REPORT

Phase Two Environmental Site Assessment - 6000 Marineland Parkway, Niagara, Ontario

Submitted to:

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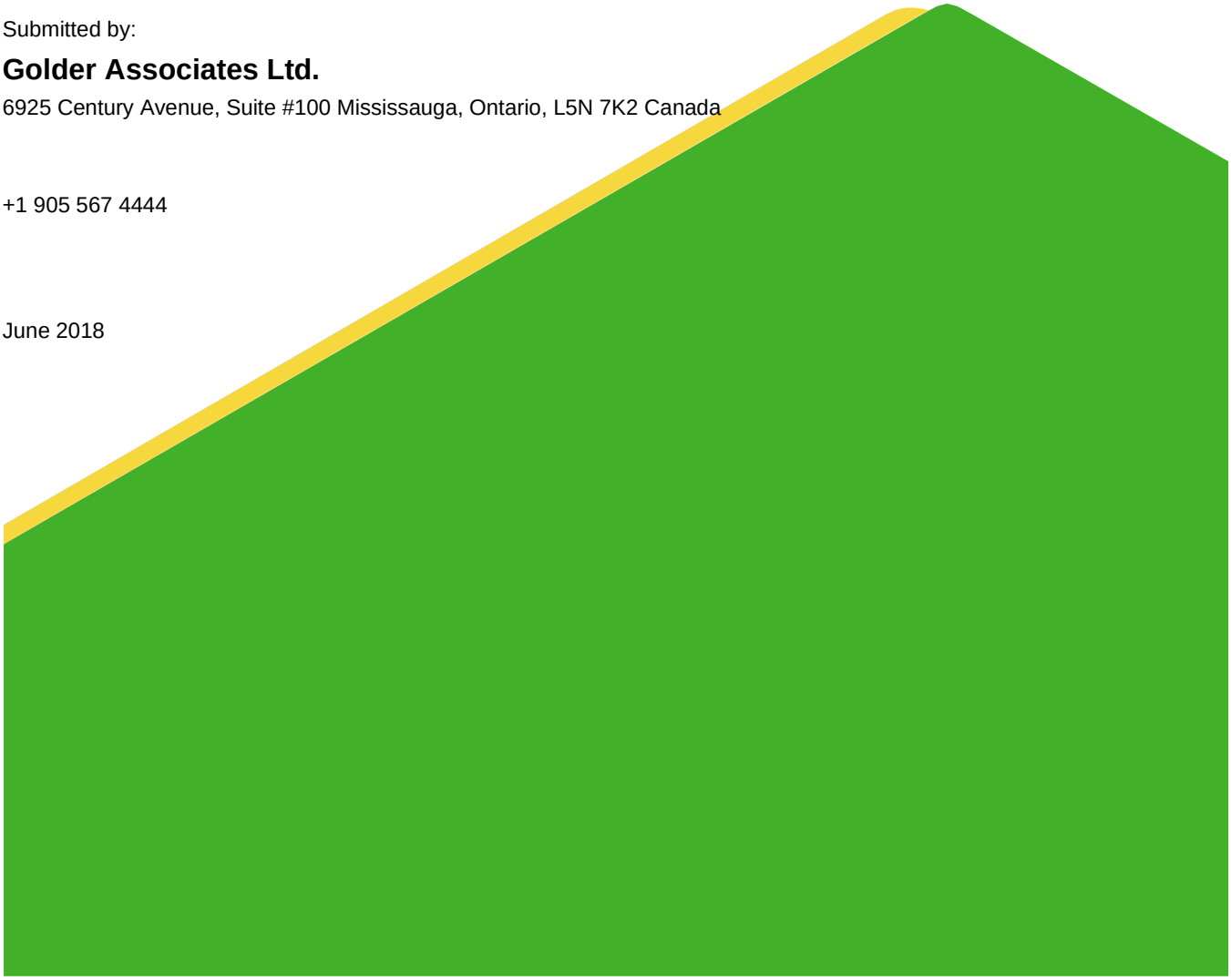

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Executive Summary

Golder Associates Ltd. (“Golder”) was retained by 2592693 Ontario Inc. (“Client”) to conduct a Phase One Environmental Site Assessment (“Phase One ESA”) of the Thundering Waters Golf Course and facilities located at 6000 Marineland Parkway, Niagara Falls, Ontario (herein after referred to as the “Site” or “Phase Two Property”).

The Site is approximately 61 hectares (150 acres). The Site is currently operated as the Thundering Waters Golf Course and was developed in 2005. The Site is developed with a main clubhouse, half-way house, catering building, maintenance area and four ponds.

The objective of this ESA was to meet the objectives of a Phase Two ESA as defined in *Ontario Regulation* (“O. Reg”)*153/04 – Records of Site Condition – Part XV.1 of the Environmental Protection Act* as in force at the time of the investigation, and assess the Site relative to the Ministry of Environment[1] (MOE) “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011”.

Golder completed a Phase One ESA in February 2018 in accordance with Ontario Regulation 153/04 *Records of Site Condition*, as in effect at the time of the investigation (“Phase One ESA Requirements”). The Phase One ESA also consisted of a review of relevant background information including previous reports.

The Phase One ESA findings indicated potentially contaminating activities (PCAs) for the Site and on off-site properties adjacent to the Site that may have contributed to areas of potential environmental concern (APECs), as described below:

- There is one gasoline above ground storage tank (“AST”) and one diesel fuel AST, approximately 2000 and 700 litres in capacity, respectively, and constructed of double walled steel, located in the maintenance area on the northwestern portion of the Site. Gasoline and diesel fuel have been used for golf course maintenance equipment.
- A railway line was observed on the Phase One Property. Aerial photographs indicated that the railway line has been on the Site since at least 1934. According to the Site Representative the railway line is still active. The on-going use the railway line is considered to be a potential issue of environmental concern for the Site.
- The importation of fill material of unknown quality for the development of the golf course is considered to be an issue of environmental concern for the Site.
- Fertilizers, herbicides, and pesticides are stored in the maintenance building and used throughout the golf course. These products are used to maintain the golf course. The bulk storage and large-scale application of pesticides is considered to be a potential environmental concern for the Site.

Based on all the information obtained as part of this Phase One ESA, the following APEC related to off-Site operations of the Site were identified:

[1] Now the Ontario Ministry of the Environment, Parks and Conservation (MECP)

- Facilities that were historically and currently located within 50 m of the Site, including Chemtrade, Ingot Metal Company and Salit Steel. In the absence of more detailed information, these facilities, which are located adjacent to the east and west of the Site, are considered to be potential issues of environmental concern for the Site.

The analytical results of soil and groundwater samples analyzed were assessed by comparing the results to the MOE O. Reg. 153/04 “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011; for Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition property and for a fine to medium grained soil texture (“MOE Table 9 Standards”).

The Phase Two ESA included the drilling of twenty boreholes and completing five boreholes as groundwater monitoring wells. Boreholes were advanced to depths ranging between 0.25 to 1.5 metres below ground surface (mbgs). Monitoring wells were advanced to 5.18 to 6.10 mbgs.

Soil and groundwater samples were analyzed for petroleum hydrocarbon compounds (PHCs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), pesticides, polychlorinated biphenyls (PCBs) and metals and inorganics.

The following is a summary of the subsurface conditions.

- In general, the soil conditions that were encountered included a surficial layer of approximately 0.15 to 2.44 m of fill. Native silty clay with trace gravel were observed underlying the fill to the maximum to depth of investigation of 6.10 mbgs (i.e., the maximum depth to which monitoring well 18-20 was drilled). Bedrock was not encountered during the intrusive investigation;
- Grain-size analyses of soil samples indicated that the soil across the Site was fine- to medium textured as defined under O. Reg. 153/04;
- The depth to the water table measured in the five monitoring wells ranged between approximately 2.2 to 4.3 mbgs on April 12, 2018;
- Groundwater flow in the overburden groundwater unit was inferred to be towards the southeast.
- The regional groundwater flow direction is also assumed to be predominantly south/southeasterly towards the Niagara River;
- No free-phase product was observed in any of the monitoring wells installed during the investigation.
- Soil at the Site met the MOE Table 9 Standards for the all analytical parameters; and.
- Groundwater at the Site met the MOE Table 9 Standards for all analytical parameters.

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1.0 INTRODUCTION

Golder Associates Ltd. (“Golder”) was retained by 2592693 Ontario Inc. (“Client”) to conduct a Phase One Environmental Site Assessment (“Phase One ESA”) of the Thundering Waters Golf Course and facilities located at 6000 Marineland Parkway, Niagara Falls, Ontario (herein after referred to as the “Site” or “Phase Two Property”).

The geographical setting of the Site is shown on **Figure 1**.

The Site is approximately 61 hectares (150 acres). The Site is currently operated as the Thundering Waters Golf Course and was developed in 2005. The Site is developed with a main clubhouse, half-way house, catering building, maintenance area and four ponds.

The Phase Two ESA was conducted in accordance with the requirements of Ontario Regulation 153/04 – Records of Site Condition (RSC) – Part XV.1 of the Environmental Protection Act as in force at the time of the investigation, Ontario Regulations 903 and 128 pertaining to well construction, the applicable Occupational Health and Safety Regulations, and the Ontario Ministry of Environment[2] (MOE) *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*.

1.1 Site Description

The Site has a municipal address of 6000 Marineland Parkway, Niagara Falls, and is approximately 61 hectares in area.

The property boundary of the subject Phase Two ESA Site is shown on a Site plan (**Figure 2**).

1.2 Property Ownership

The contact information for the Phase One Property owner is:

Client and Owner: 2592693 Ontario Inc. 4308 Village Center Court, Mississauga, Ontario	Mr. Sinan Saltaji Office: (905) 366-7333 Email: sinan@investgroup.ca

1.3 Current and Proposed Future Uses

Based on the information obtained and reviewed as part of the Phase One ESA completed by Golder (February 2018, the Site was owned by private individuals and developed as a golf course since 2005. Accordingly, the first developed use of the Phase Two Property is 2005.

The surrounding lands uses consist of a mixture of parkland, residential and industrial properties. It is understood that the Site will be redeveloped for residential uses. Golder understands that Client is carrying out this Phase Two ESA to support the filing of a RSC to the MECP, pursuant to Ontario Regulation153/04.

[2] Now the Ontario Ministry of the Environment, Conservation and Parks (MECP)

1.4 Applicable Site Condition Standards

The analytical results of soil and groundwater samples collected for this Phase Two ESA were compared to the MOE's "Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act, April 15, 2011". The following conditions were considered in selecting the applicable standards for this assessment:

- No portion of the Site lies within 30 metres (m) of a permanent watercourse;
- The Site is within or adjacent to an area of natural significance;
- The proposed future land use is intended to be residential;
- Based on field observations and the results of grain-size analyses provided in **Appendix C** and borehole locations shown on **Figure 4**, the majority of the overburden material at the Site consisted predominantly of fine-to medium grained soils with more than 50% of the particles (by mass) in the soil were equal to or smaller than 75 µm in mean diameter. Under the definitions in Ontario Regulation 153/04, the soil at the Site is considered to be fine-to medium textured;
- The Site and surrounding properties located in whole or in part within 250 m of the Site are within an area that is municipally serviced by a water supply that does not rely on potable groundwater as its source. Therefore, the generic standards for a non-potable groundwater condition apply; and
- The Site is not considered to meet the criteria for a sensitive site.

Based on the criteria listed above, the MOE Table 9: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Fine- to Medium- Textured Soils for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition (hereinafter referred to as the "MOE Table 9 Standards") are considered applicable for the Site.

1.5 Objective of Phase Two ESA

The objective of this Phase Two ESA was to obtain information about the environmental conditions in the soil and groundwater on, in or under the Phase Two property. The Phase Two ESA investigated the areas of potential environmental concern (APECs) identified in the Golder Phase One ESA completed for the Site in April 2018. The Phase Two ESA was also to be used to support the filing of a RSC for the Site.

2.0 BACKGROUND INFORMATION

2.1 Physical Setting

The surrounding properties include residential and agricultural land uses, as illustrated on **Figure 2**

North (inferred to be upgradient of the Site):

The area north of the Site was under development for what appeared to be a residential subdivision.

East (inferred to be transgradient relative to the Site):

Several industrial/commercial buildings were observed to the west of the Site including: Salit Steel and Ingot Metals.

West (inferred to be transgradient relative to the Site):

Residential buildings and the industrial Chemtrade facility were observed to west of the Site.

South (inferred to be downgradient relative to the Site):

Undeveloped land was observed to the south of the Site.

2.2 Past Investigations

2.2.1 Historical Reports

Golder was not provided with any environmental reports related to the Site.

2.2.2 Golder Phase One ESA

Golder completed a Phase One ESA for the Site in accordance with O. Reg. 153/04, as in effect at the time of the investigation. The Site reconnaissance was conducted on November 8, 2017. The overall findings of the Phase One ESA, which consisted of a review of relevant background information, were documented in the February 2018 Phase One ESA report.

Based on the information obtained and reviewed as part of the Phase One ESA, the following potentially contaminating activities (“PCA”) were identified and considered to be APECs at the Site:

- There is one gasoline above ground storage tank (“AST”) and one diesel fuel AST, approximately 2000 and 700 litres in capacity, respectively, located in the maintenance area on the northwestern portion of the Site. Both ASTs were constructed of double walled steel. Gasoline and diesel fuel were used for golf course maintenance equipment.
- A railway line was observed on the Phase One Property. Aerial photographs indicated that the railway line has been on the Site since at least 1934. According to the Site Representative the railway line is still active. The on-going use the railway line is considered to be a potential issue of environmental concern for the Site.
- The importation of fill material of unknown quality for the development of the golf course is considered to be an issue of potential environmental concern for the Site.
- Fertilizers, herbicides, and pesticides are stored in the maintenance building and used throughout the golf course. These products are used to maintain the golf course. The bulk storage and large-scale application of pesticides is considered to be a potential environmental concern for the Site.

Based on all the information obtained as part of the Phase One ESA, the following APEC related to off-Site operations in the vicinity of the Site were identified:

- Facilities that were historically and currently located within 50 m of the Site, including Chemtrade, Ingot Metal Company and Salit Steel. In the absence of more detailed information, these facilities, which are located adjacent both east and west of the Site, are considered to be a potential issues of environmental concern for the Site.

Based on the findings of the Phase One ESA listed above, which indicated the presence of PCAs on the Site and on adjacent properties which contributed to APECs for the Site, a Phase Two ESA was required.

3.0 PHASE TWO ESA SCOPE OF WORK

3.1 Overview of Site Investigation

The Phase Two ESA was completed in stages as outlined in Section 1.5 of this report. The ESA program was undertaken to target the PCAs and APECs identified on the Site and on neighbouring properties. The rationale for the location of the boreholes and monitoring well and the parameters for chemical analysis of the soil and groundwater samples are provided in **Appendix A.**

The general scope of work included the following tasks:

- **Preparing a Health and Safety Plan:** A Health and Safety Plan for Golder's use was prepared prior to initiating fieldwork at the Site.

- **Utilities Clearance:** Golder contacted local public utilities through Ontario One-Call and retained the services of a private contractor to locate and identify potential buried services within the general areas of the proposed borehole locations before commencing each stage of intrusive investigation at the Site.

- **Preparation of Sampling and Analysis Plans:** Golder prepared Sampling and Analysis Plans of the Phase Two ESA. The Sampling and Analysis Plans, which were followed by the field staff on Site throughout this Phase Two ESA, are attached hereto as **Appendix A**.

- **Borehole Drilling and Monitoring Well Installation:** Golder retained the services of Tri-Phase Group (Tri-Phase) to advance twenty boreholes to depths of up to 6.10 mbgs and to complete five boreholes as monitoring wells. The monitoring wells were constructed using polyvinyl chloride (PVC) well screens and PVC riser pipe finished above the ground surface (i.e., stick-up well). The annulus of the borehole around each monitoring well screen was backfilled with silica sand to a level of approximately 0.3 m above the well screen, and a bentonite seal was installed above the silica sand.

- **Soil Sampling:** Golder retrieved soil samples from each borehole advanced at the Site during the Phase Two ESA. Soil samples from each borehole were logged in the field for soil description and visual or olfactory observations of colour, staining and/or odours. In addition, the soil samples were screened in the field for combustible gas and organic vapour concentrations in the headspace of the soil samples. No evidence of soil contamination was observed.

  Selected soil samples were submitted to Maxxam Analytics Inc. (Maxxam) of Mississauga, Ontario, a laboratory accredited per the requirements of Ontario Regulation 153/04. Samples were analyzed for one or more of pH, metals and inorganics, petroleum hydrocarbon fractions F1-F4 (PHCs), polycyclic aromatic hydrocarbons (PAHs), pesticides, polychlorinated biphenyls (PCBs) and volatile organic compounds (VOCs). A summary of the soil samples submitted for analysis and their corresponding analytical parameters is provided in **Appendix A**.

