By (Print): Chris Kimmerly	Date/Time: 05/07/22 2:00	Date/Time: JUL 05, 2022 02.30	Date/Time: Jul 7/22 8:40
Date/Time: July 5, 2022 1:15pm	Temperature: °C	Temperature: 15.9 °C	pH Verified: ☐ By:

Chain of Custody (Blank).xlsx

Revision 4.0

Appendix H:
Grain Size Analysis Results

APPENDIX H: RATIONALE FOR SOIL TEXTURE SELECTION

Based on the subsurface investigations completed at the Site, the site stratigraphy is generally described as consisting of a surficial sand and gravel fill and re-worked native material which overlies the native soil overburden consisting of native silty clay and clay, becoming sandier with depth over a gravelly silty clay till layer. Weathered shale bedrock can be found beneath the native soils. It should be noted that the stratigraphy and depth to bedrock at the site was only derived based on the boreholes/monitoring wells installed by EXP.

Two (2) historical grain size samples were collected from the Site by EXP in August of 2015, in support of the Phase Two ESA investigative activities. Sample BH/MW15-9 SS1 and BH/MW15-5 SS4 were collected from the footprints of remedial excavation Pit No. 4 and Pit No. 2, respectively.

A total of six (6) soil samples analyzed for grain size were collected from the Site during the field work conducted in May 2022. Based on the 75-micron sieve of representative soil, the soil texture of the analyzed samples was determined to be predominantly medium and fine textured (refer to the 75-micron sieve analysis in the Certificates of Analysis – Appendix Q). More than 50% by mass of five (5) of the eight (8) total samples analyzed for soil texture, consisted of particle sizes less than 75 µm in diameter. Based on the observations recorded in the borehole logs and the cumulative grain size results for the Site, the soil texture at the Site was determined to be predominately medium and fine textured.

Based on the observations made during previous drilling investigations and the results of the grain size analysis, as per Section 42 of O. Reg. 153/04, the QPESA has determined that more than 1/3 of the soil at the property, measured by volume, consists of medium and fine textured soil and hence standards for medium and fine textured soil at the property are applicable.

As per Section 42 of O. Reg. 153/04, coarse textured soil means soil that contains more than 50 percent by mass of particles that are 75 µm or larger in mean diameter and medium and fine textured soil means soil that contains 50 percent or more by mass of particles that are smaller than 75 µm in mean diameter.

Please refer to Table H-1, below for a summary of grain size sample location, depth and sample description. Please refer to Figure 5B for a graphical depiction of the borehole locations sampled for grain size analysis at the Site.

Table H-1: Grain Size Analyses

Sample ID	Sampling Interval	Sampling Interval (m bgs)	Soil Description	Classification
BH/MW15-9	SS1	0.0 - 0.76	Silty Clay, trace sand	Fine Grained
BH/MW15-5	SS4	2.29 - 2.9	Silty Clay, trace sand	Coarse Grained
BH22-1	G2	0.9 – 1.1	Sandy Silt & Clay	Fine Grained
BH22-1	G3	1.2 – 1.4	Silt & Clay	Fine Grained
BH22-2B	G1	0.5 - 0.9	Silty Sand	Coarse Grained
BH22-3	G2	0.7 – 0.9	Silty Sand	Coarse Grained

BH22-3	G3	1.0 – 1.4	Silt & Clay	Fine Grained
BH22-3	G4	2.0 – 2.5	Silt & Clay	Fine Grained

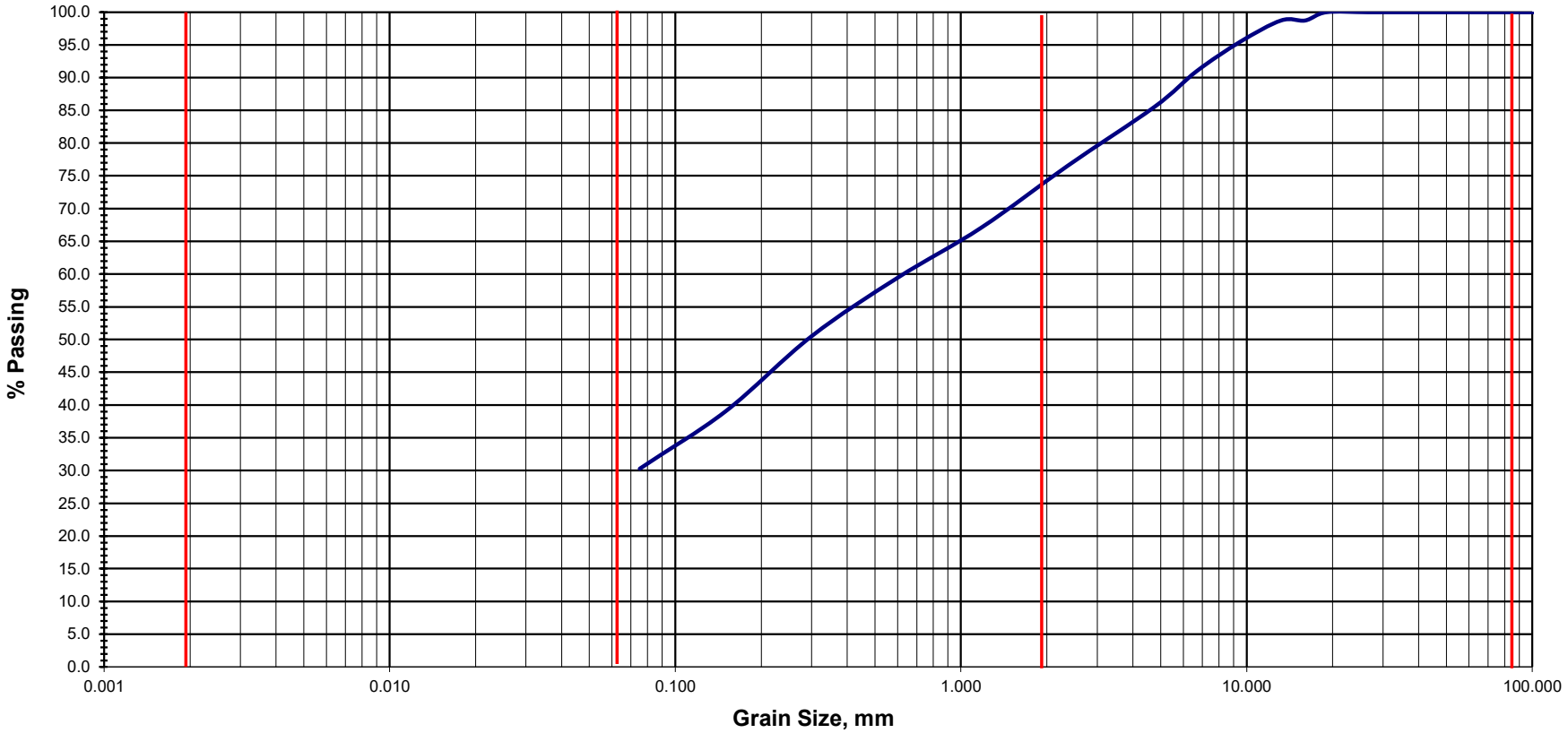
SS – Split Spoon
G – Grab Sample

Exp. Services Inc.
2650 Queensvie Drive - Unit 100
Ottawa, ON K2B 8H6

Method of Test for Sieve Analysis of Aggregate

MTO Test Method LS - 602, Rev. No. 23

Grain Size Distribution Curve



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	SILT			SAND			GRAVEL			
Modified M.I.T. Classification										

exp Project No.:	OTT-18293-J5	Project Name :	Finalization of RA and RSC Close out			
Client :	City of Ottawa	Project Location :	1770 Heatherington rd, Ottawa			
Date Sampled :		Borehole/MW #	15-5 SS4	% Pass 75 um	30.3	Fine Grained	
Sample Description :	Silty Clay, trace sand					Coarse Grained	x

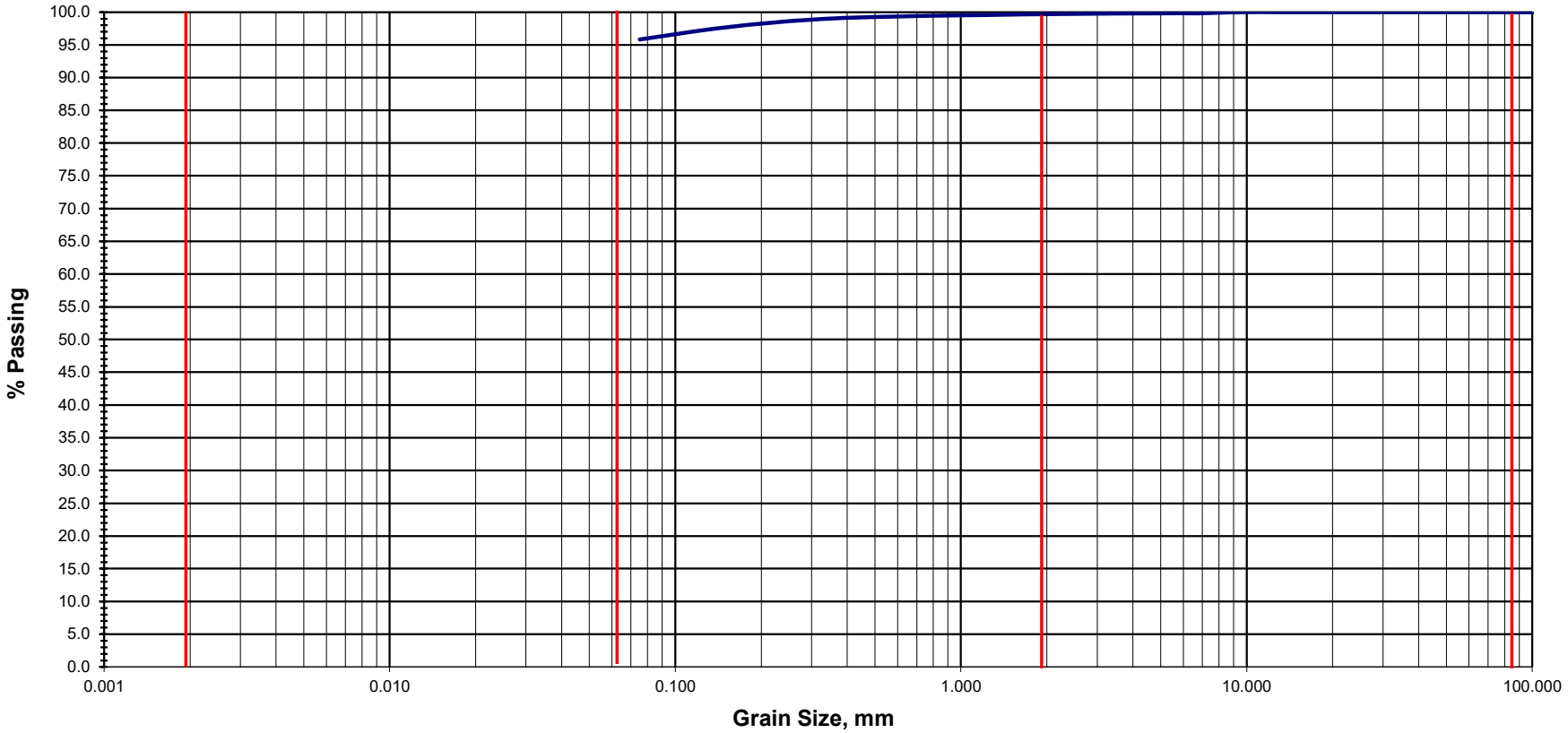
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Exp. Services Inc.
2650 Queensvie Drive - Unit 100
Ottawa, ON K2B 8H6