  One composite soil sample was collected from the soil samples recovered from the boreholes and was submitted to Maxxam for Toxicity Characteristic Leaching Procedure (TCLP) analysis of VOCs, metals and

inorganics for waste classification, pursuant to Ontario Regulation 347. Samples were also analyzed for ignitability.

The quality assurance and quality control (QA/QC) included the collection and submittal of blind duplicate soil samples for analysis. The duplicate soil samples were analyzed for PAHs, pesticides, PHCs, VOCs, and metals and inorganics.

- **Groundwater Monitoring, Development and Sampling:** Groundwater monitoring was undertaken to measure the depth to groundwater, assess the potential presence of free-phase liquids in groundwater, and measure combustible gas and organic vapour concentrations in the headspace of the monitoring wells prior to the development of the wells. No free-phase liquids were encountered in the monitoring wells; Golder undertook development and sampling from the five monitoring wells at the Site. The groundwater samples were also submitted to Maxxam for analysis of PHCs, VOCs, PAHs and metals and inorganics.

  As part of the QA/QC program, duplicate groundwater samples were submitted to Maxxam. The duplicate samples were also analyzed for PHCs, VOCs and metals and inorganics. One trip blank sample was also included for QA/QC purposes and was analyzed for VOCs. The QA/QC results were used to determine if losses of volatile constituents or cross-contamination associated with losses of volatile contaminants during sample transport and storage may have occurred.

- **Investigation-Derived Waste Management Procedure**: Waste materials derived during this Phase Two ESA, including soil cuttings, equipment wash water, and purged groundwater were contained and placed in drums.

3.2 Media Investigated

The overall Phase Two ESA field program included sampling of soil from boreholes and groundwater from monitoring wells installed at the Site. Details of the parameters analyzed for in soil and groundwater samples are provided in **Appendix A**.

3.3 Phase One Conceptual Site Model

The following key Site features are presented in Figures 1 to 3:

- Existing buildings and structures;
- Water bodies and areas of natural significance located in the Phase One Study Area;
- Drinking water wells on the Phase One Property;
- Roads (including names) within the Phase One Study Area;
- Uses of properties adjacent to the Phase One Property; and,
- Location of identified PCAs in the Phase One Study Area (including any storage tanks).

The following describes the Phase One ESA Conceptual Site Model (CSM) for the Site based on the information obtained and reviewed as part of this Phase One ESA:

- The Site consisted of two parcels of land of approximately 150 acres (61 hectares) in area;

- The Phase One Property is situated in a wetland area of the Thundering Waters Forest;
- Potable water in the vicinity of the Site is provided by the City of Niagara Falls and is obtained from Lake Ontario. No potable water wells were identified on the Phase One Property;
- At the time of the Phase One ESA, the Site was developed as a golf course. Historically, the Site had been undeveloped since at least 1934 to 2005. There was no indications that the Phase One Property was used for an industrial use or any of the following commercial uses: vehicle garage, bulk liquid dispensing facility, or dry cleaning facility;
- At the time of the Phase One ESA, the neighbouring properties within the Phase One Study Area consisted of residential and commercial/industrial land uses. There was no indications that neighbouring properties in the Phase One Study Area were used for any of the following commercial uses: vehicle garage, bulk liquid dispensing facility, or dry cleaning facility;
- The following relevant PCAs and contaminants of concern were identified on the Phase One Property and in the Phase One Study Area:

Area of Potential Environmental Concern[1]	**Location of Area of Potential Environmental Concern on Phase One Property**	**Potentially Contaminating Activity[2]**	**Location of PCA (on-Site or off-Site)**	**Contaminants of Potential Concern[3]**	**Media Potentially Impacted (Groundwater, soil and/or Sediment)**
APEC 1 - Fill was reported imported to the Phase One Property	The stockpile is located 25 metres south of the north property boundary and 15 metres east of the west property boundary	#30. Importation of Fill Material of Unknown Quality	On-Site	Metals, other regulated parameters	Soil
APEC 2 - A railway line is located on the Phase One Property	The railway line runs through the middle of the Phase One Property	#46. Railyards, Tracks and Spurs	On-Site	PHC, BTEX, VOC	Groundwater
APEC 3 - One gasoline and one diesel fuel AST located in the maintenance area of the Phase One Property.	The ASTs are located in the maintenance area, no the northwest portion of the Phase One Property	#28. Gasoline and Associated Products Storage in Fixed Tanks	On-Site	PHC, BTEX, VOC	Groundwater. Soil
APEC 4 – Application of herbicides, pesticides and fertilizers	Fertilizers, herbicides, and pesticides are stored in the maintenance building and used throughout the golf course.	#40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, processing, Bulk Storage and Large-Scale Application	On-Site	PAH, VOC, SVOC	Groundwater, Soil

Area of Potential Environmental Concern[1]	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity[2]	Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern[3]	Media Potentially Impacted (Groundwater, soil and/or Sediment)
APEC 5 – Chemical manufacturing facility is located immediately to the west of the Phase One Property.	Adjacent to the west of the Phase One Property.	#8 Chemical Manufacturing, Processing and Bulk Storage	Off-Site	PAH, VOC	Groundwater
APEC 6 – Metal processing and streel manufacturing facilities located east of the Phase One Property	Adjacent to the east of the Phase One Property	#32 Iron and Steel Manufacturing and Processing #33 Metal Treatment, Coating, Plating and Finishing	Off-Site	PHC, BTEX, VOC	Groundwater

- No underground utilities are known to be present at the Phase One Property. The Site Representative reported the presence of a sub-grade drain on the railway property extending from west of the property to the vicinity of the Niagara River. The construction details of the drain and its potential influence on shallow groundwater flow in the vicinity of the railway line were not known;
- Soil at the Site consists primarily of glaciolacustrine deposits: silt clay, minor sand; basin and quiet water deposits; and
- Local groundwater is anticipated to flow in a south to southeast direction towards the Niagara River (located approximately 1.8 km southeast of the Site. The presence of wetlands, ponds and streams at and in the vicinity of the Site may affect groundwater flow locally, and provide potential discharge points for groundwater flow from the Site and neighbouring properties.

3.4 Deviations from Sampling and Analysis Plan

The Phase Two ESA was carried out in general accordance with the work program documented in the Sampling and Analysis Plans (provided in **Appendix A**).

3.5 Impediments

No impediments to the Phase Two ESA were encountered that would preclude the achievement of the general or specific objectives of the Phase Two ESA. The entire Site was accessible for the completion of the Site investigation activities.

4.0 INVESTIGATION METHOD

4.1 General

The following sections of this report describe the pre-field work activities and field investigation methods employed during the Phase Two ESA. Field methods described below include borehole drilling, groundwater monitoring well

installation, soil sampling and field screening, groundwater monitoring, purging and sampling. Details of analytical testing, residue management, elevation surveying and QA/QC measures are also included below. The Standard Operating Procedures that were followed during the investigation are provided in the Sampling and Analysis Plans in **Appendix A**.

4.1.1 Site-Specific Health and Safety Plan

Prior to the commencement of field activities, Golder developed a site-specific health and safety plan. The plan identified potential health and safety concerns anticipated for the work to be done at the Site, prescribed work procedures to mitigate these concerns, specified personal protective equipment requirements for site work and established procedures to be followed by Golder staff in the event of an emergency. The document was reviewed and signed on-site by field personnel prior to commencing work.

4.1.2 Utility Service Clearances

Golder contacted public utilities through Ontario One Call to co-ordinate clearances of potential underground services (*e.g.,* telephone, sewers, water lines, and gas lines). Golder also retained the services of private underground utilities locators to scan the general area of the proposed borehole locations at the Site. All Clear Locates Inc. (“All Clear Locates”) of Mississauga, Ontario was retained as the private utilities locator.

No incidents related to underground utilities clearance occurred on Site throughout the duration of this Phase Two ESA.

4.1.3 Preparation of a Sampling and Analysis Plan

Golder prepared a Sampling and Analysis Plan for the Phase Two ESA, a summary of which is provided in **Appendix A.**

4.1.4 Drilling

Twenty boreholes (designated as BH18-1 to BH18-20) were drilled to depths ranging from 0.25 to 6.10 mbgs. Five boreholes were completed as a monitoring wells. Borehole drilling and monitoring well installation were completed using a truck-mounted CME-55 Bombardier drill rig equipped with hollow stem augers and split spoon samplers for soil sampling.

The rationale for each location and the corresponding depth of the borehole are provided in **Appendix A**. The borehole locations are presented on **Figure 4.** Borehole Logs are included as **Appendix B**.

Four soil samples from across the Site were selected and submitted to the Golder Geotechnical Laboratory (Whitby) for grain-size analyses.

4.1.5 Soil: Sampling

Soil samples were retrieved from the boreholes using a split-spoon sampler. The retrieved samples were split in the field into two components. Portions of one component of each sample were placed into labelled laboratory-supplied glass jars, and in methanol-containing vials in the case of soil samples for analysis of VOCs or PHC F1, and stored in a cooler with ice for possible subsequent submission to the commercial laboratory for chemical analyses. The second component of the sample was placed inside a labelled plastic bag for subsequent field testing and screening using soil headspace vapour measurements. Soil samples submitted for analysis of metals were collected based on field observations. Soil samples submitted for analysis of other parameters were

selected based on visual, olfactory and/or field headspace readings, or if no evidence of potential impact was noted, the samples were taken in close proximity to the apparent water table depth. All selected soil samples were submitted to Maxxam for analysis of one or more of the following parameters: metals, PAHs, PCBs, pesticides, PHCs and VOCs.

Golder submitted one blind duplicate soil sample for analysis of each parameter to Maxxam as part of quality assurance and quality control (QA/QC) measures.

The subsurface soil conditions within boreholes were described by Golder personnel in terms of their texture, presence of staining, odour and foreign material. Field observations made during soil sampling activities are summarized in the borehole logs appended as **Appendix B** to this report.

4.1.6 Soil: Field Screening Measurements

Soil headspace vapour measurements were conducted on the soil samples collected for combustible gas and organic vapour concentrations.

4.1.7 Groundwater: Monitoring Well Installation

Golder personnel supervised the installation of five monitoring wells at the Site as part of the Phase Two ESA. Each monitoring well was installed such that the monitoring well screens straddled the apparent water table, thereby allowing for monitoring for the presence of light non-aqueous phase liquids, if present.

Monitoring wells were constructed using 51-mm (2 inch) ID Schedule 40, PVC well screens and riser pipe. The annulus of each borehole, or sand pack, around the monitoring well screen was backfilled with commercially supplied silica sand to approximately 0.3 m above the screen. The remainder of the annulus was sealed with hole-plug and bentonite grout to a depth of approximately 0.3 mbgs. The remaining annular space was filled with concrete to ground surface. The intent of the bentonite and concrete seals was to minimize the potential for infiltration of surface water or entry of shallower groundwater into the screened interval. Each monitoring well was completed at surface with a protective aboveground casing set in concrete and sealed with a PVC J-plug.

The locations of the groundwater monitoring wells installed for the Phase Two ESA are shown on **Figure 4**. The construction details of the monitoring wells are presented in **Appendix A** and in the appended Borehole Logs (**Appendix B**).

4.1.8 Groundwater Monitoring, Development and Sampling

Two groundwater monitoring events were completed on five newly installed monitoring wells on April 12 and 16, 2018 and July 4, 2018 during the Phase Two ESA. Monitoring well BH18-20 was observed to be dry during all three sampling events.

Groundwater quality parameters including temperature, pH and electrical conductivity (EC) were measured and recorded during the sampling events.

Monitoring Well Development

Prior to sampling, development of the three monitoring wells at the Site was conducted by Golder personnel to remove fine-grained material and stabilize the sand filter pack. Development was completed by surging the well screen at each location using an inertial hydrolift (Waterra®) pump system on March 29, 2018.

During the development, qualitative observations were made of water colour, clarity, the presence or absence of hydrocarbon sheen and any odours present. The monitoring wells were developed by purging a volume of water

equivalent to approximately three times the standing volume of water in the well or, in the case of low-yielding wells, by purging to dryness. As noted, Golder did not encounter free-phase product in the monitoring wells.

Monitoring Well Sampling

Prior to sampling, each monitoring well was purged to remove standing groundwater. Purging consisted of removing a total volume of approximately three times the standing water volume in the well or by purging the well dry three times. Field measurements of pH, electrical conductivity and temperature were taken to confirm stability of these parameters prior to sample collection for laboratory submission.

Consistent with the Sampling and Analysis Plan, groundwater samples were obtained following the purging of the monitoring wells. Groundwater samples were collected for laboratory analysis of PAHs, PHCs, VOCs, and metals. Samples were collected from each monitoring well in accordance with the Sampling and Analysis Plan and submitted to Maxxam for analysis. Groundwater sampling details are provided in **Appendix A.** Golder also collected duplicate groundwater samples and trip blank for QA/QC purposes. One duplicate sample was analyzed for all parameters. One trip blank was analyzed for VOCs.

4.1.9 Analytical Testing

Analytical testing of soil and groundwater samples was conducted by Maxxam. Maxxam is an accredited laboratory as per the requirements of O. Reg. 153/04.

4.1.10 Investigation-Derived Waste Management Procedures

Soil cuttings from the drilling programs were collected and temporarily placed in 205- litre steel drums at the Site for off-Site disposal. Golder collected one composite soil sample of the soil cuttings for waste classification purposes, pursuant to the TCLP outlined in Ontario Regulation 347. The TCLP analysis was completed for VOCs, metals and inorganics. In addition, the composite sample was analyzed for ignitability.

4.1.11 Quality Assurance and Quality Control Measures

Field instruments were calibrated prior to use in the field and daily calibration checks were performed. Soil and groundwater samples were collected in pre-cleaned, labelled, laboratory-supplied bottles, and in the case of soil samples to be analyzed for VOCs and PHC fraction 1 (PHC F1) were collected in laboratory-supplied vials containing methanol. Soil and groundwater samples were handled with dedicated nitrile gloves and placed in coolers with ice following collection and prior to submission to the laboratory. The samples were submitted under chain-of-custody protocols to Maxxam for chemical analysis within acceptable sample holding times as specified in the MOE Analytical Protocol.

Soil samples were collected directly from the split spoon sampling equipment. Reusable sampling equipment and the split spoon sampler were washed between sampling events with an Alconox detergent solution and rinsed with potable water. Groundwater samples were collected using dedicated tubing at each monitoring well location. As part of the soil sampling program during the Phase Two ESA, one duplicate soil sample was submitted for analysis of PHCs, PAHS, VOCs, pesticides, metals and inorganics and PCBs. As part of the groundwater sampling program during the Phase Two ESA, one duplicate groundwater sample was submitted for analysis of PHCs, PAHs, VOCs, and metals and inorganics, and one trip blank sample was collected for analysis of VOCs. The trip blank water sample consisted of laboratory-supplied, VOC-free water contained in 40 mL septum-topped glass vials that were shipped with the samples to confirm whether volatilization of contaminants during storage and transport may have affected the sample results.

5.0 INVESTIGATION RESULTS

5.1 Geology

Surface and subsurface soil conditions encountered at the Site were documented in the Phase Two ESA. The interpretation of the generalized subsurface conditions at the Site is based on the stratigraphic correlation of data collected in the boreholes drilled as part of this investigation. Soil descriptions are based on visual observations made in the field and are summarized in the Borehole Logs included in **Appendix B.**

It should be noted that the stratigraphic boundaries indicated on the borehole logs are inferred boundaries, and typically represent the transition from one material type to another rather than exact planes of change. It should also be noted that stratigraphic conditions will likely vary between and beyond the test locations.

In general, the subsurface conditions encountered at the boreholes at the Site consisted of surficial topsoil overlying either silty sand and clayey silt fills, which in turn were underlain by native silty clay till with varying amounts of sand and gravel. Bedrock was not encountered during the investigation.

As indicated in Appendix C, grain-size distribution curves for three select soil samples from across the Site, during the 2017 geotechnical investigation confirmed that overburden material at the Site consisted predominantly of fine-to medium grained soils with more than 50% of the particles (by mass) in the soil were equal to or smaller than 75 µm in mean diameter. These tests confirm that the soil texture at the Site under Ontario Regulation 153/04 can be classified as fine-to medium grained. This finding was confirmed by the ability to hand-pump the monitoring wells to dryness during development and purging for groundwater sampling.

The following subsections provide further information on the soil stratigraphy and bedrock encountered in the boreholes advanced at the Site.

5.1.1 Fill Material

Variable fill materials were encountered below the surficial topsoil and consisted of silty clay. The fill generally extended to depths ranging between approximately 0.15 to 2.13 mbgs. The fill generally contained organic matter, gravels, and silty clay.

5.1.2 Native Soil

Native silty clay till with periodic sand seams was encountered below the fill in all boreholes. The native till was encountered to depths of as much as 6.10 mbgs (i.e., the maximum depth to which BH 18-20 was drilled).

5.2 Groundwater: Flow Direction

Groundwater levels were measured in four monitoring wells at the Site on April 12, 2018. The average depth to groundwater, and the inferred water table, was approximately 3.5 mbgs. Although inferred direction of shallow groundwater flow is possibly southeastward towards the Welland River, as shown on **Figure 5**, local groundwater flow on the Site could be influenced by the presence of the surface water ponds and streams, and possibly the drain associated with the railway line that crosses the Site.

5.3 Soil: Quality

The analytical results of soil samples from the Site are presented in **Table 3 through Table 7**. The laboratory certificates of analysis are provided in **Appendix D**. The results are summarized below.

5.3.1 PHCs

The concentrations of PHCs did not exceed the MOE Table 9 Standards in soil samples from five borehole locations **(Table 3).**

5.3.2 VOCs

The concentrations of VOCs did not exceed the MOE Table 9 Standards in soil samples from twenty borehole locations **(Table 4).**

5.3.3 Metals and Inorganics

The concentrations and values of metals and inorganics met the MOE Table 9 Standards in soil samples from twenty borehole locations **(Table 5).**

5.3.4 Pesticides and PCBs

The concentrations of pesticides and PCBs did not exceed the MOE Table 9 Standards in soil samples from twenty borehole locations **(Table 6).**

5.3.5 PAHs

The concentrations of PAHs did not exceed the MOE Table 9 Standards in soil samples from twenty borehole locations **(Table 7).**

5.4 Waste Classification

The analytical results for the Ontario Regulation 347 Leachate Quality testing of a composite soil sample collected from the individual borehole samples are summarized in **Table 8**. The laboratory certificates of analyses are provided in **Appendix D**.

The concentrations of the analytical parameters analyzed were below the Schedule 4 Leachate Quality Criteria. Therefore, this material would be classified as non-hazardous waste for off-Site disposal purposes.

5.5 Groundwater: Quality

The analytical results of groundwater samples from the Site are presented in **Tables 9 through 12**. The laboratory certificates of analyses are provided in **Appendix D**. The results are summarized below.

5.5.1 PHCs

The concentrations of PHCs did not exceed the MOE Table 9 Standards in the groundwater samples and duplicate sample from the four monitoring wells **(Table 9).**

5.5.2 VOCs

The concentrations of VOCs did not exceed the MOE Table 9 Standards in the groundwater samples and duplicate sample from the four monitoring wells **(Table 10).**

5.5.3 Metals

The concentrations and values of metals or inorganic parameters met the MOE Table 9 Standards in the groundwater samples and duplicate sample from the four monitoring wells **(Table 11).**

5.5.4 PAHs

The concentrations of PAHs did not exceed the MOE Table 9 Standards in the groundwater samples and duplicate sample from the three monitoring wells **(Table 12).**

5.6 Quality Assurance and Quality Control Results

A certificate of analysis was received for each sample submitted for analysis. The laboratory certificates of analysis are presented in **Appendix D.** Calculation of relative percent differences of the reported results for primary and duplicate samples was conducted in accordance with the MOE document: *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act,* April 15, 2011. The calculated RPDs and QA/QC results for soils are summarized in **Tables 3 to 7** and for groundwater in **Tables 9 to 12.**

The analytical results of the primary and duplicate soil samples and groundwater samples were generally consistent, with RPD values less than the acceptance limits listed in the MOECC Analytical Protocol, with the exception of benzo(a)pyrene in the primary and duplicate sample from BH18-12, both of which met the MOE Table 9 Standard. The RPD was calculated to be 112.6%, but does not change the use of the results.

Trip blank data for VOC analysis in groundwater indicated acceptable results, with the concentrations of all parameters analyzed being less than their respective laboratory reporting limits. Further QA/QC procedures included laboratory run duplicates, spikes and blanks indicating acceptable laboratory analytical data. Recoveries of parameters analyzed in the trip spike samples met the acceptance criteria.

5.7 Phase Two Conceptual Site Model

This section summarizes the findings of the Phase Two ESA in the context of the Site topography, geology, hydrogeology, and contaminant status in the Phase Two CSM. The understanding of the stratigraphic, hydrogeological and contaminant conditions at the Site identified in the Phase One CSM was evaluated and modified based on the Phase Two ESA in the Phase Two CSM.

The Phase Two CSM consists of two figures that demonstrate the current condition of the Site.

5.7.1 Physical Setting

The Site is approximately 61 hectares (150 acres). The Site is currently operated as the Thundering Waters Golf Course and was developed in 2005. The Site is developed with a main clubhouse, half-way house, catering building, maintenance area and four ponds. The Site is shown on Figures 1 and 2.

5.7.2 Subsurface Structures and Utilities

No utilities were present on the Site. Services to the surrounding residential development lands are expected to be situated well above the depth of the water table at the Site. These utilities are therefore not expected to influence the direction of groundwater flow. Subsurface drainage adjacent to the railway may cause groundwater flow towards this feature in the vicinity of the railway.

5.7.3 Stratigraphy

5.7.3.1 Regional Geology

The Site is located within the physiographic region of southern Ontario known as the Haldimand Clay Plain. The area occupied by the golf course was generally covered by the glacial Lake Warren with subsoil predominantly of clay and silt glaciolacustrine deposits.

5.7.3.2 Local Geology and Soil Conditions

The soil stratigraphy encountered during drilling activities generally consisted of fill materials extending to depths of up to 2.44 mbgs. The fill material was overlain by a thin, surficial layer of topsoil, and was variable in composition.

Native soil was encountered underlying the fill materials, extending to depths of up to 6.10 mbgs. The native soil layer consisted of silty clay with sand and silt.

Grain-size distribution curves for four soil samples from across the Site confirmed that overburden material at the Site consisted predominantly of fine-to medium grained soils with more than 50% of the particles (by mass) in the soil were equal to or smaller than 75 µm in mean diameter. Thus, the soil texture at the Site under Ontario Regulation 153/04 was classified as fine to medium.

5.7.3.3 Hydrogeological Conditions

The fill materials and native soils are considered to form a single hydrostratigraphic unit with predominantly fine-grained soil materials. The native soils are variable but generally fine-grained in texture and, in combination with the fill, likely behave as a competent aquitard to the maximum depth of investigation. The water table occurs within the native materials. The depth to the water table measured in the four monitoring wells ranged between approximately 2.20 to 4.32 mbgs on April 12, 2018. Potential groundwater yield from the monitoring wells was low, and the wells could be readily bailed to dryness by hand during the well-development process. Monitoring well BH-20 did not yield water, as it was observed to be dry during three sampling events on April 12 and 16, and July 4, 2018. The predominance of fine-grained soil materials in proximity to the well screens of the monitoring wells was a characteristic of the subsurface across the Site.

5.7.4 Applicable Site Condition Standards

O. Reg. 153/04 outlines specific criteria to determine the applicable Site Condition Standards (SCS). The following points were considered in evaluating the SCS applicable to the Site:

- **Is the subject property classified as a "sensitive site"?**

  The Site is zoned as open space.

- **Is the subject property a "shallow soil property"?**

  Bedrock was not encountered up to the maximum depth of investigation of 6.46 mbgs (maximum depth to which borehole BH18-14 was drilled). The Site is therefore not considered to be a shallow soil property under the definitions provided in Section 43.1 of *O. Reg. 153/04*.

- **What is the intended land use?**

  The Site will be developed for residential land use.

- **What is the intended groundwater use?**

  The Site and surrounding properties are municipally serviced by a water supply that does not rely on local potable groundwater as its source. Water supply within the Town of Niagara Falls relies on Lake Ontario as its source.

- **Does the property include 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?**

  Yes. Surface water features are present on or within 30 metres of the Site.

Based on the above considerations, the data for soil and groundwater were compared to the MOE Table 9 Standards in a non-potable groundwater condition for Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition.

5.7.5 Location of Buildings and Structures

Four building structures were observed on Site. The Site buildings included: a main clubhouse building, catering building, half-way house and maintenance tent. All of the buildings were reportedly constructed in 2005.

The main clubhouse building is located on the northeastern portion of the Site, consisting of a two storey building with an office area on the second floor and kitchen and a restaurant and retail area on the main floor. The catering building was located to the east of the main clubhouse and is used for events. The half-way house is located in the central portion the Site. The half-way house consists of a single storey building with washrooms and a common area. The maintenance area included a tented building to house the golf course maintenance equipment, including several mowers and other machinery.

5.7.6 Areas of Potential Environmental Concern and Phase Two ESA Findings

A summary of the APECs identified at the Phase One Property is provided in the following table. The location of each APEC is presented in Figure 3.

Area of Potential Environmental Concern[1]	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity[2]	Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern[3]	Media Potentially Impacted (Groundwater, soil and/or Sediment)
APEC 1 - Fill was reported imported to the Phase One Property	The stockpile is located 25 metres south of the north property boundary and 15 metres east of the west property boundary	#30. Importation of Fill Material of Unknown Quality	On-Site	Metals, PAH, other regulated parameters	Soil
APEC 2 - A railway line is located on the Phase One Property	The railway line runs through the middle of the Phase One Property	#46. Railyards, Tracks and Spurs	On-Site	PHC, BTEX, VOC	Groundwater
APEC 3 - One gasoline and one diesel fuel AST located in the maintenance area of the Phase One Property.	The ASTs are located in the maintenance area, no the northwest portion of the Phase One Property	#28. Gasoline and Associated Products Storage in Fixed Tanks	On-Site	PHC, BTEX, VOC	Groundwater. Soil

Area of Potential Environmental Concern[1]	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity[2]	Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern[3]	Media Potentially Impacted (Groundwater, soil and/or Sediment)
APEC 4 – Application of herbicides, pesticides and fertilizers	Fertilizers, herbicides, and pesticides are stored in the maintenance building and used throughout the golf course.	#40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, processing, Bulk Storage and Large-Scale Application	On-Site	PAH, VOC, SVOC	Groundwater, Soil
APEC 5 – Chemical manufacturing facility is located immediately to the west of the Phase One Property.	Adjacent to the west of the Phase One Property.	#8 Chemical Manufacturing, Processing and Bulk Storage	Off-Site	PAH, VOC	Groundwater
APEC 6 – Metal processing and streel manufacturing facilities located east of the Phase One Property	Adjacent to the east of the Phase One Property	#32 Iron and Steel Manufacturing and Processing #33 Metal Treatment, Coating, Plating and Finishing	Off-Site	PHC, BTEX, VOC	Groundwater

5.7.7 Contaminated Media

The Phase Two ESA found no impacts to soil or groundwater by PHCs, PAHs, pesticides, PCBs and/or VOCs at concentrations exceeding the respective MOE Table 9 Standards.

5.7.8 Contaminants exceeding Applicable Standards at the Site

All soil and groundwater samples submitted for analysis of PHCs, VOCs, PAHs, pesticides, PCBs and metals and inorganics met the generic MOE Table 9 Standards.

5.7.9 Migration of Contaminants

No contaminants were identified at the Site that at concentrations that exceeded the applicable Table 9 Standards. Thus, the potential migration of contaminants to or from the Site was not a concern.

6.0 CONCLUSIONS

The following conclusions are drawn from the findings of this Phase Two ESA:

- No evidence of contamination of subsurface soils was apparent from visual, olfactory and screening inspection of samples during drilling;
- Soil samples from the Site met the generic MOE Table 9 Standards;
- No free-phase petroleum hydrocarbon product was observed in the monitoring wells during the investigation program; and
- Groundwater samples from the Site met the generic MOE Table 9 Standards.

7.0 STATEMENT OF COMPLETION

The undersigned confirm that this Phase Two Environmental Site Assessment was conducted in a manner consistent with the expected standard of care for the consulting industry in Ontario and meets the requirements for Phase Two ESAs as set out in O. Reg. 153/04.

8.0 LIMITATIONS

This report was prepared for the exclusive use of Client. This report, which specifically includes all tables, figures and appendices, is based on data and information provided to Golder, and is based solely on the conditions encountered at the time of the investigations, supplemented by historical information and data obtained by Golder as described in this report.

The assessment of environmental conditions at this site has been made using the results of field screening techniques and chemical analysis of soil and groundwater samples at a limited number of locations. The Site conditions between sampling locations have been inferred based on conditions observed at the sampling locations. Conditions may vary from these sample locations. Additional study, including further investigation, can reduce the inherent uncertainties associated with this type of study. However, it is never possible, even with exhaustive sampling and testing, to dismiss the possibility that part of a site may be contaminated and remain undetected.

The services performed as described in this report were conducted in a manner consistent with the level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions, subject to the time limits and financial and physical constraints applicable to the services.

Any use which a party not listed above makes of this report, or any reliance on, or decisions to be made based on it, are the responsibilities of such party. Golder accepts no responsibility for damages, if any, suffered by any such party as a result of decisions made or actions based on this report.

The content of this report is based on information provided by Client and our present understanding of the Site conditions, and our professional judgment in light of such information at the time this report was prepared. This report provides a professional opinion and therefore no warranty is expressed, implied or made, as to the

conclusions, advice and recommendations offered in this report. This report does not provide a legal opinion regarding compliance with applicable laws. With respect to regulatory compliance issues, it should be noted that regulatory statutes and the interpretation of regulatory statutes are subject to change.

The findings and conclusions of this report are valid only as of the date of this report. If new information is discovered in future work, including excavations, borings, or other studies, Golder Associates Ltd. should be requested to re-evaluate the conclusions of this report, and to provide amendments as required.

9.0 CLOSURE

We trust that the information presented in this report meets your current requirements. Should you have any questions or concerns, please do not hesitate to contact the undersigned.

Signature Page

Golder Associates Ltd.

Prabhjot Bal, H.B.Sc.
Environmental Scientist

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Tables

Table 1
Monitoring Well Construction Details
6000 Marineland Parkway, Niagara Falls, Ontario

Location ID	Monitoring Well ID	Location		Top of Pipe Elevation	Borehole Depth	Screen Interval	Date of Drilling/Installation
		Northing	Easting	(m)	(mbgs)	(mbgs)	
BH18-4	BH18-4	4769757.266	655719.475	181.738	5.2	2.7 - 5.2	March 27, 2018
BH18-12	BH18-12	4769238.949	654897.929	182.53	5.2	2.7 - 5.2	March 26, 2018
BH18-13	BH18-13	4769481.365	654988.594	181.022	5.2	2.7 - 5.2	March 23, 2018
BH18-14	BH18-14	4769550.97	654990.682	180.975	5.2	2.7 - 5.2	March 23, 2018
BH18-20	BH18-19	4769791.505	655318.369	180.163	6.1	2.7 - 5.2	March 28, 2018

NOTES:
m - metres
mbgs - metres below ground surface
NA - not available
Coordinate system used is NAD83 UTM Zone 17, Niagara Region Monuments, Canadian Geodetic (CGVD1928:78), based on HT2.0

Table 2
Groundwater Monitoring Data
6000 Marineland Parkway, Niagara Falls, Ontario

Location ID	Top of Pipe Elevation (m)	Groundwater Level Monitoring Date	Depth to Groundwater (mbtop)	Groundwater Elevation (masl)
BH18-4	181.738	12-Apr-18	4.3	177.44
BH18-12	182.53	12-Apr-18	2.2	180.33
BH18-13	181.022	12-Apr-18	3.8	177.22
BH18-14	180.975	12-Apr-18	4	176.98
BH18-20	180.163	12-Apr-18	Dry	NV

NOTES:
masl - metres above sea level
mbtop - metres below top of pipe

Table 3
Soil Analytical Results - Petroleum Hydrocarbons (PHCs)
6000 Marineland Parkway, Niagara Falls, Ontario

Borehole ID			BH18-04	BH18-12					BH18-13	BH18-14		BH18-20
Sample ID			BH18-04	BH18-12	BH18-912	QA/QC			BH18-13	BH18-14	BH14-1 DUP1	BH18-20
Date			27-Mar-18	26-Mar-18	26-Mar-18		Are the		23-Mar-18	23-Mar-18	23-Mar-18	26-Mar-18
Laboratory Certificate #			GJG942	GJG940	GJG957	5X RDL	results >5X	RPD (%)[a]	GJG937	GJG938	GJG938 DUP1	GJG941
Depth (mbgs)			0.0 - 0.61	0 - 0.61	0.76 - 1.37		RDL		0.76 - 1.37	0.76 - 1.37	0.76 - 1.37	0.5 - 1.5
Parameter	**Units**	**MOE Table 9 Standards**										
Benzene	ug/g	44	-	-	-				-	-	-	-
Toluene	ug/g	14000	-	-	-				-	-	-	-
Ethylbenzene	ug/g	1800	-	-	-				-	-	-	-
m/p xylenes	ug/g	NV	-	-	-				-	-	-	-
o xylene	ug/g	NV	-	-	-				-	-	-	-
Total Xylenes	ug/g	3300	-	-	-				-	-	-	-
F1 (C6-C10)	ug/g	420	<10	<10	<10	50	No	NV	<10	<10	-	<10
F1 (C6-C10) - BTEX	ug/g	420	<10	<10	<10	50	No	NV	<10	<10	-	<10
F2 (C10-C16)	ug/g	150	<10	<10	<10	50	No	NV	<10	<10	<10	<10
F3 (C16-C34)	ug/g	500	<50	<50	<50	250	No	NV	<50	<50	<50	<50
F4 (C34-C50)	ug/g	500	<50	<50	57	250	No	NV	<50	<50	<50	<50
Reached Baseline at C50	ug/g	NV	YES	YES	NO	NV	NV	NV	YES	YES	YES	YES
F4 Gravimetric	ug/g	500	-	-	370	250	No	NV	-	-	-	-