Method of Test for Sieve Analysis of Aggregate

MTO Test Method LS - 602, Rev. No. 23

Grain Size Distribution Curve



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	SILT			SAND			GRAVEL			
Modified M.I.T. Classification										

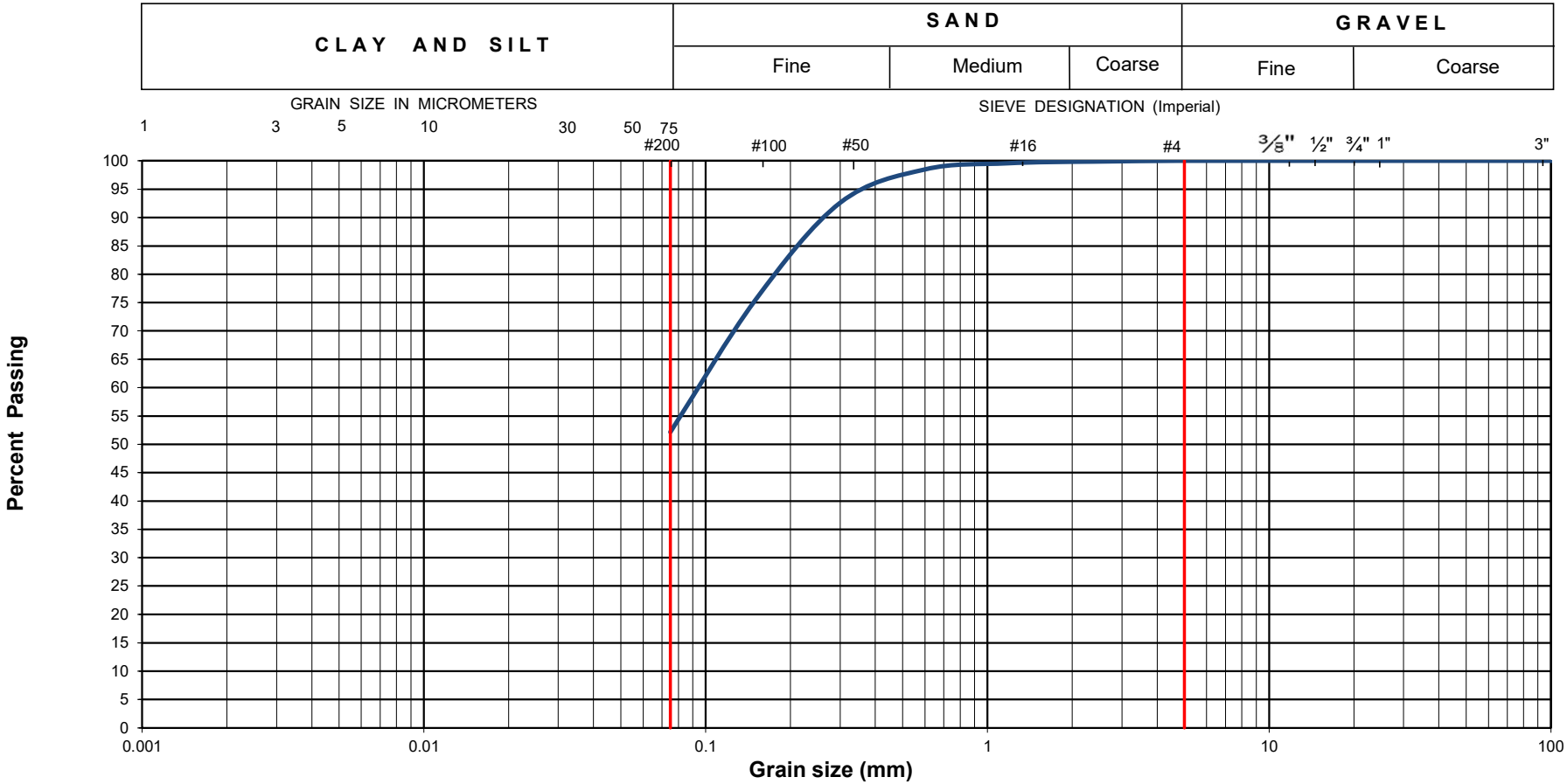
exp Project No.:	OTT-18293-J5	Project Name :	Finalization of RA and RSC Close out			
Client :	City of Ottawa	Project Location :	1770 Heatherington rd, Ottawa			
Date Sampled :		Borehole/MW #	15-9 SS1	% Pass 75 um	95.8	Fine Grained	x
Sample Description :		Silty Clay, trace sand				Coarse Grained	

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EXP Services Inc.
100-2650 Queensview Drive
Ottawa, ON K2B 8H6

Grain-Size Distribution Curve
Method of Test For Sieve Analysis of Aggregate
ASTM C-136

Unified Soil Classification System

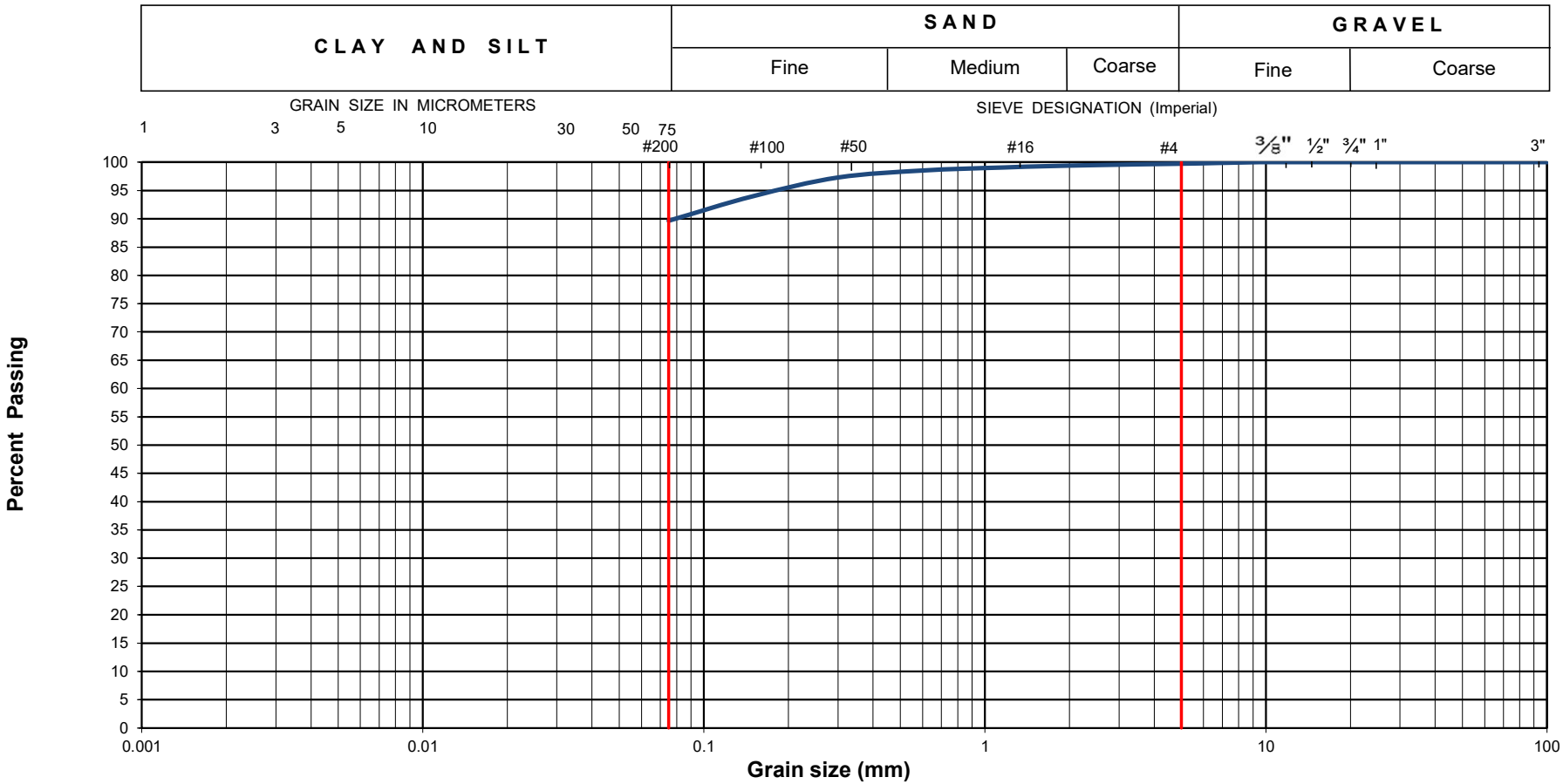


EXP Project No.:	**OTT-00018293-J5**	**Project Name :**	**Phase II Enivronmental Site Assessment**				
Client :	**City of Ottawa**	**Project Location :**	**1770 Heatherington Road, Ottawa, Ontario**				
Date Sampled :	**May 20, 2022**	**Borehole No:**	**BH22-1**	**Sample:**	**G2**	**Depth (m) :**	**0.9-1.1**
Sample Composition :		**Gravel (%)**	**0**	**Sand (%)**	**48**	**Silt & Clay (%)**	**52**
Sample Description :		**Sandy Silt & Clay**				**Figure :**	**xxx**