Notes:

NA	= Not applicable
NV	= No value
ND	= Non detect
mbgs	= metres below ground surface
µg/g	= micrograms per gram
ppm	= parts per million
MOE Table 9 Standards	= Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition for Fine Grained Soil (April 15, 2011).
340	= Exceedance of Table 9 Standards

Table 4
Soil Analytical Results - Volatile Organic Compounds (VOCs)
6000 Marineland Parkway, Niagara Falls, Ontario

Borehole ID			BH18-01	BH18-02	BH18-03	BH18-04	BH18-12					BH18-13	BH18-14	BH18-20
Sample ID			BH18-01	BH18-02	BH18-03	BH18-04	BH18-12	BH18-912	QA/QC			BH18-13	BH18-14	BH18-20
Date			27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	26-Mar-18	26-Mar-18	5X RDL	Are the results >5X RDL	RPD (%)[a]	23-Mar-18	23-Mar-18	26-Mar-18
Laboratory Certificate #			GJG943	GJG945	GJG944	GJG942	GJG940	GJG957				GJG937	GJG938	GJG941
Depth (mbgs)			0.0 - 0.61			0.0 - 0.61	0 - 0.61	0 - 0.61				0.76 - 1.37	0.76 - 1.37	0.5 - 1.5
Parameter	**Units**	**MOE Table 9 Standards**												
Acetone	ug/g	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50
Benzene	ug/g	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.1	No	NV	<0.020	<0.020	<0.020
Bromodichloromethane	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Bromoform	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Bromomethane	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Carbon Tetrachloride	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Chlorobenzene	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Chloroform	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Dibromochloromethane	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
1,1-Dichloroethane	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
1,2-Dichloroethane	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
1,1-Dichloroethylene	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Cis-1,2-Dichloroethylene	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Trans-1,2-Dichloroethylene	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
1,2-Dichloropropane	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Cis-1,3-Dichloropropylene	ug/g	NV	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.15	No	NV	<0.030	<0.030	<0.030
Trans-1,3-Dichloropropylene	ug/g	NV	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.2	No	NV	<0.040	<0.040	<0.040
Ethylbenzene	ug/g	0.05	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.1	No	NV	<0.020	<0.020	<0.020
Ethylene Dibromide	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Methyl Ethyl Ketone	ug/g	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50
Methylene Chloride	ug/g	0.05	<0.050	<0.050	<0.050	<0.50	<0.50	<0.50	0.25	No	NV	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	ug/g	0.5	<0.50	<0.50	<0.50	<0.050	<0.050	<0.050	2.5	No	NV	<0.050	<0.050	<0.050
Methyl-t-Butyl Ether	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Styrene	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
1,1,1,2-Tetrachloroethane	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Toluene	ug/g	0.2	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.1	No	NV	<0.020	<0.020	<0.020
Tetrachloroethylene	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
1,1,1-Trichloroethane	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Trichloroethylene	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Vinyl Chloride	ug/g	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.1	No	NV	<0.020	<0.020	<0.020
m-Xylene & p-Xylene	ug/g	NV	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.1	No	NV	<0.020	<0.020	<0.020
o-Xylene	ug/g	NV	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.1	No	NV	<0.020	<0.020	<0.020
Total Xylenes	ug/g	0.05	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.1	No	NV	<0.020	<0.020	<0.020
Dichlorodifluoromethane (FREON 12	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Hexane(n)	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
Trichlorofluoromethane	ug/g	0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050
1,3-Dichloropropene (cis + trans)	ug/g	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050	<0.050

Notes:

NA	= Not applicable
NV	= No value
ND	= Non detect
mbgs	= metres below ground surface
µg/g	= micrograms per gram
ppm	= parts per million
MOE Table 9 Standards	= Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition for Fine Grained Soil (April 15, 2011).
340	= Exceedance of Table 9 Standards

Table 5
Soil Analytical Results - Metals and General Chemistry
6000 Marineland Parkway, Niagara Falls, Ontario

Borehole ID				BH18-01	BH18-02	BH18-03	BH18-04	BH18-05	BH18-06	BH18-07	BH18-08	BH18-09	BH18-10				
Sample ID				BH18-01	BH18-02	BH18-03	BH18-04	BH18-05	BH18-06	BH18-07	BH18-08	BH18-09	BH18-10	BH18-910	QA/QC		
Date				27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	28-Mar-18	28-Mar-18	28-Mar-18	28-Mar-18	5X RDL	Are the results >5X RDL	RPD (%)[a]
Laboratory Certificate #				GJG943	GJG945	GJG944	GJG942	GJG947	GJG948	GJG946	GJG951	GJG950	GJG949	GJG958			
Depth (mbgs)				0.25 - 0.5	0.5 - 1.5	0.0 - 0.76	0.0 - 0.61	0.5 - 1.5	0.25 - 0.5	0.25 - 0.5	0.25 - 0.5	0.5 - 1.5	0.25 - 0.5	0.76 - 1.37			
Parameter	**Units**	**Reportable Detection Limit**	**MOE Table 9 Standards**														
General																	
Conductivity	mS/cm	0.002	0.7	0.32	0.34	0.36	0.22	0.35	0.65	0.5	0.24	0.36	0.27	0.24	0.01	Yes	11.8
pH	pH Units		NV	7.48	5.35	7.46	6.29	7.54	7.87	7.68	7.32	7.11	7.81	7.8	NV	NV	NV
Cyanide, Free	ug/g	0.01	0.051	0.02	<0.01	0.02	0.02	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	0.05	No	NV
Moisture	%		NV	24	19	25	28	22	25	22	18	26	21	22	NV	NV	NV
Metals																	
Boron (Hot Water Soluble)	ug/g	0.2	1.5	0.12	0.15	0.23	0.17	0.52	0.27	0.28	0.17	0.31	0.14	0.17	1	No	NV
Antimony	ug/g	1	1.3	0.21	<0.20	0.23	<0.20	<0.20	<0.20	<0.20	0.2	0.31	0.29	0.25	5	No	NV
Arsenic	ug/g	0.5	18	5.1	1.4	4.1	3.1	4.3	4.6	3.5	3.6	5.7	5.1	6.5	2.5	No	NV
Barium	ug/g	0.2	220	100	94	110	64	180	130	76	61	120	120	120	1	Yes	0.0
Beryllium	ug/g	0.2	2.5	0.92	0.68	0.9	0.49	0.91	0.94	0.6	0.5	1	0.99	0.9	1	No	NV
Boron	ug/g	5	36	5.9	<5.0	8.1	7.7	8.5	12	7.3	5.6	8.1	12	11	25	No	NV
Cadmium	ug/g	0.1	1.2	0.13	<0.10	0.2	<0.10	0.43	0.11	0.13	<0.10	0.17	0.12	0.15	0.5	No	NV
Chromium	ug/g	1	70	28	20	27	16	26	27	17	15	29	29	29	5	Yes	0.0
Chromium VI	ug/g	0.2	0.66	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	1	No	NV
Cobalt	ug/g	0.1	22	15	8.8	13	8.2	12	14	9.1	7.7	15	15	14	0.5	Yes	6.9
Copper	ug/g	0.5	92	17	8.1	19	13	23	24	18	12	20	26	25	2.5	Yes	3.9
Lead	ug/g	1	120	15	10	15	7.3	64	13	20	13	19	13	18	5	Yes	32.3
Molybdenum	ug/g	0.5	2	0.63	<0.50	0.9	<0.50	0.94	0.68	<0.50	<0.50	0.99	0.53	0.79	2.5	No	NV
Nickel	ug/g	0.5	82	28	18	27	18	28	30	20	17	32	34	32	2.5	Yes	6.1
Selenium	ug/g	0.5	1.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2.5	No	NV
Silver	ug/g	0.2	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	1	No	NV
Thallium	ug/g	0.05	1	0.2	0.12	0.17	0.087	0.17	0.16	0.1	0.1	0.18	0.19	0.18	0.25	No	NV
Uranium	ug/g	0.05	2.5	0.64	0.74	0.74	0.53	0.53	0.95	0.55	0.49	0.76	0.9	0.95	0.25	Yes	5.4
Vanadium	ug/g	5	86	40	24	38	23	32	37	25	22	41	39	36	25	Yes	8.0
Zinc	ug/g	5	290	66	74	69	42	260	69	61	44	81	71	74	25	Yes	4.1
Mercury	ug/g	0.05	0.27	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.053	<0.050	<0.050	0.25	No	NV
Sodium Adsorption Ratio	NA	-	NV	0.22	0.19	0.24	0.28	0.42	1	0.47	0.99	0.31	0.54	0.56	NV	NV	NV

Notes:

NA	= Not applicable
NV	= No value
ND	= Non detect
mbgs	= metres below ground surface
µg/g	= micrograms per gram
ppm	= parts per million
MOE Table 9 Standards	= Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional/Industrial/Commercial/ Community Property Use for fine textured soil (April 15, 2011)
340	= Exceedance of Table 9 Standards

Table 5
Soil Analytical Results - Metals and General Chemistry
6000 Marineland Parkway, Niagara Falls, Ontario

Borehole ID				BH18-11	BH18-12					BH18-13	BH18-14	BH18-15	BH18-16	BH18-17	BH18-18	BH18-19	BH18-20
Sample ID				BH18-11	BH18-12	BH18-912	QA/QC			BH18-13	BH18-14	BH18-15	BH18-16	BH18-17	BH18-18	BH18-19	BH18-20
Date				28-Mar-18	26-Mar-18	26-Mar-18				23-Mar-18	23-Mar-18	28-Mar-18	28-Mar-18	28-Mar-18	28-Mar-18	26-Mar-18	26-Mar-18
Laboratory Certificate #				GJG952	GJG940	GJG957	5X RDL	Are the results >5X RDL	RPD (%)[a]	GJG937	GJG938	GJG953	GJG955	GJG956	GJG954	GJG939	GJG941
Depth (mbgs)				0.25 - 0.5	0 - 0.61	0 - 0.61				0.76 - 1.37	0.76 - 1.37	0.5 - 1.5	0.25 - 0.5	0.25 - 0.5	0.25 - 0.5	0.5 - 1.5	0.5 - 1.5
Parameter	**Units**	**Reportable Detection Limit**	**MOE Table 9 Standards**														
General																	
Conductivity	mS/cm	0.002	0.7	0.13	0.15	0.14	0.01	Yes	6.9	0.22	0.22	0.31	0.37	0.3	0.19	0.42	0.61
pH	pH Units		NV	7.78	7.56	7.58	NV	NV	NV	7.78	7.91	7.37	7.17	7.19	7.63	7.84	7.79
Cyanide, Free	ug/g	0.01	0.051	<0.01	<0.01	<0.01	0.05	No	NV	<0.01	<0.01	0.01	<0.01	0.03	<0.01	<0.01	<0.01
Moisture	%		NV	11	13	14	NV	NV	NV	19	21	26	26	24	19	18	17
Metals																	
Boron (Hot Water Soluble)	ug/g	0.2	1.5	0.076	0.24	0.14	1	No	NV	0.079	0.13	0.26	0.25	0.19	0.088	0.078	0.11
Antimony	ug/g	1	1.3	0.25	0.41	<0.20	5	No	NV	<0.20	0.24	0.29	0.31	0.22	<0.20	<0.20	0.29
Arsenic	ug/g	0.5	18	3	4.1	2.6	2.5	Yes	44.8	4.8	6	6	5.5	5.1	4.5	4.5	7.5
Barium	ug/g	0.2	220	37	37	36	1	Yes	2.7	140	99	120	120	120	140	160	110
Beryllium	ug/g	0.2	2.5	0.35	0.33	0.34	1	No	NV	1	0.83	0.92	1.1	1.1	1.2	1.1	0.88
Boron	ug/g	5	36	5.2	5.3	5	25	No	NV	11	10	11	7.2	10	13	12	12
Cadmium	ug/g	0.1	1.2	0.16	0.15	0.19	0.5	No	NV	<0.10	<0.10	<0.10	<0.10	0.14	<0.10	0.11	<0.10
Chromium	ug/g	1	70	12	11	11	5	Yes	0.0	29	25	27	32	31	31	30	27
Chromium VI	ug/g	0.2	0.66	<0.2	<0.2	<0.2	1	No	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cobalt	ug/g	0.1	22	6.9	6.1	6.4	0.5	Yes	4.8	15	13	14	16	15	17	15	16
Copper	ug/g	0.5	92	12	16	12	2.5	Yes	28.6	26	25	24	21	23	26	25	27
Lead	ug/g	1	120	14	29	17	5	Yes	52.2	11	11	18	19	14	12	11	13
Molybdenum	ug/g	0.5	2	<0.50	<0.50	<0.50	2.5	No	NV	0.53	0.73	0.7	0.9	0.72	<0.50	0.55	0.88
Nickel	ug/g	0.5	82	15	12	13	2.5	Yes	8.0	34	30	32	31	34	37	36	34
Selenium	ug/g	0.5	1.5	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Silver	ug/g	0.2	0.5	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium	ug/g	0.05	1	0.077	0.065	0.064	0.25	No	NV	0.18	0.17	0.17	0.22	0.2	0.17	0.19	0.21
Uranium	ug/g	0.05	2.5	0.41	0.42	0.4	0.25	Yes	4.9	1	0.91	0.9	0.81	0.89	0.58	1.1	1
Vanadium	ug/g	5	86	20	18	18	25	Yes	0.0	40	34	36	45	42	43	40	38
Zinc	ug/g	5	290	56	56	56	25	Yes	0.0	70	67	75	77	84	71	70	73
Mercury	ug/g	0.05	0.27	<0.050	0.072	<0.050	0.25	No	NV	0.058	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sodium Adsorption Ratio	NA	-	NV	0.28	0.32	0.28	NV	NV	NV	0.44	0.57	0.18	0.22	0.34	0.26	0.64	0.41

Notes:

NA	= Not applicable
NV	= No value
ND	= Non detect
mbgs	= metres below ground surface
µg/g	= micrograms per gram
ppm	= parts per million
MOE Table 9 Standards	= Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional/Industrial/Commercial/ Community Property Use for fine textured soil (April 15, 2011)
340	= Exceedance of Table 9 Standards

Table 6
Soil Analytical Results - Pesticides and Polychlorinated Biphenyls (PCBs)
6000 Marineland Parkway, Niagara Falls, Ontario

Borehole ID			BH18-01	BH18-02	BH18-03	BH18-04	BH18-05	BH18-06	BH18-07	BH18-08	BH18-09
Sample ID			BH18-01	BH18-02	BH18-03	BH18-04	BH18-05	BH18-06	BH18-07	BH18-08	BH18-09
Date			27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	28-Mar-18	28-Mar-18
Laboratory Certificate #			GJG943	GJG945	GJG944	GJG942	GJG947	GJG948	GJG946	GJG951	GJG950
Depth (mbgs)			0.25 - 0.5	0.5 - 1.5	0.0 - 0.76	0.0 - 0.61	0.5 - 1.5	0.25 - 0.5	0.25 - 0.5	0.25 - 0.5	0.5 - 1.5
Parameter	**Units**	**MOE Table 9 Standards**									
Aldrin	µg/g	0.05	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Chlordane (alpha)	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Chlordane (gamma)	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Chlordane (total)	µg/g	0.05	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
o,p DDD	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
p,p-DDD	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0052	<0.0020	<0.0020	<0.0020
DDD (total)	µg/g	0.05	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0052	<0.0020	<0.0020	<0.0020
o,p DDE	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
p,p-DDE	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.021	<0.0020	0.0036	<0.0020
DDE (total)	µg/g	0.05	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.021	<0.0020	0.0036	<0.0020
op-DDT	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
pp-DDT	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0037	<0.0020	<0.0040	<0.0020
DDT (total)	µg/g	1.4	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0037	<0.0020	<0.0040	<0.0020
Dieldrin	µg/g	0.05	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Endosulphan I	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Endosulphan II	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Total Endosulphan	µg/g	0.04	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Endrin	µg/g	0.04	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Heptachlor	µg/g	0.05	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Heptachlor Epoxide	µg/g	0.05	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Lindane	µg/g	0.01	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Methoxychlor	µg/g	0.05	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total PCB	µg/g	0.3	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.02	<0.015
Hexachlorobenzene	µg/g	0.02	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Hexachlorobutadiene	µg/g	0.01	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Hexachloroethane	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020