EXP Services Inc.
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Ottawa, ON K2B 8H6

Grain-Size Distribution Curve
Method of Test For Sieve Analysis of Aggregate
ASTM C-136

Unified Soil Classification System

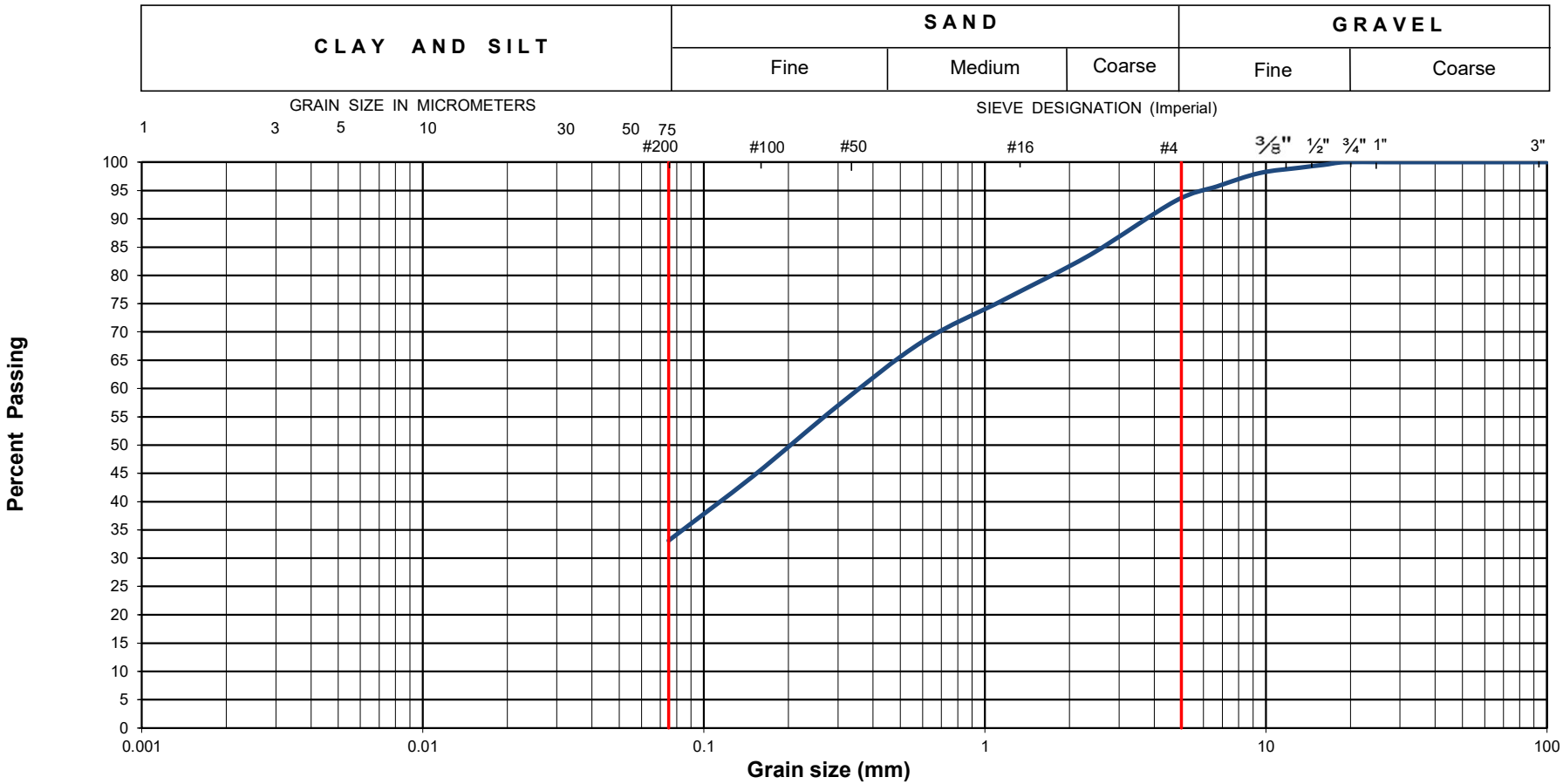


EXP Project No.:	**OTT-00018293-J5**	**Project Name :**	**Phase II Enivronmental Site Assessment**				
Client :	**City of Ottawa**	**Project Location :**	**1770 Heatherington Road, Ottawa, Ontario**				
Date Sampled :	**May 20, 2022**	**Borehole No:**	**BH22-1**	**Sample:**	**G3**	**Depth (m) :**	**1.2-1.4**
Sample Composition :		**Gravel (%)**	**0**	**Sand (%)**	**10**	**Silt & Clay (%)**	**90**
Sample Description :		**Silt & Clay**				**Figure :**	**xxx**

EXP Services Inc.
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Grain-Size Distribution Curve
Method of Test For Sieve Analysis of Aggregate
ASTM C-136

Unified Soil Classification System

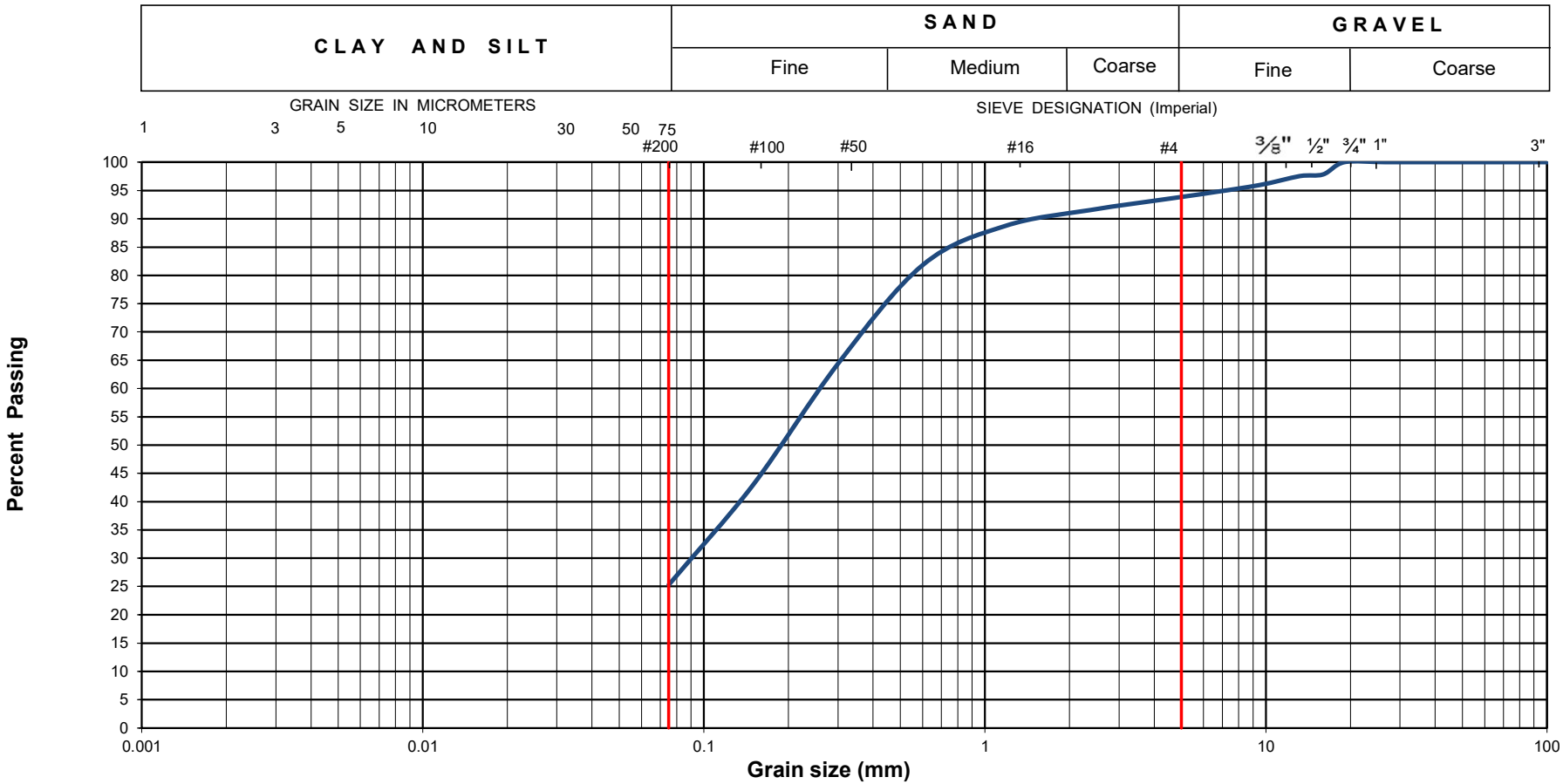


EXP Project No.:	**OTT-00018293-J5**	**Project Name :**	**Phase II Enivronmental Site Assessment**				
Client :	**City of Ottawa**	**Project Location :**	**1770 Heatherington Road, Ottawa, Ontario**				
Date Sampled :	**May 20, 2022**	**Borehole No:**	**BH22-2B**	**Sample:**	**G1**	**Depth (m) :**	**0.5-0.9**
Sample Composition :		**Gravel (%)**	**7**	**Sand (%)**	**60**	**Silt & Clay (%)**	**33**
Sample Description :		**Silty Sand (SM)**				**Figure :**	**xxx**

EXP Services Inc.
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Ottawa, ON K2B 8H6

Grain-Size Distribution Curve
Method of Test For Sieve Analysis of Aggregate
ASTM C-136

Unified Soil Classification System

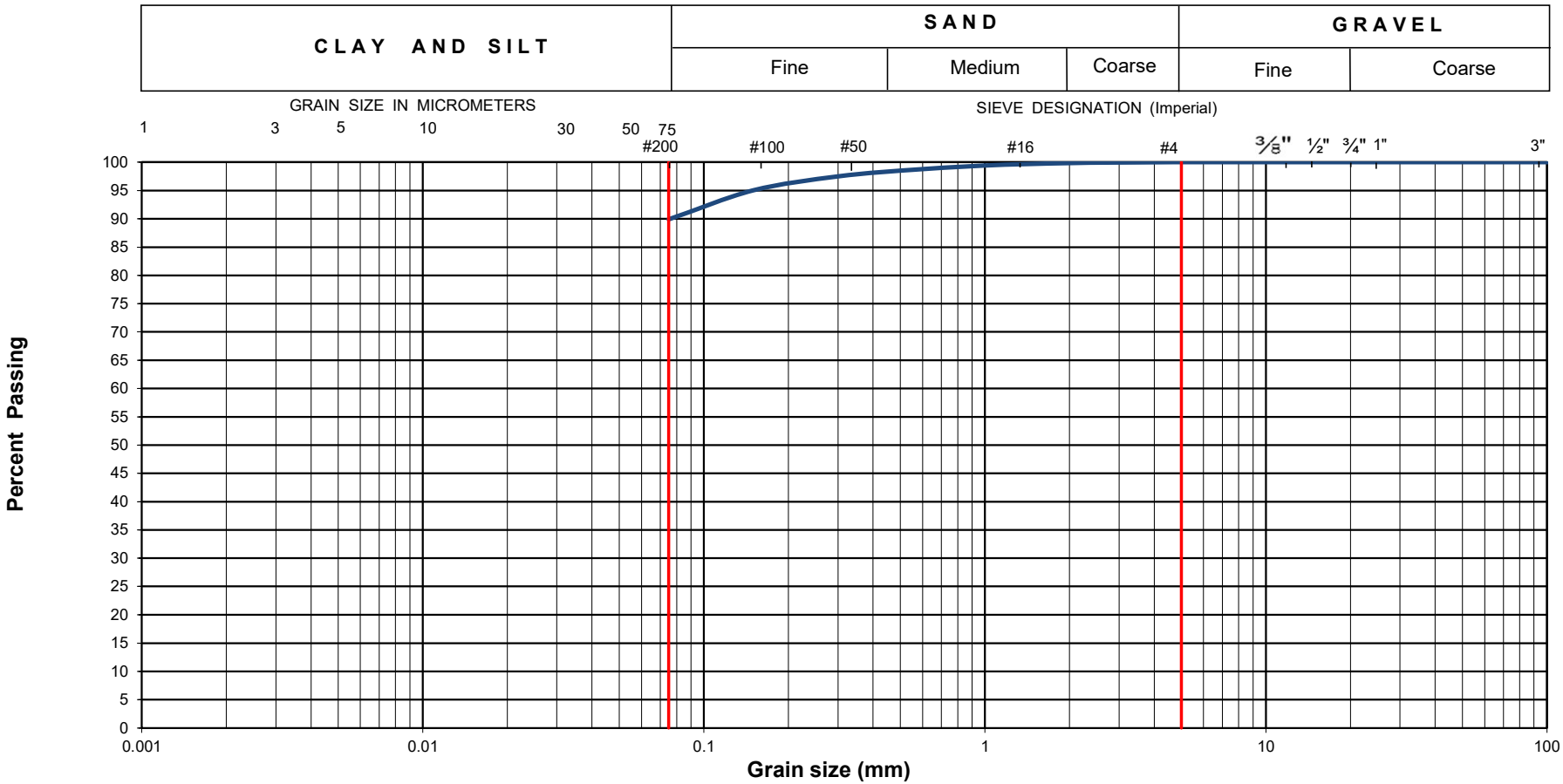


EXP Project No.:	**OTT-00018293-J5**	**Project Name :**	**Phase II Enivronmental Site Assessment**				
Client :	**City of Ottawa**	**Project Location :**	**1770 Heatherington Road, Ottawa, Ontario**				
Date Sampled :	**May 20, 2022**	**Borehole No:**	**BH22-3**	**Sample:**	**G2**	**Depth (m) :**	**0.7-0.9**
Sample Composition :		**Gravel (%)**	**6**	**Sand (%)**	**69**	**Silt & Clay (%)**	**25**
Sample Description :		**Silty Sand (SM)**				**Figure :**	**xxx**

EXP Services Inc.
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Ottawa, ON K2B 8H6

Grain-Size Distribution Curve
Method of Test For Sieve Analysis of Aggregate
ASTM C-136

Unified Soil Classification System

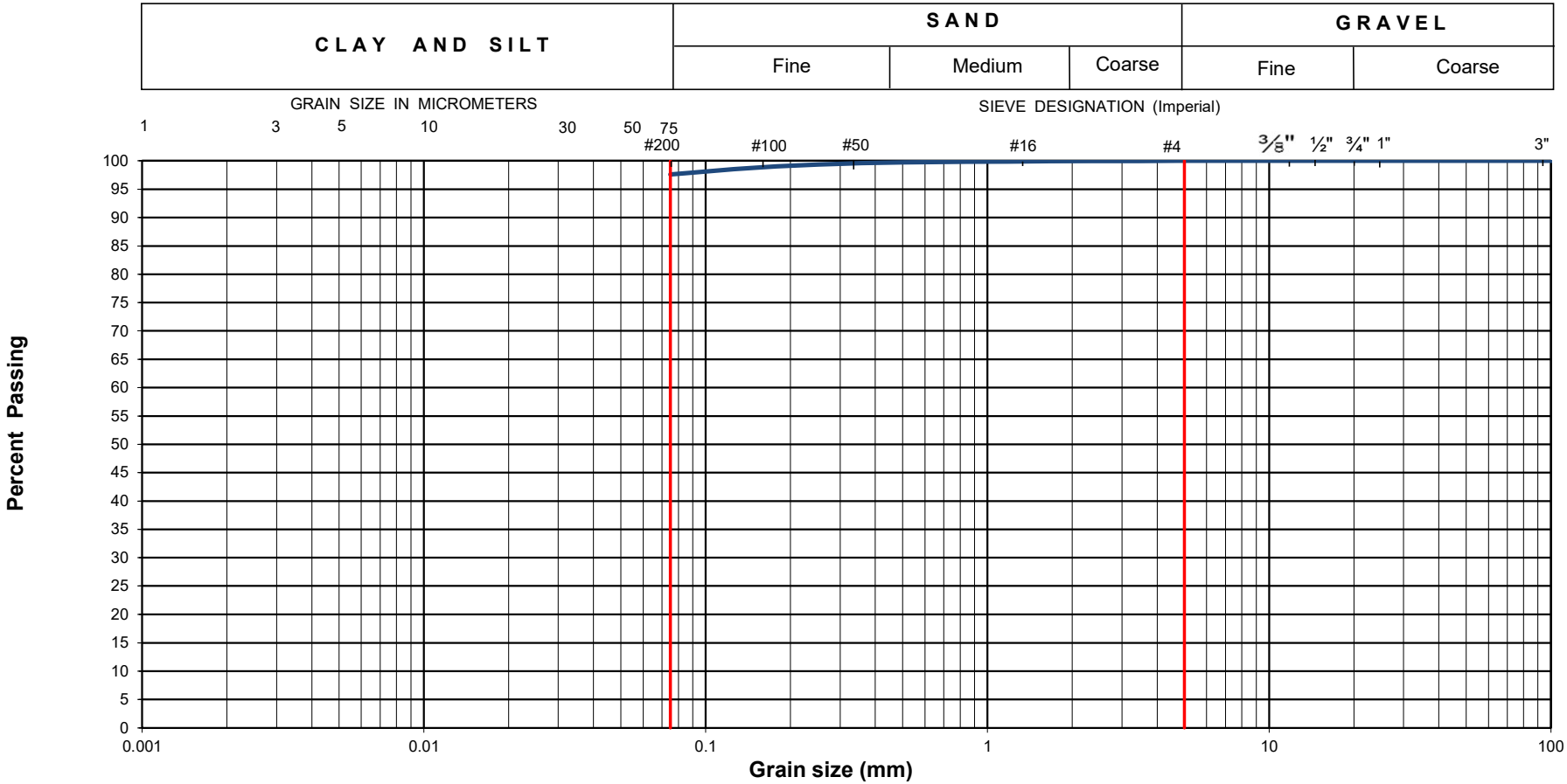


EXP Project No.:	**OTT-00018293-J5**	**Project Name :**	**Phase II Enivronmental Site Assessment**				
Client :	**City of Ottawa**	**Project Location :**	**1770 Heatherington Road, Ottawa, Ontario**				
Date Sampled :	**May 20, 2022**	**Borehole No:**	**BH22-3**	**Sample:**	**G3**	**Depth (m) :**	**1.0-1.4**
Sample Composition :		**Gravel (%)**	**0**	**Sand (%)**	**10**	**Silt & Clay (%)**	**90**
Sample Description :		**Silt & Clay**				**Figure :**	**xxx**

EXP Services Inc.
100-2650 Queensview Drive
Ottawa, ON K2B 8H6

Grain-Size Distribution Curve
Method of Test For Sieve Analysis of Aggregate
ASTM C-136

Unified Soil Classification System



EXP Project No.:	**OTT-00018293-J5**	**Project Name :**	**Phase II Enivronmental Site Assessment**				
Client :	**City of Ottawa**	**Project Location :**	**1770 Heatherington Road, Ottawa, Ontario**				
Date Sampled :	**May 20, 2022**	**Borehole No:**	**BH22-3**	**Sample:**	**G4**	**Depth (m) :**	**2.0-2.5**
Sample Composition :		**Gravel (%)**	**0**	**Sand (%)**	**2**	**Silt & Clay (%)**	**98**
Sample Description :		**Silt & Clay**				**Figure :**	**xxx**

Appendix I:
Monitoring Well Details and Slug Test Results

Surveying Elevations - PIIESA Update 2021
1770 Heatherington Road, Ottawa
OTT-00018293-J5
February 2021

(All units are in metres inless otherwise specified)

Survey of 2021 wells was completed by EXP using a Leica GPS Surveyor, well elevations were corrected from assumed elevation to geodetic. Using geodetic suvey values from February 2021, the average difference was calculated and subtracted from the assumed elevations.