Notes:

NA	= Not applicable
NV	= No value
ND	= Non detect
*	= pH value of 5 to 9 for surficial soil (<1.5 mbgs) and 5 to 11 for subsurficial soil (>1.5 mbgs)
mbgs	= metres below ground surface
µg/g	= micrograms per gram
ppm	= parts per million
mS/cm	= milliSeimens per centimeter
MOE Table 9 Standards	= Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use for fine textured soil (April 15, 2011)
150	= Exceedance of Table 9 Standards

Table 6
Soil Analytical Results - Pesticides and Polychlorinated Biphenyls (PCBs)
6000 Marineland Parkway, Niagara Falls, Ontario

Borehole ID			BH18-10					BH18-11	BH18-12				
Sample ID			BH18-10	BH18-910	QA/QC			BH18-11	BH18-12	BH18-912	QA/QC		
Date			28-Mar-18	28-Mar-18	5X RDL	Are the results >5X RDL	RPD (%)[a]	28-Mar-18	26-Mar-18	26-Mar-18	5X RDL	Are the results >5X RDL	RPD (%)[a]
Laboratory Certificate #			GJG949	GJG958				GJG952	GJG940	GJG957			
Depth (mbgs)			0.25 - 0.5	0.76 - 1.37				0.25 - 0.5	0 - 0.61	0.76 - 1.37			
Parameter	**Units**	**MOE Table 9 Standards**											
Aldrin	µg/g	0.05	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0020	<0.0020	0.01	No	NV
Chlordane (alpha)	µg/g	NV	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0040 (1)	<0.0020	0.01	No	NV
Chlordane (gamma)	µg/g	NV	<0.0020	<0.0020	0.01	No	NV	<0.0020	0.0025	<0.0020	0.01	No	NV
Chlordane (total)	µg/g	0.05	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0040	<0.0020	0.01	No	NV
o,p DDD	µg/g	NV	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0020	<0.0020	0.01	No	NV
p,p-DDD	µg/g	NV	<0.0020	<0.0020	0.01	No	NV	<0.0020	0.0044	0.0039	0.01	No	NV
DDD (total)	µg/g	0.05	<0.0020	<0.0020	0.01	No	NV	<0.0020	0.0044	0.0039	0.01	No	NV
o,p DDE	µg/g	NV	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0020	<0.0020	0.01	No	NV
p,p-DDE	µg/g	NV	<0.0020	<0.0020	0.01	No	NV	<0.0020	0.014	0.006	0.01	No	NV
DDE (total)	µg/g	0.05	<0.0020	<0.0020	0.01	No	NV	<0.0020	0.014	0.006	0.01	No	NV
op-DDT	µg/g	NV	<0.0020	<0.0020	0.01	No	NV	<0.0020	0.0024	<0.0020	0.01	No	NV
pp-DDT	µg/g	NV	<0.0020	<0.0020	0.01	No	NV	0.0022	0.028	0.012	0.01	No	NV
DDT (total)	µg/g	1.4	<0.0020	<0.0020	0.01	No	NV	0.0022	0.031	0.012	0.01	No	NV
Dieldrin	µg/g	0.05	<0.0020	<0.0020	0.01	No	NV	<0.0020	0.0052	0.003	0.01	No	NV
Endosulphan I	µg/g	NV	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0020	<0.0020	0.01	No	NV
Endosulphan II	µg/g	NV	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0020	<0.0020	0.01	No	NV
Total Endosulphan	µg/g	0.04	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0020	<0.0020	0.01	No	NV
Endrin	µg/g	0.04	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0020	<0.0020	0.01	No	NV
Heptachlor	µg/g	0.05	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0020	<0.0020	0.01	No	NV
Heptachlor Epoxide	µg/g	0.05	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0020	<0.0020	0.01	No	NV
Lindane	µg/g	0.01	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0020	<0.0020	0.01	No	NV
Methoxychlor	µg/g	0.05	<0.0050	<0.0050	0.025	No	NV	<0.0050	<0.0050	<0.0050	0.025	No	NV
Total PCB	µg/g	0.3	<0.015	<0.015	0.075	No	NV	<0.015	<0.015	<0.015	0.075	No	NV
Hexachlorobenzene	µg/g	0.02	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0020	<0.0020	0.01	No	NV
Hexachlorobutadiene	µg/g	0.01	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0020	<0.0020	0.01	No	NV
Hexachloroethane	µg/g	NV	<0.0020	<0.0020	0.01	No	NV	<0.0020	<0.0020	<0.0020	0.01	No	NV

Notes:

NA	= Not applicable
NV	= No value
ND	= Non detect
*	= pH value of 5 to 9 for surficial soil (<1.5 mbgs) and 5 to 11 for subsurficial soil (>1.5 mbgs)
mbgs	= metres below ground surface
µg/g	= micrograms per gram
ppm	= parts per million
mS/cm	= milliSeimens per centimeter
MOE Table 9 Standards	= Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use for fine textured soil (April 15, 2011)
150	= Exceedance of Table 9 Standards

Table 6
Soil Analytical Results - Pesticides and Polychlorinated Biphenyls (PCBs)
6000 Marineland Parkway, Niagara Falls, Ontario

Borehole ID			BH18-13	BH18-14	BH18-15	BH18-16	BH18-17	BH18-18	BH18-19	BH18-20
Sample ID			BH18-13	BH18-14	BH18-15	BH18-16	BH18-17	BH18-18	BH18-19	BH18-20
Date			23-Mar-18	23-Mar-18	28-Mar-18	28-Mar-18	28-Mar-18	28-Mar-18	26-Mar-18	26-Mar-18
Laboratory Certificate #			GJG937	GJG938	GJG953	GJG955	GJG956	GJG954	GJG939	GJG941
Depth (mbgs)			0.76 - 1.37	0.76 - 1.37	0.5 - 1.5	0.25 - 0.5	0.25 - 0.5	0.25 - 0.5	0.5 - 1.5	0.5 - 1.5
Parameter	**Units**	**MOE Table 9 Standards**								
Aldrin	µg/g	0.05	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Chlordane (alpha)	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Chlordane (gamma)	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Chlordane (total)	µg/g	0.05	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
o,p DDD	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
p,p-DDD	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
DDD (total)	µg/g	0.05	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
o,p DDE	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
p,p-DDE	µg/g	NV	<0.0020	<0.0020	<0.0020	0.0026	0.0028	<0.0020	<0.0020	<0.0020
DDE (total)	µg/g	0.05	<0.0020	<0.0020	<0.0020	0.0026	0.0028	<0.0020	<0.0020	<0.0020
op-DDT	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
pp-DDT	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
DDT (total)	µg/g	1.4	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Dieldrin	µg/g	0.05	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Endosulphan I	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Endosulphan II	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Total Endosulphan	µg/g	0.04	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Endrin	µg/g	0.04	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Heptachlor	µg/g	0.05	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Heptachlor Epoxide	µg/g	0.05	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Lindane	µg/g	0.01	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Methoxychlor	µg/g	0.05	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total PCB	µg/g	0.3	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Hexachlorobenzene	µg/g	0.02	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Hexachlorobutadiene	µg/g	0.01	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Hexachloroethane	µg/g	NV	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020

Notes:

NA	= Not applicable
NV	= No value
ND	= Non detect
*	= pH value of 5 to 9 for surficial soil (<1.5 mbgs) and 5 to 11 for subsurficial soil (>1.5 mbgs)
mbgs	= metres below ground surface
µg/g	= micrograms per gram
ppm	= parts per million
mS/cm	= milliSeimens per centimeter
MOE Table 9 Standards	= Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use for fine textured soil (April 15, 2011)
150	= Exceedance of Table 9 Standards

Table 7
Soil Analytical Results - Polycyclic Aromatic Hydrocarbons (PAHs)
6000 Marineland Parkway, Niagara Falls, Ontario

Borehole ID			BH18-01	BH18-02	BH18-03	BH18-04	BH18-05	BH18-06	BH18-07	BH18-08	BH18-09
Sample ID			BH18-01	BH18-02	BH18-03	BH18-04	BH18-05	BH18-06	BH18-07	BH18-08	BH18-09
Date			27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	27-Mar-18	28-Mar-18	28-Mar-18
Laboratory Certificate #			GJG943	GJG945	GJG944	GJG942	GJG947	GJG948	GJG946	GJG951	GJG950
Depth (mbgs)			0.25 - 0.5	0.5 - 1.5	0.0 - 0.76	0.0 - 0.61	0.5 - 1.5	0.25 - 0.5	0.25 - 0.5	0.25 - 0.5	0.5 - 1.5
Parameter	**Units**	**MOE Table 9 Standards**									
Acenaphthene	ug/g	0.072	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	ug/g	0.093	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Anthracene	ug/g	0.22	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(a)anthracene	ug/g	0.36	0.011	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.017	0.019
Benzo(a)pyrene	ug/g	0.3	0.012	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.016	0.021
Benzo(b/j)fluoranthene	ug/g	0.47	0.024	<0.0050	<0.0050	<0.0050	<0.0050	0.0075	0.0081	0.026	0.038
Benzo(g,h,i)perylene	ug/g	0.68	0.011	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.012	0.016
Benzo(k)fluoranthene	ug/g	0.48	0.0061	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.007	0.01
Chrysene	ug/g	2.8	0.018	<0.0050	<0.0050	<0.0050	<0.0050	0.0067	0.0085	0.02	0.031
Dibenz(a,h)anthracene	ug/g	0.1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	ug/g	0.69	0.026	<0.0050	<0.0050	<0.0050	<0.0050	0.0092	0.012	0.028	0.044
Fluorene	ug/g	0.19	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Indeno(1,2,3-cd)pyrene	ug/g	0.23	0.011	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.011	0.017
1-Methylnaphthalene	ug/g	0.59	0.0095	<0.0050	<0.0050	0.0072	<0.0050	<0.0050	<0.0050	<0.0050	0.011
2-Methylnaphthalene	ug/g	0.59	0.0083	<0.0050	<0.0050	0.0086	<0.0050	<0.0050	<0.0050	<0.0050	0.015
Methylnaphthalene, 2-(1-)	ug/g	0.09	0.018	<0.0071	<0.0071	0.016	<0.0071	<0.0071	<0.0071	<0.0071	0.026
Naphthalene	ug/g	0.69	0.0057	<0.0050	<0.0050	0.0061	<0.0050	<0.0050	<0.0050	<0.0050	0.0077
Phenanthrene	ug/g	1	0.018	<0.0050	<0.0050	0.0063	<0.0050	0.014	0.0085	0.016	0.026
Pyrene	ug/g	0.59	0.019	<0.0050	<0.0050	<0.0050	<0.0050	0.0094	0.011	0.03	0.035

Notes:

NA	= Not applicable
NV	= No value
ND	= Non detect
mbgs	= metres below ground surface
µg/g	= micrograms per gram
ppm	= parts per million
MOE Table 9 Standards	= Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional/Industrial/Commercial/ Community Property Use for fine textured soil (April 15, 2011)
340	= Exceedance of Table 3 Standards

Table 7
Soil Analytical Results - Polycyclic Aromatic Hydrocarbons (PAHs)
6000 Marineland Parkway, Niagara Falls, Ontario

Borehole ID			BH18-10					BH18-11	BH18-12				
Sample ID			BH18-10	BH18-910	QA/QC			BH18-11	BH18-12	BH18-912	QA/QC		
Date			28-Mar-18	28-Mar-18				28-Mar-18	26-Mar-18	26-Mar-18			
Laboratory Certificate #			GJG949	GJG958	5X RDL	Are the results >5X RDL	RPD (%)[a]	GJG952	GJG940	GJG957	5X RDL	Are the results >5X RDL	RPD (%)[a]
Depth (mbgs)			0.25 - 0.5	0.76 - 1.37				0.25 - 0.5	0 - 0.61	0.76 - 1.37			
Parameter	**Units**	**MOE Table 9 Standards**											
Acenaphthene	ug/g	0.072	<0.0050	<0.0050	0.025	No	NV	<0.0050	0.012	<0.0050	0.025	No	NV
Acenaphthylene	ug/g	0.093	<0.0050	<0.0050	0.025	No	NV	0.013	0.016	<0.0050	0.025	No	NV
Anthracene	ug/g	0.22	<0.0050	<0.0050	0.025	No	NV	0.011	0.036	0.0051	0.025	No	NV
Benzo(a)anthracene	ug/g	0.36	<0.0050	<0.0050	0.025	No	NV	0.037	0.1	0.023	0.025	No	NV
Benzo(a)pyrene	ug/g	0.3	<0.0050	<0.0050	0.025	No	NV	0.037	0.093	0.026	0.025	Yes	112.6
Benzo(b/j)fluoranthene	ug/g	0.47	<0.0050	<0.0050	0.025	No	NV	0.059	0.14	0.041	0.025	No	NV
Benzo(g,h,i)perylene	ug/g	0.68	<0.0050	<0.0050	0.025	No	NV	0.032	0.049	0.021	0.025	No	NV
Benzo(k)fluoranthene	ug/g	0.48	<0.0050	<0.0050	0.025	No	NV	0.022	0.049	0.013	0.025	No	NV
Chrysene	ug/g	2.8	<0.0050	0.0053	0.025	No	NV	0.03	0.083	0.019	0.025	No	NV
Dibenz(a,h)anthracene	ug/g	0.1	<0.0050	<0.0050	0.025	No	NV	0.0065	0.013	<0.0050	0.025	No	NV
Fluoranthene	ug/g	0.69	<0.0050	0.0077	0.025	No	NV	0.063	0.21	0.044	0.025	No	NV
Fluorene	ug/g	0.19	<0.0050	<0.0050	0.025	No	NV	<0.0050	0.012	<0.0050	0.025	No	NV
Indeno(1,2,3-cd)pyrene	ug/g	0.23	<0.0050	<0.0050	0.025	No	NV	0.032	0.062	0.015	0.025	No	NV
1-Methylnaphthalene	ug/g	0.59	<0.0050	<0.0050	0.025	No	NV	<0.0050	0.0089	<0.0050	0.025	No	NV
2-Methylnaphthalene	ug/g	0.59	<0.0050	<0.0050	0.025	No	NV	<0.0050	0.0081	0.0051	0.025	No	NV
Methylnaphthalene, 2-(1-)	ug/g	0.09	<0.0071	<0.0071	0.025	No	NV	<0.0071	0.017	<0.0071	0.025	No	NV
Naphthalene	ug/g	0.69	<0.0050	<0.0050	0.025	No	NV	<0.0050	0.0083	<0.0050	0.025	No	NV
Phenanthrene	ug/g	1	<0.0050	0.0067	0.025	No	NV	0.023	0.16	0.015	0.025	No	NV
Pyrene	ug/g	0.59	<0.0050	0.0066	NV	NV	NV	0.06	0.19	0.041	NV	NV	NV

Notes:

NA	= Not applicable
NV	= No value
ND	= Non detect
mbgs	= metres below ground surface
µg/g	= micrograms per gram
ppm	= parts per million
MOE Table 9 Standards	= Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional/Industrial/Commercial/ Community Property Use for fine textured soil (April 15, 2011)
340	= Exceedance of Table 3 Standards

Table 7
Soil Analytical Results - Polycyclic Aromatic Hydrocarbons (PAHs)
6000 Marineland Parkway, Niagara Falls, Ontario

Borehole ID			BH18-13	BH18-14	BH18-15	BH18-16	BH18-17	BH18-18	BH18-19	BH18-20
Sample ID			BH18-13	BH18-14	BH18-15	BH18-16	BH18-17	BH18-18	BH18-19	BH18-20
Date			23-Mar-18	23-Mar-18	28-Mar-18	28-Mar-18	28-Mar-18	28-Mar-18	26-Mar-18	26-Mar-18
Laboratory Certificate #			GJG937	GJG938	GJG953	GJG955	GJG956	GJG954	GJG939	GJG941
Depth (mbgs)			0.76 - 1.37	0.76 - 1.37	0.5 - 1.5	0.25 - 0.5	0.25 - 0.5	0.25 - 0.5	0.5 - 1.5	0.5 - 1.5
Parameter	**Units**	**MOE Table 9 Standards**								
Acenaphthene	ug/g	0.072	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	ug/g	0.093	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Anthracene	ug/g	0.22	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(a)anthracene	ug/g	0.36	<0.0050	<0.0050	<0.0050	0.0051	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(a)pyrene	ug/g	0.3	<0.0050	<0.0050	<0.0050	0.0054	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(b/j)fluoranthene	ug/g	0.47	<0.0050	<0.0050	0.0099	0.01	0.006	<0.0050	<0.0050	<0.0050
Benzo(g,h,i)perylene	ug/g	0.68	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(k)fluoranthene	ug/g	0.48	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chrysene	ug/g	2.8	<0.0050	<0.0050	0.008	0.0095	0.0051	<0.0050	<0.0050	<0.0050
Dibenz(a,h)anthracene	ug/g	0.1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	ug/g	0.69	<0.0050	<0.0050	0.0083	0.012	0.0071	<0.0050	<0.0050	<0.0050
Fluorene	ug/g	0.19	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Indeno(1,2,3-cd)pyrene	ug/g	0.23	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1-Methylnaphthalene	ug/g	0.59	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
2-Methylnaphthalene	ug/g	0.59	<0.0050	<0.0050	<0.0050	0.007	0.013	<0.0050	<0.0050	<0.0050
Methylnaphthalene, 2-(1-)	ug/g	0.09	<0.0071	<0.0071	<0.0071	<0.0071	0.013	<0.0071	<0.0071	<0.0071
Naphthalene	ug/g	0.69	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Phenanthrene	ug/g	1	<0.0050	<0.0050	0.0073	0.0074	<0.0050	<0.0050	<0.0050	<0.0050
Pyrene	ug/g	0.59	<0.0050	<0.0050	0.0069	0.0087	<0.0050	<0.0050	<0.0050	<0.0050