Site ID	Position	Geodetic Elevevation	TOC	DTW (TOC)									DTB (TOC)	Casing Diameter (mm)	Groundwater Elevation								
				15/Aug/15	20/Jun/16	4/Aug/19	1/Jul/20	28/Jan/21	8/Feb/21	11/Feb/21	12/Feb/21	19/Feb/21			15/Aug/15	20/Jun/16	4/Aug/19	1/Jul/20	28/Jan/21	8/Feb/21	11/Feb/21	12/Feb/21	19/Feb/21
MW15-1 (OB)	GRN	**87.577**	-	-	-	-	-	-	-	2.40	2.02	2.28	6.78	51	-	-	-	-	-	-	-	-	-
	TOC	**88.421**	0.84	2.63	2.66	2.89	2.76	-	-	3.24	2.86	3.12			**85.791**	**85.761**	**85.531**	**85.661**	-	-	**85.181**	**85.561**	**85.301**
MW15-2 (BR)	GRN	**87.554**	-	-	-	-	-	-	-	4.41	11.79	11.49	13.25	51	-	-	-	-	-	-	-	-	-
	TOC	**88.404**	0.85	12.59	6.38	2.53	7.47	-	-	5.26	12.64	12.34			**75.814**	**82.024**	**85.874**	**80.934**	-	-	**83.144**	**75.764**	**76.064**
MW15-4 (OB)	GRN	**87.616**	-	-	-	-	-	1.84	-	1.96	-		6.54	51	-	-	-	-	-	-	-	-	-
	TOC	**88.459**	0.84	2.65	2.70	2.93	2.74	2.68	-	2.80	-	-			**85.809**	**85.759**	**85.529**	**85.719**	**85.779**	-	**85.659**	-	-
MW15-5 (BR)	GRN	**87.644**	-	-	-	-	-	1.85	-	2.27	-	10.17	18.96	51	-	-	-	-	-	-	-	-	-
	TOC	**88.514**	0.87	3.30	2.46	2.75	2.67	2.72	-	3.14	-	11.04			**85.214**	**86.054**	**85.764**	**85.844**	**85.794**	-	**85.374**	-	**77.474**
MW15-6 (OB)	GRN	**86.647**	-	-	-	-	-	-	-	2.04	-	2.02	6.95	51	-	-	-	-	-	-	-	-	-
	TOC	**87.447**	0.80	2.63	2.61	2.88	2.76	-	-	2.84	-	2.82			**84.817**	**84.837**	**84.567**	**84.687**	-	-	**84.607**	-	**84.627**
MW15-7 (BR)	GRN	**86.698**	-	-	-	-	-	-	-	2.19	-	2.11	13.00	38	-	-	-	-	-	-	-	-	-
	TOC	**87.473**	0.77	2.55	2.55	2.85	2.79	-	-	2.96	-	2.88			**84.923**	**84.923**	**84.623**	**84.683**	-	-	**84.513**	-	**84.593**
MW15-9 (OB)	GRN	**87.106**	-	-	-	-	-	-	-	-	-	-	7.06	-	-	-	-	-	-	-	-	-	-
	TOC	**87.954**	0.85	3.39	3.51	3.41	3.28	-	-	-	-	-			**84.564**	**84.444**	**84.544**	**84.674**	-	-	-	-	-
MW15-11 (OB)	GRN	**88.042**	-	-	-	-	-	-	-	2.36	2.36	2.38	6.92	51	-	-	-	-	-	-	-	-	-
	TOC	**88.884**	0.84	3.02	3.06	3.22	3.10	-	-	3.20	3.20	3.22			**85.864**	**85.824**	**85.664**	**85.784**	-	-	**85.684**	**85.684**	**85.664**
MW15-12 (BR)	GRN	**88.035**	-	-	-	-	-	-	-	2.28	2.32	3.32	13.27	-	-	-	-	-	-	-	-	-	-
	TOC	**89.014**	0.98	3.09	3.00	3.33	3.20	-	-	3.26	3.30	4.30			**85.924**	**86.014**	**85.684**	**85.814**	-	-	**85.754**	**85.714**	**84.714**
MW20-3 (OB)	GRN	**87.174**	-	-	-	-	-	-	1.46	1.49	-	1.53	6.92	-	-	-	-	-	-	-	-	-	-
	TOC	**88.327**	1.15	-	-	-	-	-	2.61	2.64	-	2.68			-	-	-	-	-	**85.717**	**85.687**	-	**85.647**
MW20-5 (OB)	GRN	**87.541**	-	-	-	-	-	-	1.24	2.32	-	2.32	8.25	-	-	-	-	-	-	-	-	-	-
	TOC	**88.785**	1.24	-	-	-	-	-	2.48	3.56	-	3.56			-	-	-	-	-	**86.305**	**85.225**	-	**85.225**
MW20-7 (OB)	GRN	**87.530**	-	-	-	-	-	-	1.91	1.90	-	2.01	8.43	-	-	-	-	-	-	-	-	-	-
	TOC	**88.630**	1.10	-	-	-	-	-	3.01	3.00	-	3.11			-	-	-	-	-	**85.620**	**85.630**	-	**85.520**
MW20-8 (BR)	GRN	**87.288**	-	-	-	-	-	-	0.85	1.69	17.16	15.74	19.28	-	-	-	-	-	-	-	-	-	-
	TOC	**88.365**	1.08	-	-	-	-	-	1.93	2.77	18.24	16.82			-	-	-	-	-	**86.435**	**85.595**	**70.125**	**71.545**

Notes:
TOC = Top of well casing
GRN = ground surface

SS = Storm Sewer
CP - Control Point

Brown shade are water levels measure from ground surface.

updated by: Mark Devlin
on February 24, 2021

1770 Heatherington Road **MW8-19**
Rising Head Test Analysis (Slug Test)
Hvorslev Method (1951)
10-Apr-13

H_0 1.47 m
(static water level in metres)

Time (sec)	Water Level (m)	Drawdown (m)	H-h/H-h0
0	5.350	3.88	1.00
35	5.150	3.68	0.95
60	5.100	3.63	0.94
90	5.080	3.61	0.93
120	5.040	3.57	0.92
150	5.010	3.54	0.91
180	4.980	3.51	0.90
240	4.910	3.44	0.89
300	4.850	3.38	0.87
360	4.780	3.31	0.85
420	4.720	3.25	0.84
480	4.660	3.19	0.82
540	4.600	3.13	0.81
600	4.550	3.08	0.79
720	4.450	2.98	0.77
900	4.320	2.85	0.73
1020	4.230	2.76	0.71
1200	4.090	2.62	0.68
1500	3.900	2.43	0.63
1800	3.740	2.27	0.59
2040	3.620	2.15	0.55
2280	3.520	2.05	0.53
2640	3.350	1.88	0.48
3060	3.200	1.73	0.45
3660	3.020	1.55	0.40
4200	2.850	1.38	0.36
4680	2.750	1.28	0.33
5400	2.660	1.19	0.31
6360	2.560	1.09	0.28
6900	2.400	0.93	0.24
7560	2.200	0.73	0.19
8700	1.970	0.50	0.13
9180	1.900	0.43	0.11

$$K = \frac{r^2 \, Ln(L/R)}{2LT_0}$$

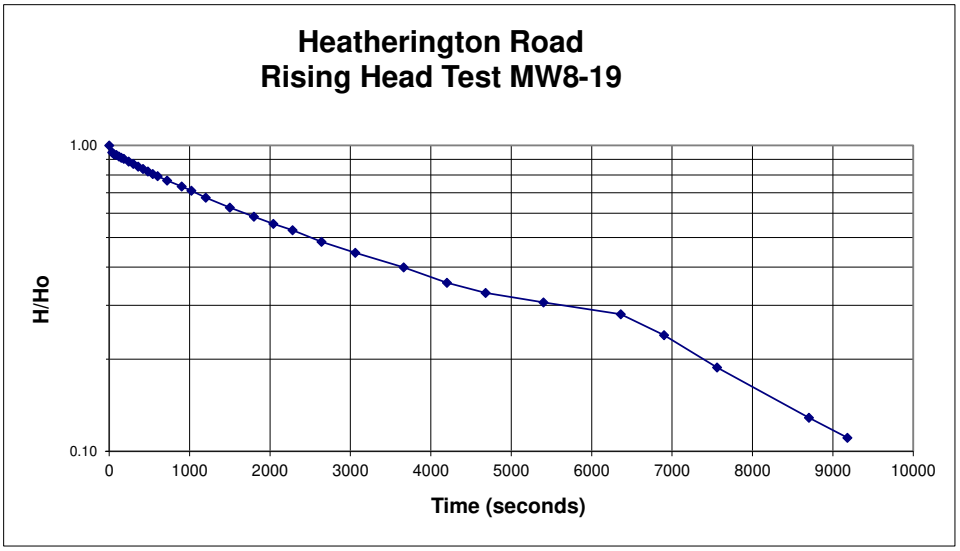
where:

K= hydraulic conductivity
r= radius of well casing
R= radius of well screen
L= length of well screen
T_0= time required for the water level to rise to 37% of the initial change, obtained from the graph of H/H(0)

	input	L/R	ln(L/R)
r=	0.020	40.66667	3.705409
L=	3.05		
R=	0.0750		
To=	4200		

10/11/1900 K= $\frac{r2(\ln(L/R))}{2(To)(L)}$
10/26/1900
11/25/1900
12/25/1900

K= 5.8E-08 m/sec or **5.8E-06 cm/sec**



1770 Heatherington Road **MW15-4**
Rising Head Test Analysis (Slug Test)
Hvorslev Method (1951)
10-Apr-13

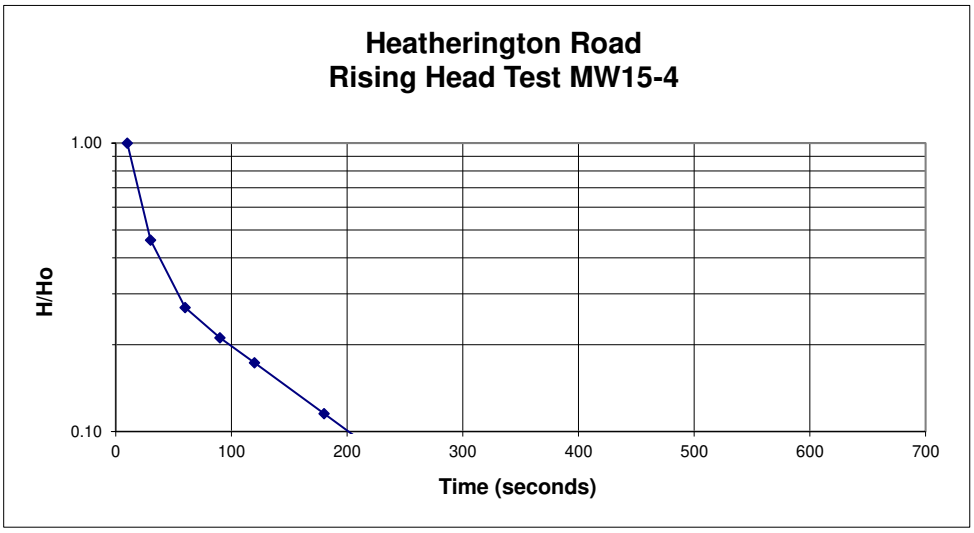
H_0 2.66 m
(static water level in metres)

Time (sec)	Water Level (m)	Drawdown (m)	H-h/H-h0
0	6.53	3.87	7.44
10	3.18	0.52	1.00
30	2.9	0.24	0.46
60	2.8	0.14	0.27
90	2.77	0.11	0.21
120	2.75	0.09	0.17
180	2.72	0.06	0.12
240	2.7	0.04	0.08
300	2.69	0.03	0.06
450	2.67	0.01	0.02
600	2.66	0.00	0.00

	input	L/R	ln(L/R)
r=	0.050	30.5	3.417727
L=	3.05		
R=	0.1000		
To=	45		

1900-10-11 K= $\frac{r^2(\ln(L/R))}{2(To)(L)}$
1900-10-26
1900-11-25
1900-12-25

K= 3.11E-05 m/sec or **3.11E-03 cm/sec**



Surveying Elevations - Phase Two ESA Update 2021
1770 Heatherington Road, Ottawa
OTT-00018293-J5
August 2015 - February 2021

(All units are in metres inless otherwise specified)

Site ID	Position	Geodetic Elevevation (m)	TOC	DTW (TOC)									DTB (TOC)	Casing Diameter (mm)	Groundwater Elevation (m RSD)								
				15/Aug/15	20/Jun/16	4/Aug/19	1/Jul/20	28/Jan/21	8/Feb/21	11/Feb/21	12/Feb/21	19/Feb/21			15/Aug/15	20/Jun/16	4/Aug/19	1/Jul/20	28/Jan/21	8/Feb/21	11/Feb/21	12/Feb/21	19/Feb/21
MW08-1	GRN	**87.597**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.487**	-0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW08-2	GRN	**87.592**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.502**	-0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW08-3	GRN	**87.582**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.587**	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW08-4	GRN	**87.687**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.615**	-0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW08-5	GRN	**87.832**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.722**	-0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW08-6	GRN	**88.064**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**88.029**	-0.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW08-7	GRN	**87.484**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.414**	-0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW08-8	GRN	**86.726**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**86.749**	0.02	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
BH08-10	GRN	**87.037**	-	-	-	1.68	1.61	-	-		-	-	5.51	38	-	-	-	-	-	-	-	-	-
	TOC	**88.112**	1.07	-	-	2.75	2.68	-	-	-	-	-			-	-	**85.362**	**85.432**	-	-	-	-	-
BH08-11	GRN	**87.344**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.584**	0.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08-12	GRN	**88.074**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**88.004**	-0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08-13	GRN	**86.834**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**86.700**	-0.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW08-14	GRN	**87.657**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.527**	-0.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW08-15	GRN	**87.587**	-	-	-	1.96	1.78	-	-	-	-	-	5.94	51	-	-	-	-	-	-	-	-	-
	TOC	**87.559**	-0.03	-	-	1.93	1.75	-	-	-	-	-			-	-	**85.629**	**85.809**	-	-	-	-	-
MW08-16	GRN	**87.417**	-	-	-	2.01	1.86	-	-	-	-	-	5.64	51	-	-	-	-	-	-	-	-	-
	TOC	**87.341**	-0.08	-	-	1.93	1.78	-	-	-	-	-			-	-	**85.411**	**85.561**	-	-	-	-	-
MW08-17	GRN	**87.647**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.547**	-0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW08-19	GRN	**87.464**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.359**	-0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW12-1	GRN	**87.404**	-	-	-	1.93	1.69	-	-	-	-	-	5.63	51	-	-	-	-	-	-	-	-	-
	TOC	**87.519**	0.11	-	-	2.04	1.80	-	-	-	-	-			-	-	**85.479**	**85.719**	-	-	-	-	-
MW12-2	GRN	**87.564**		-	-	2.01	2.82	-	-	-	-	-	5.98	51	-	-	-	-	-	-	-	-	-
	TOC	**87.524**	-0.04	-	-	1.97	2.78	-	-	-	-	-			-	-	**85.554**	**84.744**	-	-	-	-	-
MW12-3	GRN	**87.504**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.448**	-0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW12-4	GRN	**87.319**	-	-	-	1.71	1.54	-	-	-	-	-	5.13	51	-	-	-	-	-	-	-	-	-
	TOC	**87.244**	-0.08	-	-	1.63	1.46	-	-	-	-	-			-	-	**85.614**	**85.784**	-	-	-	-	-
MW12-5	GRN	**87.466**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.356**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW12-6	GRN	**87.317**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.207**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW12-7	GRN	**87.218**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.158**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW12-8	GRN	**87.579**	-	-	-	1.99	1.81	-	-	-	-	-	4.36	51	-	-	-	-	-	-	-	-	-
	TOC	**87.539**	-0.04	-	-	1.95	1.77	-	-	-	-	-			-	-	**85.589**	**85.769**	-	-	-	-	-
MW12-9	GRN	**86.953**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**86.843**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW12-10	GRN	**87.860**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.750**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW12-11	GRN	**88.006**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOC	**87.876**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW14-1	GRN	**87.879**	-	-	-	2.34	1.97	-	-	-	-	-	5.55	51	-	-	-	-	-	-	-	-	-
	TOC	**88.985**	1.11	-	-	3.45	3.08	-	-	-	-	-			-	-	**85.535**	**85.905**	-	-	-	-	-

Surveying Elevations - Phase Two ESA Update 2021
1770 Heatherington Road, Ottawa
OTT-00018293-J5
August 2015 - February 2021

(All units are in metres inless otherwise specified)

Site ID	Position	Geodetic Elevevation (m)	TOC	DTW (TOC)									DTB (TOC)	Casing Diameter (mm)	Groundwater Elevation (m RSD)								
				15/Aug/15	20/Jun/16	4/Aug/19	1/Jul/20	28/Jan/21	8/Feb/21	11/Feb/21	12/Feb/21	19/Feb/21			15/Aug/15	20/Jun/16	4/Aug/19	1/Jul/20	28/Jan/21	8/Feb/21	11/Feb/21	12/Feb/21	19/Feb/21
MW14-2	GRN	**87.684**	-	-	-	2.07	1.90	-	-	-	-	-	5.13	51	-	-	-	-	-	-	-	-	-
	TOC	**88.614**	0.93	-	-	3.00	2.83	-	-	-	-	-			-	-	**85.614**	**85.784**	-	-	-	-	-
MW14-3	GRN	**87.659**	-	-	-	2.06	1.89	-	-	-	-	-	4.97	51	-	-	-	-	-	-	-	-	-
	TOC	**88.794**	1.13			3.19	3.02	-	-	-	-	-			-	-	**85.604**	**85.774**	-	-	-	-	-
MW14-4	GRN	**87.394**	-	-	-	1.90	1.72	-	-	-	-	-	4.74	51	-	-	-	-	-	-	-	-	-
	TOC	**88.454**	1.06			2.96	2.78	-	-	-	-	-			-	-	**85.494**	**85.674**	-	-	-	-	-
MW14-5	GRN	**87.364**	-	-	-	1.87	1.69	-	-	-	-	-	5.90	51	-	-	-	-	-	-	-	-	-
	TOC	**88.429**	1.07			2.93	2.75	-	-	-	-	-			-	-	**85.499**	**85.679**	-	-	-	-	-
MW14-6	GRN	**87.840**	-	-	-	2.27	2.09	-	-	-	-	-	5.48	51	-	-	-	-	-	-	-	-	-
	TOC	**88.810**	0.97			3.24	3.06	-	-	-	-	-			-	-	**85.570**	**85.750**	-	-	-	-	-
MW14-7	GRN	**87.479**	-	-	-	2.11	1.94	-	-	-	-	-	5.51	51	-	-	-	-	-	-	-	-	-
	TOC	**88.564**	1.09			3.20	3.03	-	-	-	-	-			-	-	**85.364**	**85.534**	-	-	-	-	-
MW14-8	GRN	**87.682**	-	-	-	2.07	1.89	-	-	-	-	-	5.16	51	-	-	-	-	-	-	-	-	-
	TOC	**88.479**	0.80			2.87	2.69	-	-	-	-	-			-	-	**85.609**	**85.789**	-	-	-	-	-
MW15-1 (OB)	GRN	**87.577**	-	1.79	1.82	2.05	1.92	-	-	2.40	2.02	2.28	6.78	51	-	-	-	-	-	-	-	-	-
	TOC	**88.421**	0.84	2.63	2.66	2.89	2.76	-	-	3.24	2.86	3.12			**85.791**	**85.761**	**85.531**	**85.661**	-	-	**85.181**	**85.561**	**85.301**
MW15-2 (BR)	GRN	**87.554**	-	11.74	5.53	1.68	6.62	-	-	4.41	11.79	11.49	13.25	51	-	-	-	-	-	-	-	-	-
	TOC	**88.404**	0.85	12.59	6.38	2.53	7.47	-	-	5.26	12.64	12.34			**75.814**	**82.024**	**85.874**	**80.934**	-	-	**83.144**	**75.764**	**76.064**
MW15-4 (OB)	GRN	**87.616**	-	1.81	1.86	2.09	1.90	1.84	-	1.96	-		6.54	51	-	-	-	-	-	-	-	-	-
	TOC	**88.459**	0.84	2.65	2.70	2.93	2.74	2.68	-	2.80	-	-			**85.809**	**85.759**	**85.529**	**85.719**	**85.779**	-	**85.659**	-	-
MW15-5 (BR)	GRN	**87.644**	-	2.43	1.59	1.88	1.80	1.85	-	2.27	-	10.17	18.96	51	-	-	-	-	-	-	-	-	-
	TOC	**88.514**	0.87	3.30	2.46	2.75	2.67	2.72	-	3.14	-	11.04			**85.214**	**86.054**	**85.764**	**85.844**	**85.794**	-	**85.374**	-	**77.474**
MW15-6 (OB)	GRN	**86.647**	-	1.83	1.81	2.08	1.96	-	-	2.04	-	2.02	6.95	51	-	-	-	-	-	-	-	-	-
	TOC	**87.447**	0.80	2.63	2.61	2.88	2.76	-	-	2.84	-	2.82			**84.817**	**84.837**	**84.567**	**84.687**	-	-	**84.607**	-	**84.627**
MW15-7 (BR)	GRN	**86.698**	-	1.78	1.78	2.08	2.02	-	-	2.19	-	2.11	13.00	38	-	-	-	-	-	-	-	-	-
	TOC	**87.473**	0.77	2.55	2.55	2.85	2.79	-	-	2.96	-	2.88			**84.923**	**84.923**	**84.623**	**84.683**	-	-	**84.513**	-	**84.593**
MW15-9 (OB)	GRN	**87.106**	-	2.54	2.66	2.56	2.43	-	-	-	-	-	7.06	-	-	-	-	-	-	-	-	-	-
	TOC	**87.954**	0.85	3.39	3.51	3.41	3.28	-	-	-	-	-			**84.564**	**84.444**	**84.544**	**84.674**	-	-	-	-	-
MW15-11 (OB)	GRN	**88.042**	-	2.18	2.22	2.38	2.26	-	-	2.36	2.36	2.38	6.92	51	-	-	-	-	-	-	-	-	-
	TOC	**88.884**	0.84	3.02	3.06	3.22	3.10	-	-	3.20	3.20	3.22			**85.864**	**85.824**	**85.664**	**85.784**	-	-	**85.684**	**85.684**	**85.664**
MW15-12 (BR)	GRN	**88.035**	-	2.11	2.02	2.35	2.22	-	-	2.28	2.32	3.32	13.27	-	-	-	-	-	-	-	-	-	-
	TOC	**89.014**	0.98	3.09	3.00	3.33	3.20	-	-	3.26	3.30	4.30			**85.924**	**86.014**	**85.684**	**85.814**	-	-	**85.754**	**85.714**	**84.714**