Notes:

NA	= Not applicable
NV	= No value
ND	= Non detect
mbgs	= metres below ground surface
µg/g	= micrograms per gram
ppm	= parts per million
MOE Table 9 Standards	= Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional/Industrial/Commercial/ Community Property Use for fine textured soil (April 15, 2011)
340	= Exceedance of Table 3 Standards

Table 8
Soil Analytical Results - Toxicity Characteristics Leaching Procedure (TCLP)
6000 Marineland Parkway, Niagara Falls, Ontario

		Sample ID	TCLP
		Date	28-Mar-18
		Laboratory Certificate #	GJG959
Parameter	**Units**	**O.Reg. 347 Criteria**	
Volatile Organics			
Leachable Benzene	mg/L	0.5	<0.02
PCBs			
Leachable Total PCB	ug/L	300	<3.0
Inorganics			
Leachable Fluoride (F-)	mg/L	150	0.36
Leachable Free Cyanide	mg/L	20	<0.010
Leachable Nitrite (N)	mg/L	NV	<0.10
Leachable Nitrate (N)	mg/L	NV	<1.0
Leachable Nitrate + Nitrite (N)	mg/L	1000	<1.0
Final pH	pH units	NV	-
Initial pH	pH units	NV	-
Ignitability	N/A	NV	-
Metals			
Leachable Mercury (Hg)	mg/L	0.1	<0.0010
Leachable Arsenic (As)	mg/L	2.5	<0.2
Leachable Barium (Ba)	mg/L	100	0.3
Leachable Boron (B)	mg/L	500	0.3
Leachable Cadmium (Cd)	mg/L	0.5	<0.05
Leachable Chromium (Cr)	mg/L	5	<0.1
Leachable Lead (Pb)	mg/L	5	<0.1
Leachable Selenium (Se)	mg/L	1	<0.1
Leachable Silver (Ag)	mg/L	5	<0.01
Leachable Uranium (U)	mg/L	10	<0.01
Ignitability			
Ignitability	mm/min.	NV	NF/NI
F4 Gravimetric	µg/L	?	370

NV = No value
ND = Non detect
- Not measured
mg/L = milligrams per litre
µg/g - micrograms per litre

O.Reg. 347 Criteria = Ontario Ministry of the Environment (MOE) - Ontario Regulation 347 of R.R.O. 1990, Schedule 4: Leachate Quality Criteria

1.0 = Exceedance of O. Reg. 347 Criteria

Table 9
Groundwater Analytical Results - Petroleum Hydrocarbons (PHCs)
6000 Marineland, Niagara Falls, Ontario

			Well ID	MW18-04	MW18-12		MW18-13							MW18-14	
			Sample ID	MW18-04	MW18-12		MW18-13	MW918-13	MW18-13	MW18-100	QA/QC			MW18-14	
			Date	16-Apr-18	12-Apr-18	4-Jul-18	12-Apr-18	12-Apr-18	4-Jul-18	4-Jul-18				12-Apr-18	4-Jul-18
Parameter	Units	MOE Table 1 Standards	MOE Table 9 Standards								5X RDL	Are the results >5X RDL	RPD (%)[a]		
Benzene	µg/L	0.5	44	-	-	-	-	-	-	-				-	-
Toluene	µg/L	0.8	14000	-	-	-	-	-	-	-				-	-
Ethylbenzene	µg/L	0.5	1800	-	-	-	-	-	-	-				-	-
m/p xylenes	µg/L	NV	NV	-	-	-	-	-	-	-				-	-
o xylene	µg/L	NV	NV	-	-	-	-	-	-	-				-	-
Total Xylenes	µg/L	72	3300	-	-	-	-	-	-	-				-	-
F1 (C6-C10)	µg/L	420	420	<25	<25	<25	<25	<25	<25	<25	125	No	NV	<25	<25
F1 (C6-C10) - BTEX	µg/L	420	420	<25	<25	<25	<25	<25	<25	<25	125	No	NV	<25	<25
F2 (C10-C16)	µg/L	150	150	<100	<100	<100	<100	<100	<100	<100	500	No	NV	<100	<100
F3 (C16-C34)	µg/L	500	500	<200	<200	<200	<200	<200	<200	<200	1000	No	NV	<200	<200
F4 (C34-C50)	µg/L	500	500	<200	<200	<200	<200	<200	<200	<200	1000	No	NV	<200	<200
Reached Baseline at C50	NV	NV	NV	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NV	NV	NV	Yes	Yes
F4 Gravimetric	µg/L	500	500	-	-	-	-	-	-	-	NV	NV	NV	-	-

Notes:

NV = No value
ND = Non detect
mbgs = metres below ground surface
ppm = parts per million
µg/L = micrograms per litre

MOE Table 1 Standards = Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Table 1:Full Depth Background Site Condition Standards for FIne Grained Soil (April 15, 2011)

MOE Table 9 Standards = Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition for Fine Grained Soil (April 15, 2011)

250 = Exceedance of Table 1 Standards
250 = Exceedance of Table 9 Standards

Table 10
Groundwater Analytical Results - Volatile Organic Compounds (VOCs)
6000 Marineland Parkway, Niagara Falls, Ontario

				Well ID	MW18-04	MW18-12		MW18-13							MW18-14		TRIP BLANK		TRIP SPIKE	
				Sample ID	MW18-04	MW18-12		MW18-13	MW918-13	MW18-13	MW18-100	QA/QC			MW18-14					
				Date	16-Apr-18	12-Apr-18	4-Jul-18	12-Apr-18	12-Apr-18	4-Jul-18	4-Jul-18	5X RDL	Are the results >5X RDL	RPD (%)[a]	12-Apr-18	4-Jul-18	12-Apr-18	4-Jul-18	12-Apr-18	4-Jul-18
Parameter	Units	MOE Table 1 Standards	MOE Table 9 Standards																	
Acetone	µg/L	2700	100000	<10	<10	<10		<10	<10	<10	<10	50	No	NV	<10	<10	<10	<10	110	100
Benzene	µg/L	0.5	44	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	**95**	**95**
Bromodichloromethane	µg/L	2	67000	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	**100**	**90**
Bromoform	µg/L	5	380	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	5	No	NV	<1.0	<1.0	<1.0	<1.0	**95**	**85**
Bromomethane	µg/L	0.89	5.6	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	**70**	**90**
Carbon Tetrachloride	µg/L	0.2	0.79	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	**95**	**90**
Chlorobenzene	µg/L	0.5	500	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	**90**	**90**
Chloroform	µg/L	2	2.4	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	**100**	**95**
Dibromochloromethane	µg/L	2	65000	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	**95**	**90**
1,2-Dichlorobenzene	µg/L	0.5	4600	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	**90**	**90**
1,3-Dichlorobenzene	µg/L	0.5	7600	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	**80**	**85**
1,4-Dichlorobenzene	µg/L	0.5	8	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	**80**	**85**
1,1-Dichloroethane	µg/L	0.5	320	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	**100**	**100**
1,2-Dichloroethane	µg/L	0.5	1.6	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	**100**	**95**
1,1-Dichloroethylene	µg/L	0.5	1.6	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	**90**	**95**
Cis-1,2-Dichloroethylene	µg/L	1.6	1.6	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	**95**	**95**
Trans-1,2-Dichloroethylene	µg/L	1.6	1.6	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	**80**	**90**
1,2-Dichloropropane	µg/L	0.5	16	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	**100**	**100**
Cis-1,3-Dichloropropylene	µg/L	NV	NV	<0.30	<0.30	<0.30		<0.30	<0.30	<0.30	<0.30	1.5	No	NV	<0.30	<0.30	<0.30	<0.30	35	65
Trans-1,3-Dichloropropylene	µg/L	NV	NV	<0.40	<0.40	<0.40		<0.40	<0.40	<0.40	<0.40	2	No	NV	<0.40	<0.40	<0.40	<0.40	35	65
Ethylbenzene	µg/L	0.5	1800	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	**85**	**85**
Ethylene Dibromide	µg/L	0.2	0.25	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	**100**	**95**
Methyl Ethyl Ketone	µg/L	400	470000	<10	<10	<10		<10	<10	<10	<10	50	No	NV	<10	<10	<10	<10	110	95
Methylene Chloride	µg/L	5	610	<2.0	<2.0	<2.0		<2.0	<2.0	<2.0	<2.0	10	No	NV	<2.0	<2.0	<2.0	<2.0	**110**	**100**
Methyl Isobutyl Ketone	µg/L	640	140000	<5.0	<5.0	<5.0		<5.0	<5.0	<5.0	<5.0	25	No	NV	<5.0	<5.0	<5.0	<5.0	95	80
Methyl-t-Butyl Ether	µg/L	15	190	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	**100**	**90**
Styrene	µg/L	0.5	1300	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	**75**	**80**
1,1,1,2-Tetrachloroethane	µg/L	1.1	3.3	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	**95**	**90**
1,1,2,2-Tetrachloroethane	µg/L	0.5	3.2	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	**110**	**95**
Toluene	µg/L	0.8	14000	<0.20	<0.20	0.55		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	**90**	**90**
Tetrachloroethylene	µg/L	0.5	1.6	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	**75**	**85**
1,1,1-Trichloroethane	µg/L	0.5	640	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	**95**	**90**
1,1,2-Trichloroethane	µg/L	0.5	4.7	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	**110**	**110**
Trichloroethylene	µg/L	0.5	1.6	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	**85**	**90**
Vinyl Chloride	µg/L	0.5	0.5	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	**80**	**95**
m-Xylene & p-Xylene	µg/L	NV	NV	<0.20	<0.20	0.23		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	80	85
o-Xylene	µg/L	NV	NV	<0.20	<0.20	<0.20		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	85	85
Total Xylenes	µg/L	72	3300	<0.20	<0.20	0.23		<0.20	<0.20	<0.20	<0.20	1	No	NV	<0.20	<0.20	<0.20	<0.20	-	-
Dichlorodifluoromethane	µg/L	590	3500	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	5	No	NV	<1.0	<1.0	<1.0	<1.0	65	90
Dioxane, 1,4-	µg/L	50	1900000	-	-	-		-	-	-	-	NV	NV	NV	-	-	-	-	-	-
Hexane(n)	µg/L	5	51	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	5	No	NV	<1.0	<1.0	<1.0	<1.0	**20**	**50**
Trichlorofluoromethane	µg/L	150	2000	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	<0.50	85	90
1,3-Dichloropropene (cis + trans)	µg/L	0.5	5.2	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50	<0.50	-	-	-

Notes:

NV = No value
ND = Non detect
mbgs = metres below ground surface
ppm = parts per million
µg/L = micrograms per litre

MOE Table 1 Standards = Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Table 1:Full Depth Background Site Condition Standards for FIne Grained Soil (April 15, 2011)

MOE Table 9 Standards = Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition for Fine Grained Soil (April 15, 2011)

0.43 = Exceedance of Table 1 Standards
0.43 = Exceedance of Table 9 Standards

Table 11
Groundwater Analytical Results - Metals and Inorganics
6000 Marineland Parkway, Niagara Falls, Ontario

			Well ID	MW18-04	MW18-12		MW18-13							MW18-14	
			Sample ID	MW18-04	MW18-12		MW18-13	MW918-13	MW18-13	MW18-100	QA/QC			MW18-14	
			Date	16-Apr-18	12-Apr-18	4-Jul-18	12-Apr-18	12-Apr-18	4-Jul-18	4-Jul-18				12-Apr-18	4-Jul-18
Parameter	**Units**	**MOE Table 1 Standards**	**MOE Table 9 Standards**								**5X RDL**	**Are the results >5X RDL**	**RPD (%)[a]**		
Antimony	µg/L	1.5	16000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50
Arsenic	µg/L	13	1500	<1.0	1.2	1.2	<1.0	<1.0	<1.0	<1.0	5	No	NV	<1.0	<1.0
Barium	µg/L	610	23000	40	70	26	57	51	58	58	10	Yes	0.0	47	39
Beryllium	µg/L	0.5	53	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50
Boron	µg/L	1700	36000	260	120	220	140	140	150	150	50	Yes	0.0	71	70
Cadmium	µg/L	0.5	2.1	<0.10	0.14	0.12	<0.10	<0.10	<0.10	<0.10	0.5	No	NV	<0.10	<0.10
Chromium	µg/L	11	640	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	25	No	NV	<5.0	<5.0
Chromium VI	µg/L	25	110	0.61	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50
Cobalt	µg/L	3.8	52	0.62	3	**5.9**	<0.50	<0.50	<0.50	<0.50	2.5	No	NV	<0.50	<0.50
Copper	µg/L	5	69	3.2	4	3.2	2.2	1.1	1.8	1.7	5	No	NV	3.2	1.3
Lead	µg/L	1.9	20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2.5	No	NV	**5.3**	<0.50
Mercury	µg/L	0.1	0.29	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	No	NV	<0.1	<0.1
Molybdenum	µg/L	23	7300	5.2	1.3	1.9	6.6	6.6	6.1	6.2	2.5	Yes	1.6	3.7	2.8
Nickel	µg/L	14	390	2.7	6.2	7.2	2.2	1.7	1.8	1.9	5	No	NV	2	<1.0
Sodium	µg/L	490000	1800000	94000	190000	350000	72000	72000	64000	65000	500	Yes	1.6	40000	43000
Selenium	µg/L	5	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	10	No	NV	<2.0	<2.0
Silver	µg/L	0.3	1.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.5	No	NV	<0.10	<0.10
Thallium	µg/L	0.5	400	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Vanadium	µg/L	3.9	200	1.9	0.55	<0.50	0.75	0.87	1.2	1	2.5	No	NV	1	1.7
Zinc	µg/L	160	890	6.5	15	<5.0	6.3	<5.0	<5.0	<5.0	25	No	NV	16	<5.0
Cyanide, Free	µg/L	5	52	<1	<1	<1	<1	<1	<1	<1	5	No	NV	<1	<1
Nitrate	mg/L	NV	NV	-	-	-	-	-	-	-	NV	NV	NV	-	-
Nitrite	mg/L	NV	NV	-	-	-	-	-	-	-	NV	NV	NV	-	-
Chloride	mg/L	790	1800	49	70	500	110	110	110	110	5	Yes	0.0	67	67
Uranium	µg/L	8.9	330	**30**	**9.3**	**31**	**13**	**13**	**13**	**13**	0.5	Yes	0.0	**12**	**11**

Notes:

NV = No value
ND = Non detect
mbgs = metres below ground surface
ppm = parts per million
µg/L = micrograms per litre

MOE Table 1 Standards = Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Table 1:Full Depth Background Site Condition Standards for Fine Grained Soil (April 15, 2011)

MOE Table 9 Standards = Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition for Fine Grained Soil (April 15, 2011).