Notes:
TOC = Top of well casing
GRN = ground surface or grade
Depth to groundwater measured from grade.

Appendix J:
Summary of Areas of Contamination

Areas of Contamination and Location	COCs in excess of Table 3 SCS	Medium	Description of Area	Distribution of Contaminants	Discharge of Contaminants into the Natural Environment	Migration of Contaminants	Influence of Climatic or Meteorological Conditions	Vapour Intrusion Pathway Considerations
Pre-Remediation Site Conditions								
Northeastern portion of Site (Pit No. 1) and central portion of Site (Pit No. 2)	PHC F2 Visible Sheen/Odour*	Soil	Confined to the boundaries of Pit No. 1 and Pit No. 2.	**Pit No 1.** • Exceedances of PHCs (identified by visible sheen/odour at MW08-1 and MW08-2) were delineated by clean confirmatory wall samples and vertically by clean floor samples at a depth between 3.2 and 3.5 m bgs. **Pit No. 2** • Exceedances of PHC F2 at TP08-15-A1 (0.8 m bgs) were delineated by clean confirmatory wall samples and vertically by clean floor samples at a depth of 1.2 m bgs. All PHC soil impacts were removed from the Site through the completion of remedial excavations at Pit No. 1 and Pit No. 2.	The source of contamination is associated with the former UST (APEC 1) or former on-Site garage (APEC 2).	Given that soil is immobile, no significant migration of the soil contamination is anticipated. Migration of contaminants in soil via leaching of contamination to groundwater is a possible migration pathway. Additionally, it is noted that soil PHC impacts have been remediated and the potential for migration no longer exists.	Given the fine soil and low hydraulic conductivity at the site, surface infiltration would be limited in extent. Therefore, climatic and meteorological conditions at the site are not expected to have a significant influence on the contaminants or contaminant migration.	PHC F2 is volatile and may present a risk to receptors via vapour intrusion. However, please note that the PHC impacted soil has been removed and disposed off-Site and no potential for vapour intrusion remains from PHCs in soil.
Northeastern portion of Site (Pit No. 1), central portion of Site (Pit No. 2), and southcentral portion of the Site (Pit No. 4)	Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Fluoranthene 1,1'-Biphenyl 1-methylnaphthalene 2-methylnaphthalene Naphthalene	Soil	Confined to the boundaries of Pit No. 1, Pit No. 2, and Pit No. 4.	**Pit No 1.** • Exceedances of anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and fluoranthene were identified at MW08-3-C1 (0.7 m bgs) and exceedances of benzo(a)pyrene were identified at MW08-3 (0.2 – 1.22 m bgs). PAH exceedances were delineated by clean wall samples at Pit No. 1. **Pit No. 2** • Exceedances of benzo(a)pyrene were identified at TP08-15 (0.3 m bgs), 1,1'-biphenyl, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene at TP08-15-A (0.8 m bgs), and 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene at TP08-15-B (0.5 m bgs). PAH impacts were delineated by clean confirmatory wall samples and vertically by clean floor samples at a depth of 1.2 m bgs. **Pit No. 4** • An exceedance of benzo(a)pyrene and fluoranthene was identified at TP08-1 (0.2 m bgs). PAH impacts were delineated by clean confirmatory wall samples and vertically by clean floor samples at 1.0 m bgs.	The source of contamination is associated with the former UST (APEC 1) or former on-Site garage (APEC 2) at the northeastern portion of the Site. The source of contamination is likely associated with the importation of fill of unknown quality at the Site (APEC 3) at the central and southcentral portions of the Site.	Given that soil is immobile, no significant migration of the soil contamination is anticipated. Migration of contaminants in soil via leaching of contamination to groundwater is a possible migration pathway. Additionally, it is noted that soil PAH impacts have been remediated and the potential for migration no longer exists.	Given the fine soil and low hydraulic conductivity at the site, surface infiltration would be limited in extent. Therefore, climatic and meteorological conditions at the site are not expected to have a significant influence on the contaminants or contaminant migration.	Volatile PAHs may be present under buildings constructed on-Site may present a risk to receptors via vapour intrusion. However, please note that the PAH impacted soil has been removed and disposed off-Site and no potential for vapour intrusion remains from PAHs in soil.
Northeastern portion of Site (Pit No. 1) and southeastern portion of the Site (Pit No. 3)	Lead Cobalt Vanadium	Soil	Confined to the boundaries of Pit No. 1 and Pit No. 3.	**Pit No 1.** • An exceedance of lead was identified at MW08-2 (0.2 – 1.22 m bgs). The lead exceedance was delineated horizontally by clean confirmatory wall and vertically by a floor sample at 3.2 m bgs at Pit No. 1. **Pit No. 3**	The source of contamination is likely associated with the importation of fill of unknown quality at the Site (APEC 3) at the central and southcentral portions of the Site.	Given that soil is immobile, no significant migration of the soil contamination is anticipated. Migration of contaminants in soil via leaching of contamination to groundwater is a possible migration pathway.	Given the fine soil and low hydraulic conductivity at the site, surface infiltration would be limited in extent. Therefore, climatic and meteorological conditions at the site are not expected to have a significant influence on	Metals are non-volatile and therefore are not considered to pose a potential risk via vapour intrusion. However, please note that the metal impacted soil has been removed and disposed off-

Areas of Contamination and Location	COCs in excess of Table 3 SCS	Medium	Description of Area	Distribution of Contaminants	Discharge of Contaminants into the Natural Environment	Migration of Contaminants	Influence of Climatic or Meteorological Conditions	Vapour Intrusion Pathway Considerations
				• Exceedances of cobalt and vanadium were identified at MW08-8 (0.2 – 1.22 m bgs), and vanadium at MW08-8-C2 (1.0 m bgs). Metal impacts were delineated horizontally by clean confirmatory wall samples and vertically by clean floor samples at a depth of 1.4 – 1.5 m bgs.		Additionally, it is noted that soil metal impacts have been remediated and the potential for migration no longer exists.	the contaminants or contaminant migration.	Site.
Northeastern portion of Site (Pit No. 1)	Boron Hot Water Soluble (HWS)	Soil	Confined to the boundaries of Pit No. 1	**Pit No. 1** • An exceedance of boron (HWS) was identified at MW08-2 (0.2 – 1.22 m bgs). Boron (HWS) impacts were delineated horizontally by clean confirmatory wall samples and vertically by a clean floor sample at a depth of 3.2 m bgs at Pit No. 1.	The source of contamination is associated with the former UST (APEC 1) or former on-Site garage (APEC 2) at the northeastern portion of the Site.	Given that soil is immobile, no significant migration of the soil contamination is anticipated. Migration of contaminants in soil via leaching of contamination to groundwater is a possible migration pathway. Additionally, it is noted that boron HWS impacts have been remediated and the potential for migration no longer exists.	Given the fine soil and low hydraulic conductivity at the site, surface infiltration would be limited in extent. Therefore, climatic and meteorological conditions at the site are not expected to have a significant influence on the contaminants or contaminant migration.	Boron HWS is non-volatile and therefore is not considered to pose a potential risk via vapour intrusion. Please note that the boron HWS impacted soil has been removed and disposed off-Site.
Southcentral portion of the Site (Pit No. 5)	Soil pH	Soil	Confined to the boundaries of Pit No. 5	**Pit No. 5** • An exceedance of the Table 3 surficial soil pH range was identified at TP08-8 (0.60 m bgs). Soil pH exceeded the upper range of allowable values for use of the Table 3 SCS. However, soil pH exceedances were horizontally delineated by the clean wall samples and vertically delineated by clean floor samples at a depth of 1.2 m bgs at Pit No. 5.	The source of contamination is likely associated with the importation of fill of unknown quality at the Site (APEC 3) at the central and southcentral portions of the Site.	Given that soil is immobile, no significant migration of the soil contamination is anticipated. Migration of contaminants in soil via leaching of contamination to groundwater is a possible migration pathway. Additionally, it is noted that elevated soil pH impacts have been remediated and the potential for migration no longer exists.	Given the fine soil and low hydraulic conductivity at the site, surface infiltration would be limited in extent. Therefore, climatic and meteorological conditions at the Site are not expected to have a significant influence on the contaminants or contaminant migration.	Soil pH is a physical test of soil properties and not related to vapour intrusion. Please note that the pH impacted soil has been removed and disposed off-Site.
Northeastern portion of Site (Pit No. 1)	Indeno(1,2,3-cd)pyrene	Groundwater	Confined to the boundaries of Pit No. 1	**Pit No. 1** • An isolated exceedance of indeno(1,2,3-cd)pyrene was identified at MW08-2 (1.37 – 5.94 m bgs). MW08-2 was not resampled for PAHs prior to the completion of the remedial activities within Pit No. 1. MW08-2 was not re-sampled prior to the completion of remedial activities in 2012 for PAHs. Following monitoring well decommissioning and the initiation of remedial activities at Pit No. 1, MW12-3 was installed within proximity to MW08-2 and was sampled in December 2015 with clean sampling results. Indeno(1,2,3-cd)pyrene was not detected above the laboratory RDL in any groundwater samples collected from the Site	The source of contamination is associated with the former UST (APEC 1) or former on-Site garage (APEC 2) at the northeastern portion of the Site.	Groundwater impacts are expected to be migrating with groundwater flow (predominantly south/southeast). Given that all post remediation groundwater results in proximity to MW08-2 and downgradient of this location are below the Table 3 SCS for PAHs, no migration of PAH impacts is identified to have occurred.	Given the fine soil and low hydraulic conductivity at the site, surface infiltration would be limited in extent. Therefore, climatic and meteorological conditions at the Site are not expected to have a significant influence on the contaminants or contaminant migration.	The PAH parameter identified in groundwater is a high-molecular weight PAH and is non-volatile, therefore no potential for vapour intrusion is identified. Please note that PAH groundwater exceedances have been addressed via the completion of remedial Pit No. 1.