0.43 = Exceedance of Table 1 Standards
0.43 = Exceedance of Table 9 Standards

Table 12
Groundwater Analytical Results - Polycyclic Aromatic Hydrocarbons (PAHs)
6000 Marineland Parkway, Niagara Falls, Ontario

			Borehole ID	MW18-04	MW18-12		MW18-13							MW18-14	
			Sample ID	MW18-04	MW18-12		MW18-13	MW918-13	MW18-13	MW18-100	QA/QC			MW18-14	
			Date	16-Apr-18	12-Apr-18	4-Jul-18	12-Apr-18	12-Apr-18	4-Jul-18	4-Jul-18				12-Apr-18	4-Jul-18
Parameter	**Units**	**MOE Table 1 Standard**	**MOE Table 9 Standards**								**5X RDL**	**Are the results >5X RDL**	**RPD (%)[a]**		
Acenaphthene	µg/L	4.1	600	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Acenaphthylene	µg/L	1	1.4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Anthracene	µg/L	0.1	1	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Benzo(a)anthracene	µg/L	0.2	1.8	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Benzo(a)pyrene	µg/L	0.01	0.81	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.05	No	NV	<0.010	<0.010
Benzo(b/j)fluoranthene	µg/L	0.1	0.75	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Benzo(ghi)perylene	µg/L	0.2	0.2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Benzo(k)fluoranthene	µg/L	0.1	0.4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Chrysene	µg/L	0.1	0.7	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Dibenzo(a,h)anthracene	µg/L	0.2	0.4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Fluoranthene	µg/L	0.4	73	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Fluorene	µg/L	120	290	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
1-Methylnaphthalene	µg/L	2	1500	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
2-Methylnaphthalene	µg/L	2	1500	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Naphthalene	µg/L	7	1400	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Phenanthrene	µg/L	0.1	380	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.15	No	NV	<0.030	<0.030
Pyrene	µg/L	0.2	5.7	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.25	No	NV	<0.050	<0.050
Methylnaphthalene, 2-(1-)	µg/L	2	1500	-	<0.071	-	<0.071	<0.071	-	-	NV	NV	NV	<0.071	-

Notes:

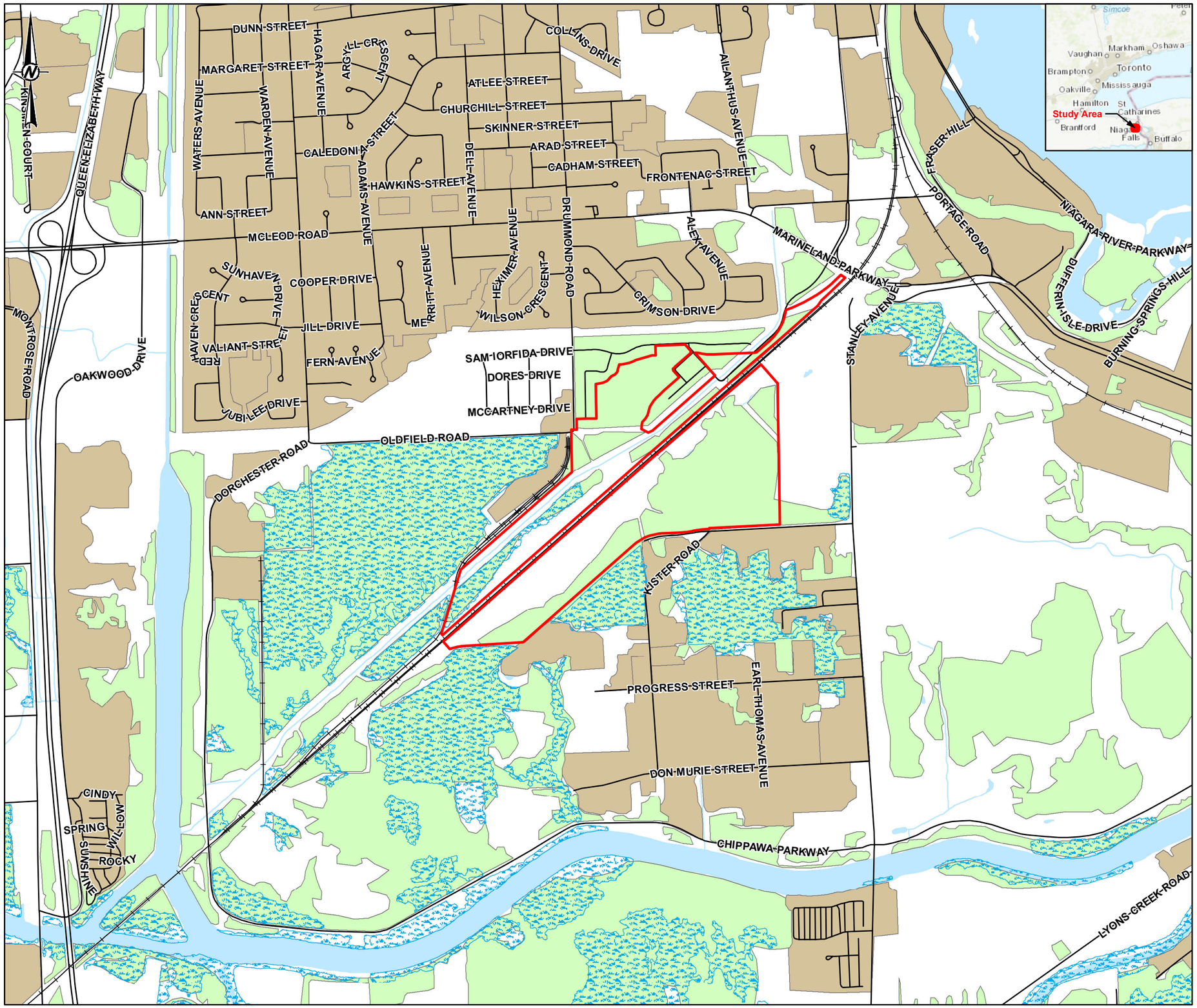
NV = No value
ND = Non detect
* = Units of µg/L described in column 2 apply to all parameters on this sheet EXCEPT Nitrate, Nitrite, and Chloride which are reported in mg/L
mbgs = metres below ground surface
ppm = parts per million
µg/L = micrograms per litre
mg/L = milligram per litre

MOE Table 1 Standards = Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Table 1:Full Depth Background Site Condition Standards for FIne Grained Soil (April 15, 2011)

MOE Table 9 Standards = Ministry of the Environment Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Ground Water Condition for Fine Grained Soil (April 15, 2011)

150 = Exceedance of Table 1 Standards
150 = Exceedance of Table 9 Standards

Figures



LEGEND

- Road
- Track
- Wetland
- Built-up Area
- Wooded Area
- Watercourse
- Waterbody
- Property Boundary

0 400 800

1:15,000 Meters

REFERENCE(S)

1. TOPO: ESRI, HERE, DELORME, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), SWISSTOPO, MAPMYINDIA, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
2. BASE DATA: MRNF LIO 2017
3. PROJECTION: TRANSVERSE MERCATOR NAD 1983 UTM ZONE 17N

CLIENT

PRENIX ASSOCIATES INTERNATIONAL LIMITED

PROJECT

PHASE TWO ESA - THUNDERING WATERS GOLF COURSE 6000 MARINELAND PARKWAY, NIAGARA FALLS, ON

TITLE

SITE LOCATION PLAN

CONSULTANT

GOLDER

YYYY-MM-DD	2018-08-10
DESIGNED	MM
PREPARED	MM
REVIEWED	PB
APPROVED	

PROJECT NO.	CONTROL	REV.	FIGURE
1784521	0006	-	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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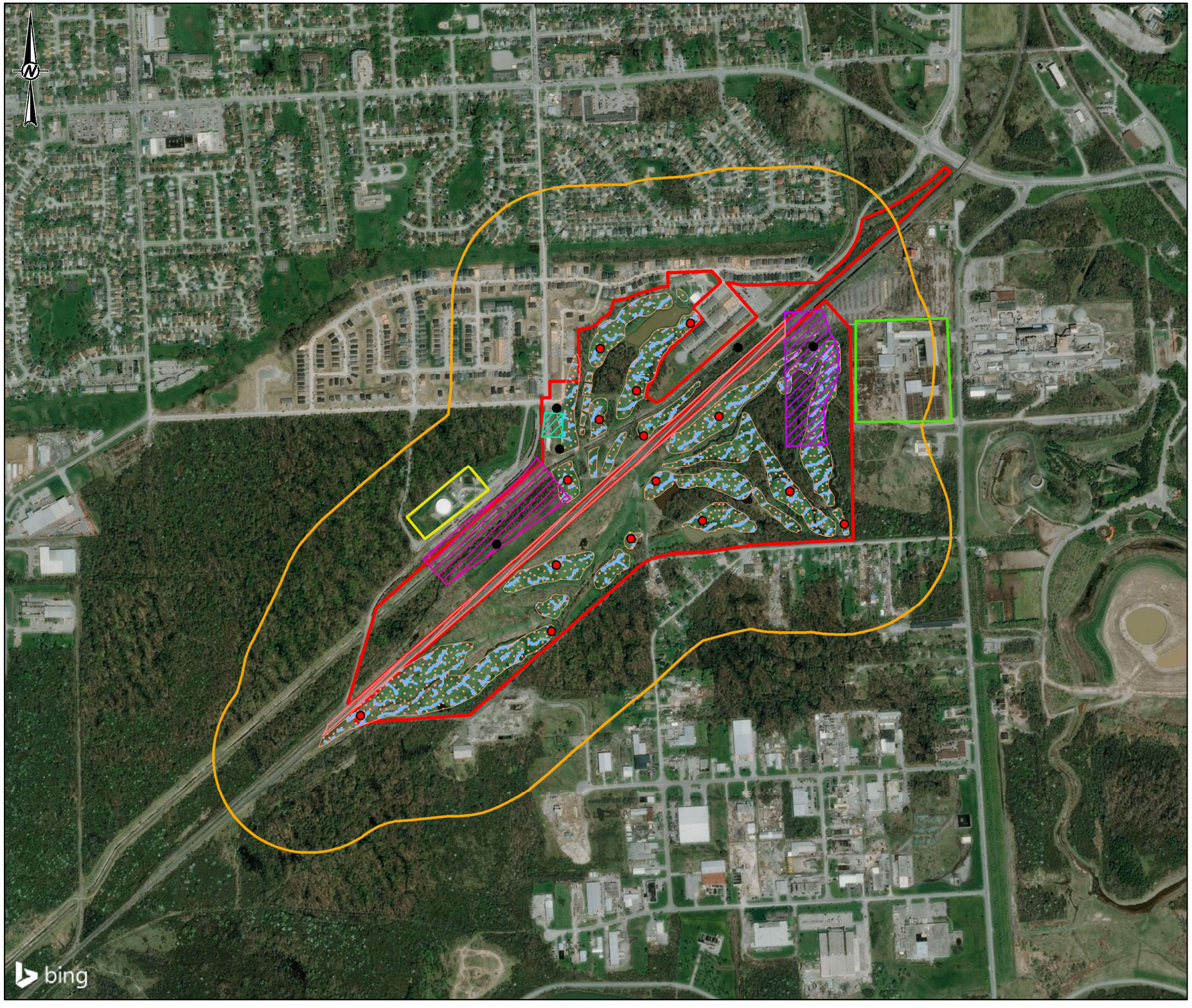

LEGEND

- Proposed Borehole
- Proposed Monitoring Well
- Property Boundary
- Phase I Study Area
- PCA 1 - Off-Site Iron and Steel Manufacturing and Processing and Metal Treatment, Coating, Plating and Finishing
- PCA 2 - Off-Site Chemical Manufacturing, Processing and Bulk Storage
- APEC 1 – Importation of Fill Material of Unknown Quality
- APEC 2 – Railyards, Tracks and Spurs
- APEC 3 – Gasoline and Associated Products Storage in Fixed Tanks
- APEC 4 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, processing, Bulk Storage and Large-Scale Application
- APEC 5 – Off-Site Chemical Manufacturing, Processing and Bulk Storage
- APEC 6 – Off-Site Iron and Steel Manufacturing and Processing and Metal Treatment, Coating, Plating and Finishing

0 300 600

1:10,000 Meters

REFERENCE(S)

1. IMAGERY: ESRI, HERE, DELORME, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), SWISSTOPO, MAPMYINDIA, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
2. BASE DATA: MRNF LIO 2017
3. PROJECTION: TRANSVERSE MERCATOR NAD 1983 UTM ZONE 17N

CLIENT

PRENIX ASSOCIATES INTERNATIONAL LIMITED

PROJECT

PHASE TWO ESA - THUNDERING WATERS GOLF COURSE
6000 MARINELAND PARKWAY, NIAGARA FALLS, ON

TITLE

AREAS OF ENVIRONMENTAL CONCERN AND POTENTIALLY CONTAMINATING ACTIVITIES

CONSULTANT

GOLDER

YYYY-MM-DD	2018-08-10
DESIGNED	MM
PREPARED	MM
REVIEWED	PB
APPROVED	

PROJECT NO.	CONTROL	REV.	FIGURE
1784521	0006	-	3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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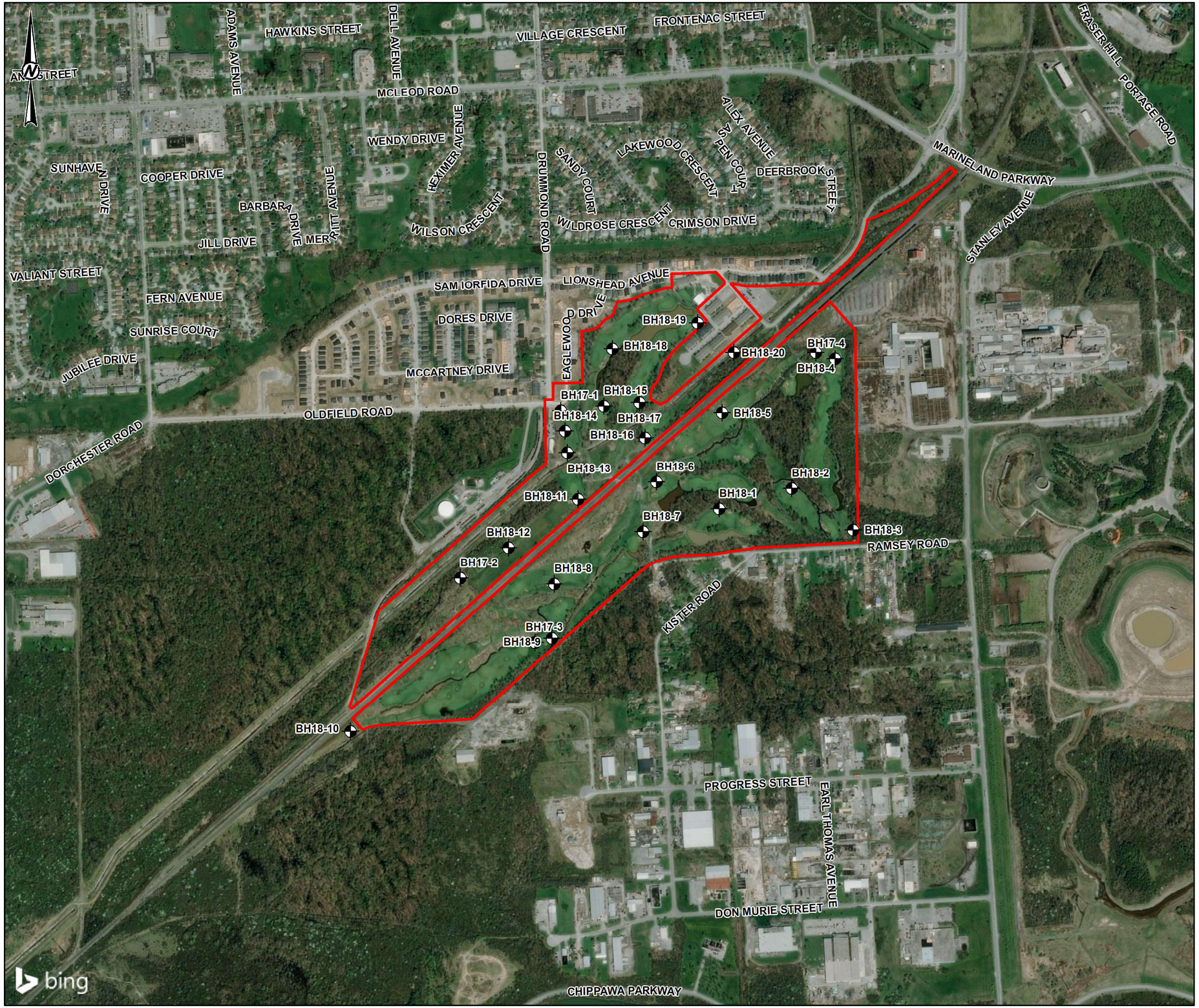

LEGEND

- Approximate Borehole/Monitoring Well Location
- Property Boundary

0 300 600

1:10,000 Meters

REFERENCE(S)

1. IMAGERY: ESRI, HERE, DELORME, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), SWISSTOPO, MAPMYINDIA, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
2. BASE DATA: MRNF LIO 2017
3. PROJECTION: TRANSVERSE MERCATOR NAD 1983 UTM ZONE 17N