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				following the completion of remedial activities. As such, it is the oppion of the QP that the isolated PAH impacts identified in groundwater in 2008 no longer remain at the Site.				
Northeastern portion of the Site (Pit No. 1)	PHC F2 PHC F3 PHC F4	Groundwater	Northeastern portion of the Site	**Northeastern Portion of Site** • Prior to the completion of remedial activities at the Site, exceedances of select PHC fractions were identified at six (6) monitoring well locations across one (1) or more sampling events. All groundwater exceedances for PHCs were localized to monitoring wells installed within the northeastern portion of the Site, in the vicinity of the former garage and UST. • Exceedances of PHCs in groundwater were addressed via the completion of the remedial excavation at Pit No. 1. • **MW08-1** – After an initial exceedance of PHC F2, F3 and F4 in samples collected between February 2008 and November 2008, one (1) clean round of groundwater sampling was completed at this location in November 2014. Following decommission and during remedial activities, this well was replaced by MW12-3 (screened 3.1 - 6.1 m bgs) and was sampled three (3) times with clean sampling results. As such, MW08-1 was no longer considered impacted. • **MW08-2** – After an initial exceedance of PHC F3 in February 2008, three (3) clean rounds of groundwater sampling were completed at this location on August 11 and 30, 2008 and January 25, 2012. As such, the initial PHC F3 exceedance was no longer considered to be present. • **MW08-13** – Following an initial exceedance of PHC F2, F3 and F4 in August 2008, one (1) clean round of groundwater sampling was completed at this location in April 2012. Following decommission and remedial activities, this well was replaced by MW15-9 (screened at 3.0 - 6.0 m bgs) and was sampled once with clean sampling results. As such, MW08-13 is no longer considered to be impacted. • **MW08-14** – A PHC F3 exceedance was identified in August 2008. This monitoring well location was not re-sampled prior to remediation at Pit No. 1. During and after remedial activities, MW12-2 (screened at 3.1 - 6.1 m bgs) was sampled three (3) times with clean sampling results. As such, MW08-14 is no longer considered to be impacted.	The source of contamination is associated with the former UST (APEC 1) or former on-Site garage (APEC 2) at the northeastern portion of the Site.	Groundwater impacts are expected to be migrating with groundwater flow (predominantly south/southeast). Given that all post remediation groundwater results in proximity to the identified impacts and downgradient of these locations are below the Table 3 SCS for PHCs, no migration of PHC impacts is identified to have occurred.	Given the fine soil and low hydraulic conductivity at the site, surface infiltration would be limited in extent. Therefore, climatic and meteorological conditions at the Site are not expected to have a significant influence on the contaminants or contaminant migration.	PHC F2 is volatile and may present a risk to receptors via vapour intrusion. PHC F3 and PHC F4 are not considered to be volatile. Please note that PHC groundwater exceedances have been addressed via the completion of remedial Pit No. 1.

Areas of Contamination and Location	COCs in excess of Table 3 SCS	Medium	Description of Area	Distribution of Contaminants	Discharge of Contaminants into the Natural Environment	Migration of Contaminants	Influence of Climatic or Meteorological Conditions	Vapour Intrusion Pathway Considerations
				• **MW08-15** – An initial exceedance of PHC F3 was identified in August 2008. One (1) clean round of groundwater sampling was completed at this location in April 2012 during the completion of remedial activities. MW15-1 (screened 2.9 - 5.9 m bgs) was installed within proximity to MW08-15 and was sampled twice with clean results in August 2015 and in May 2022. • **MW08-16** – An initial exceedance of PHC F3 and F4 was identified in August 2008. This monitoring well location was not re-sampled prior to remediation at Pit No. 1. After remedial activities, MW15-1 (screened at 2.9 - 5.9 m bgs) was installed within proximity to MW08-16 and was sample twice with clean results in August 2015 and May 2022. Given that approximately twenty-six (26) groundwater samples have ben collected from the Site across sixteen (16) monitoring well locations following completion of the remedial activities in Pit No. 1 with no exceedances of the Table 3 SCS identified, the historical PHC impacts in groundwater are no longer considered to be present at the Site.				
Northeastern portion of the Site (Pit No. 1)	Cis-1,2-dichloroethylene Vinyl chrloide	Groundwater	Northeastern portion of the Site	**Northeastern Portion of Site** • Prior to the completion of remedial activities at the Site, exceedances of cis-1,2-dichloroethylene and vinyl chloride were identified at two (2) monitoring well locations across one (1) or more sampling events. All groundwater exceedances for VOCs were localized to monitoring wells installed within the northeastern portion of the Site, in the vicinity of the former garage and UST. • Exceedances of VOCs in groundwater were addressed via the completion of the remedial excavation at Pit No. 1. • **MW08-14** – An exceedance of cis-1,2-DCE and/or vinyl chloride was identified at MW08-14 in October 2008, November 2008, and August 2008. During completion of the remedial excavation sampling location MW08-14 was replaced with MW12-2 (screened at 3.1 - 6.1 m bgs) and was sampled for VOCs five (5) times between 2012 and 2014 with clean sampling results. • **MW08-19** – An exceedance of cis-1,2-DCE and vinyl chloride was identified at MW08-19 between July 2012 and April 2013, during completion of the remedial activities at Pit No. 1. Following decommissioning of MW08-19, sampling location MW08-19 was	The source of contamination is associated with the former UST (APEC 1) or former on-Site garage (APEC 2) at the northeastern portion of the Site.	Groundwater impacts are expected to be migrating with groundwater flow (predominantly south/southeast). Given that all post remediation groundwater results in proximity to the identified impacts and downgradient of these locations are below the Table 3 SCS for VOCs, no migration of VOC impacts is identified to have occurred.	Given the fine soil and low hydraulic conductivity at the site, surface infiltration would be limited in extent. Therefore, climatic and meteorological conditions at the Site are not expected to have a significant influence on the contaminants or contaminant migration.	Vinyl chloride and cis-1,2-DCE are both volatile and may present a risk to receptors via vapour intrusion. Please note that VOC groundwater exceedances of the Table 3 SCS have been addressed via the completion of remedial Pit No. 1.

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				replaced with MW14-5 (screened at 1.3 - 4.3 m bgs) and was sampled for VOCs four (4) times between 2014 and 2019 with clean sampling results. Given that approximately thirty (30) groundwater samples have ben collected from the Site across thirteen (13) monitoring well locations following completion of the remedial activities in Pit No. 1 with no exceedances of the Table 3 SCS identified, the historical VOC impacts in groundwater are no longer considered to be present at the Site in exceedance of the Table 3 SCS.				
Post-Remediation Site Conditions								
Majority of the Site (Overburden soils up to bedrock)	Electrical Conductivity (EC)and Sodium Adsorption Ratio	Soil	Majority of Site	**Overburden Soils (Majority of Site)** • Exceedances in overburden soil at the Site for either EC or SAR have been identified up to a sample depth of 6.1 m bgs. No vertical delineation of EC or SAR impacts was identified during prior sampling programs. It is assumed that EC and SAR soil impacts extend up to bedrock at the Site. • Lateral delineation of the EC and SAR impact in Site soil was assumed to extend from Site edge to Site edge. It is noted that approximately twenty-two (22) soil sampling locations had concentrations of EC or SAR below the applicable Table 3 SCS. However, lateral delineation was not achieved. EC and SAR impacts remain present at the Site following the completion of remedial activities and will be addressed through completion of the Risk Assessment.	The source of contamination is associated with the historical salt related exceedances, former salt dome, salt use and salt storage (APEC 4)	Given that soil is immobile, no significant migration of the soil contamination is anticipated. Migration of contaminants in soil via leaching of contamination to groundwater is a possible migration pathway.	Given the fine soil and low hydraulic conductivity at the site, surface infiltration would be limited in extent. Therefore, climatic and meteorological conditions at the site are not expected to have a significant influence on the contaminants or contaminant migration.	EC and SAR are non-volatile and therefore are not considered to pose a potential risk via vapour intrusion.
Majority of the Site	Sodium (Na+) and Chloride (Cl-)	Groundwater	Majority of Site	**Overburden and Bedrock Groundwater (Majority of Site)** • Exceedances in groundwater at the Site for sodium and chloride have been identified up to a depth of 18.1 m bgs at MW15-5. It is noted that clean samples were collected at an interval of 10.6 – 12.1 m bgs from MW15-12. Vertical delineation of sodium and chloride groundwater impacts was not achieved at the Site. • Lateral delineation of the sodium and chloride impacts in groundwater was assumed to extend from Site edge to Site edge. It is noted that approximately ten (10) monitoring well locations had concentrations of sodium or chloride below the applicable Table 3 SCS. However, lateral delineation was not achieved, and impacts are assumed to extend to the property boundary.	The source of contamination is associated with the historical salt related exceedances, former salt dome, salt use and salt storage (APEC 4)	Groundwater impacts are expected to be migrating with groundwater flow (predominantly south/southeast).	Given the fine soil and low hydraulic conductivity at the site, surface infiltration would be limited in extent. Therefore, climatic and meteorological conditions at the Site are not expected to have a significant influence on the contaminants or contaminant migration.	Sodium and chloride are non-volatile and therefore are not considered to pose a potential risk via vapour intrusion.