CLIENT

PRENIX ASSOCIATES INTERNATIONAL LIMITED

PROJECT

PHASE TWO ESA - THUNDERING WATERS GOLF COURSE 6000 MARINELAND PARKWAY, NIAGARA FALLS, ON

TITLE

BOREHOLE/MONITORING WELL LOCATION PLAN

CONSULTANT

GOLDER

YYYY-MM-DD	2018-08-10
DESIGNED	MM
PREPARED	MM
REVIEWED	PB
APPROVED	

PROJECT NO.	CONTROL	REV.	FIGURE
1784521	0006	-	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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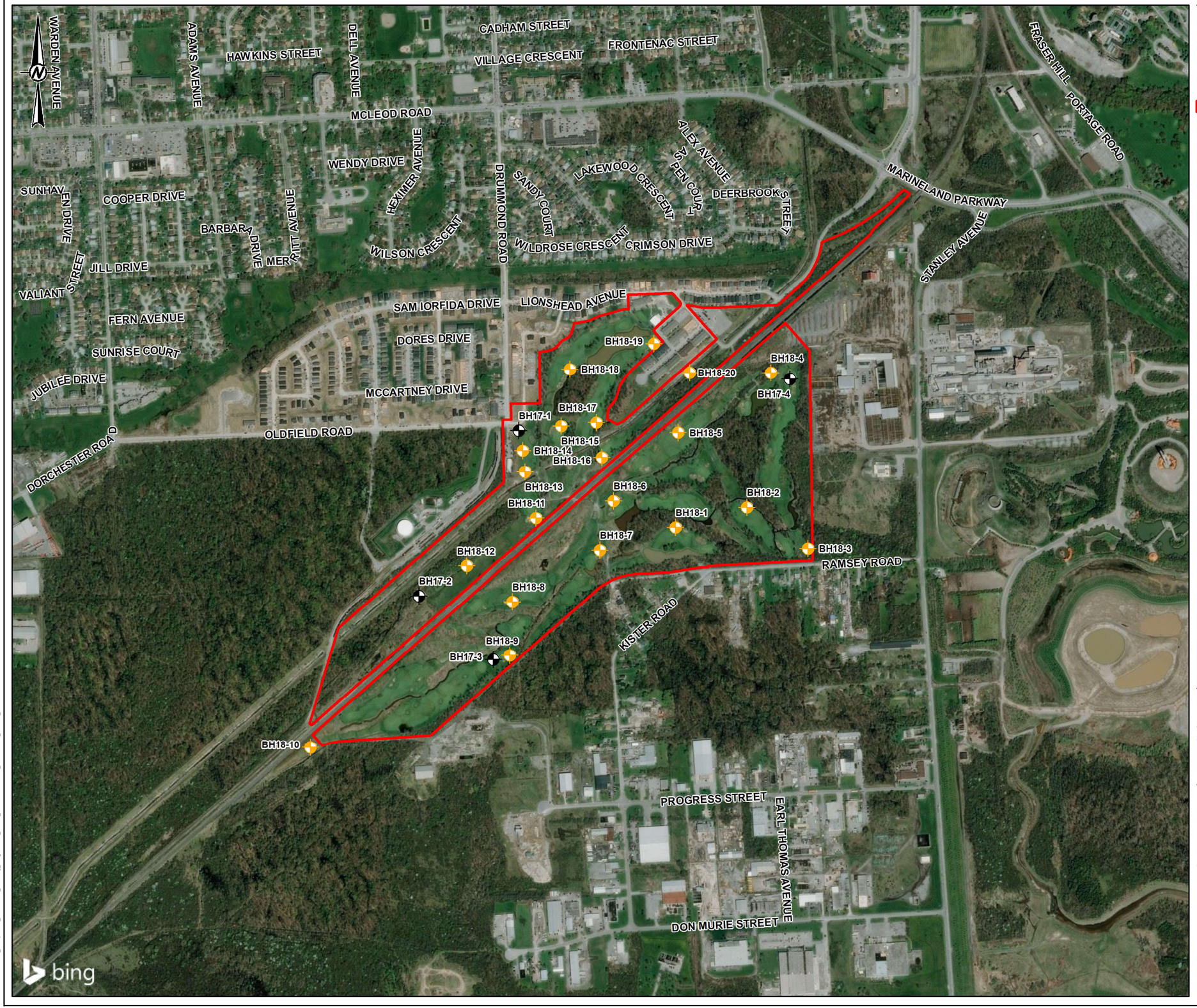

LEGEND

- Approximate Geotechnical Borehole/Monitoring Well Location
- Approximate Phase II ESA Borehole/Monitoring Well Location
- Property Boundary

KEY MAP

0 300 600

1:10,000 Meters

REFERENCE(S)

1. IMAGERY: ESRI, HERE, DELORME, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), SWISSTOPO, MAPMYINDIA, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
2. BASE DATA: MRNF LIO 2017
3. PROJECTION: TRANSVERSE MERCATOR NAD 1983 UTM ZONE 17N

CLIENT
PRENIX ASSOCIATES INTERNATIONAL LIMITED

PROJECT
PHASE TWO ESA - THUNDERING WATERS GOLF COURSE 6000 MARINELAND PARKWAY, NIAGARA FALLS, ON

TITLE
SITE PLAN WITH MONITORING WELL LOCATIONS

CONSULTANT
GOLDER

YYYY-MM-DD	2018-08-10
DESIGNED	MM
PREPARED	MM/PR
REVIEWED	PB
APPROVED	

PROJECT NO.	CONTROL	REV.	FIGURE
1784521	0006	-	4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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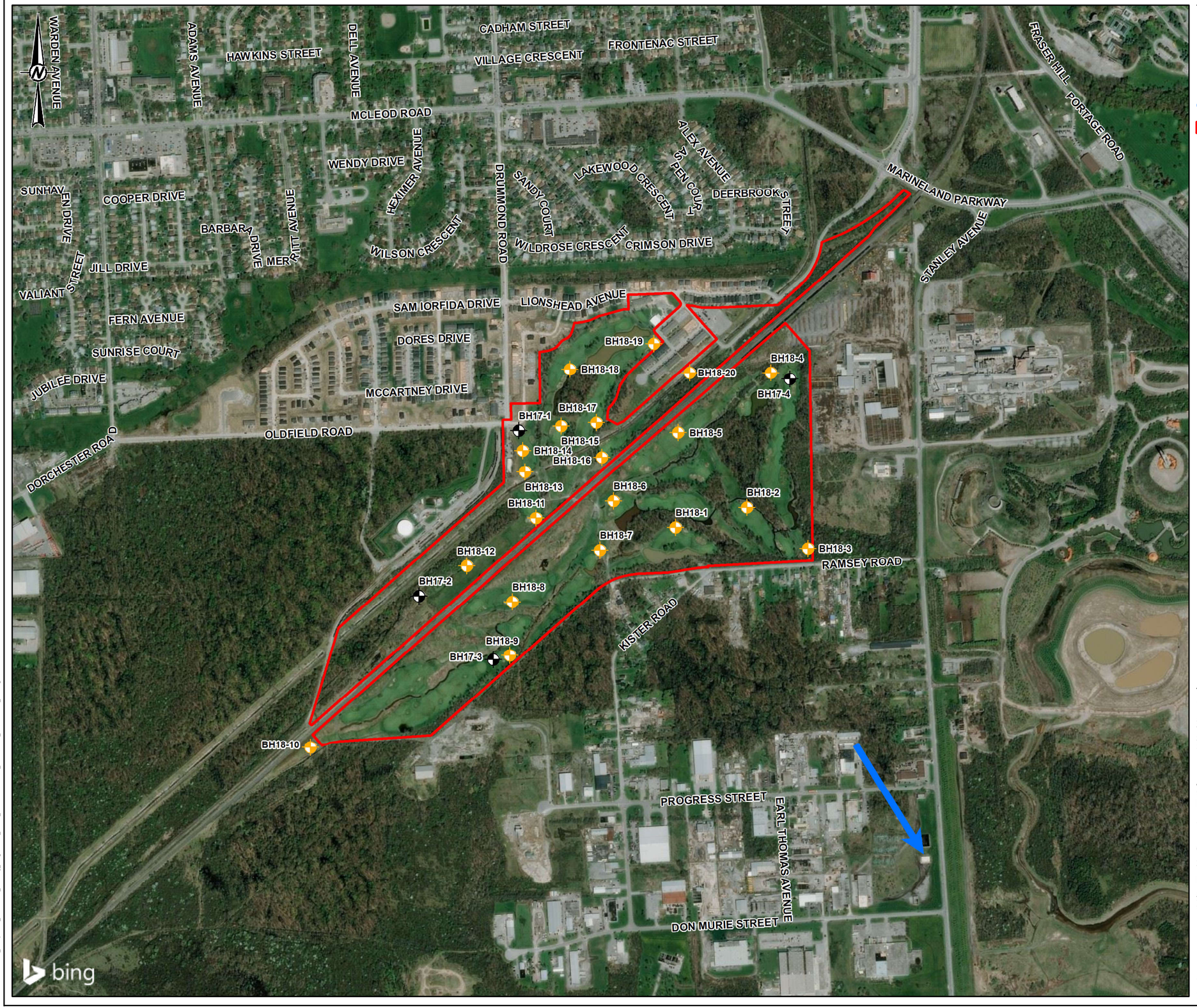

LEGEND

- Approximate Geotechnical Borehole/Monitoring Well Location
- Approximate Phase II ESA Borehole/Monitoring Well Location
- Direction of Groundwater Flow
- Property Boundary

KEY MAP

0 300 600

1:10,000 Meters

REFERENCE(S)

1. IMAGERY: ESRI, HERE, DELORME, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), SWISSTOPO, MAPMYINDIA, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
2. BASE DATA: MRNF LIO 2017
3. PROJECTION: TRANSVERSE MERCATOR NAD 1983 UTM ZONE 17N

CLIENT
PRENIX ASSOCIATES INTERNATIONAL LIMITED

PROJECT
PRELIMINARY GEOTECHNICAL INVESTIGATION - THUNDERING WATERS GOLF COURSE
6000 MARINELAND PARKWAY, NIAGARA FALLS, ON

TITLE
INFERRED SHALLOW GROUNDWATER FLOW DIRECTION – APRIL 12, 2018

CONSULTANT
GOLDER

YYYY-MM-DD	2018-08-10
DESIGNED	MM
PREPARED	MM/PR
REVIEWED	PB
APPROVED	

PROJECT NO.	CONTROL	REV.	FIGURE
1784521	0003	-	**5**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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APPENDIX A

Sampling and Analysis Plan

MEMORANDUM

TO Field Staff **DATE** March 13, 2018

CC

FROM Dave Smyth **PROJECT No.** 1784521

6000 MARINELAND PARKWAY – PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

This sampling and analysis plan has been prepared to document the details of the Phase Two Environmental Site Assessment (ESA) for the Thundering Waters Golf Course located at 6000 Marineland Parkway, Niagara Falls, Ontario .

OBJECTIVE

The intent of the current investigation is to determine the location and concentration of contaminants in soil and ground water at the Site and to determine if the applicable site condition standards are met at the time of the assessment.

SITE BACKGROUND

According to the Ontario Geological Survey, 1991, Quaternary Geology of Ontario, Southern Sheet; Ontario Geological Survey, Map 2556, conditions are expected to consist predominantly of glaciolacustrine deposits consisting of silt and clay, minor sand; basin and quiet water deposits.

According to the Site Representative, fill was placed on the Site to create the golf course.

Groundwater has been encountered at depths of 4.6 -5.10 m bgs.

SITE ACCESS REQUIREMENTS

Access Concern	Information
Site Contact	Mathew Maline (905) 357-6000 Ext. 424
Client Contact	Youssef Haroon
Access	The Site is accessible from 8-430
Hours of Work	Between 8-430
Site Check-in Procedure	Check in with PM upon arrival
Photography	Permitted
On-Site Orientation or Training	None required

GENERAL REQUIREMENTS

- Follow standard operating procedures. All work is to be completed assuming a Record of Site Condition will be required.
- Complete a Daily Log for every day of field work. Use standard field forms.

- Specifically ask the Site contact(s) for any drawings that may show underground utilities and record their response.
- Initial calibration of field equipment should be performed at the start of each field day, with a daily check of calibration using a standard of known concentration.
- Clean disposable Nitrile™ gloves will be used at each sampling location to prevent cross-contamination.
- All non-dedicated sampling equipment (e.g., water level meters, split spoons) will be decontaminated between sampling locations. Split-spoon sampling equipment in contact with soil will be cleaned with a brush and wiped between uses.
- All sample containers will be obtained from Maxxam Analytics Inc. (Maxxam).

BOREHOLE DRILLING, WELL INSTALLATION AND WELL DEVELOPMENT

- **** Confirm that every drilling location has been cleared by the private locator. ****
- A detailed description of the drilling scope and well construction details is provided in the driller work order.
- Observe for any evidence of contamination or wastes.
- See attached Site plan for borehole locations.

Collect additional soil samples if warranted by field observations.
Collect additional soil samples if warranted by field observations. **Table 1 Borehole and Soil Sampling Plan**

Borehole ID	Well Installed (Y/N)	Depth (m bgs)	Soil Samples	Duplicate Samples
BH18-1	N	0.25-0.5	PAHs, VOCs, pesticides, metals and inorganics	PAHs, VOCs, pesticides, metals and inorganics
BH18-2	N	0.5-1.5	PAHs, VOCs, pesticides, metals and inorganics	
BH18-3	N	0.25-0.5	PAHs, VOCs, pesticides, metals and inorganics	
BH18-4	Y	up to 6m (20 ft)	PHCs, PAHs, VOCs, pesticides, metals and inorganics	
BH18-5	N	0.5-1.5	PAHs, VOCs, pesticides, metals and inorganics	
BH18-6	N	0.25-0.5	PAHs, VOCs, pesticides, metals and inorganics	

Borehole ID	Well Installed (Y/N)	Depth (m bgs)	Soil Samples	Duplicate Samples
BH18-7	N	0.25-0.5	PAHs, VOCs, pesticides, metals and inorganics	PAHs, VOCs, pesticides, metals and inorganics
BH18-8	N	0.25-0.5	PAHs, VOCs, pesticides, metals and inorganics	
BH18-9	N	0.5-1.5	PAHs, VOCs, pesticides, metals and inorganics	
BH18-10	N	0.25-0.5	PAHs, VOCs, pesticides, metals and inorganics	
BH18-11	N	0.25-0.5	PAHs, VOCs, pesticides, metals and inorganics	
BH18-12	Y	up to 6m (20 ft)	PHCs, PAHs, VOCs, pesticides, metals and inorganics	PHCs, PAHs, VOCs, pesticides, metals and inorganics
BH18-13	Y	up to 6m (20 ft)	PHCs, PAHs, VOCs, pesticides, metals and inorganics	
BH18-14	Y	up to 6m (20 ft)	PHCs, PAHs, VOCs, pesticides, metals and inorganics	
BH18-15	N	0.5-1.5	PAHs, VOCs, pesticides, metals and inorganics	PAHs, VOCs, pesticides, metals and inorganics
BH18-16	N	0.25-0.5	PAHs, VOCs, pesticides, metals and inorganics	
BH18-17	N	0.25-0.5	PAHs, VOCs, pesticides, metals and inorganics	
BH18-18	N	0.25-0.5	PAHs, VOCs, pesticides, metals and inorganics	
BH18-19	N	0.5-1.5	PAHs, VOCs, pesticides, metals and inorganics	
BH18-20	Y	up to 6m (20 ft)	PHCs, PAHs, VOCs, pesticides, metals and inorganics	PHCs, PAHs, VOCs, pesticides, metals and inorganics

* Note: Sample in areas where there is suspected fill (mounds and hills on golf course).

- For well installation, see detailed instructions in driller work order: 2 inch (5 cm) inner diameter (ID) Schedule 40 polyvinyl chloride (PVC) casing and 2 inch ID Schedule 40 PVC well screens (1.5 metres in length, #10 slot size); sand pack surrounding each screen will be #00N; each monitoring well will be completed as a stick-up well. Install Waterra tubing and footvalve in each new monitoring well.
- Develop monitoring well (ten well volumes in accordance with Golder's SOP). Record development information on standard field form.

MONITORING WELL DEVELOPMENT

Develop each MW in accordance with our SOP.

GROUNDWATER MONITORING

- Before measuring the water levels, open the caps to allow air in the casing to vent and the water level to stabilize.
- Collect a round of water level measurements using the water level meter. Use the "Static Water Level Field Form".
- Collect groundwater samples from monitoring wells following SOP10 (Low Flow Sample Collection) using a peristaltic pump for the parameters in Table 3. Do not exceed a purge rate of 200 mL/min. Allow the water level to stabilize in the monitoring well before starting measurement of field parameters.
- If drawdown in the well exceeds 0.3 metres during purging, then complete purging in accordance with the SOP9 procedure for low-yield monitoring wells.
- The multi-parameter meter should be initially calibrated the equipment supplier and thereafter at the start of the each day. Check calibration to known pH, conductivity, ORP and DO concentration at mid-day. If equipment is out of calibration (i.e., reading is off by more than 10%), call David Smyth, or other designate.
- If field parameters do not stabilize during low flow purging, do not purge longer than 30 minutes before collecting a groundwater sample.
- Collect quality assurance samples. The duplicate groundwater samples should be labelled in a manner in which the laboratory cannot readily identify the sample as a duplicate.
- Please call David Smyth, or other designate, if you see or suspect that there is product in any monitoring well.
- Use the "Groundwater Sample Collection" form to collect all data during groundwater sampling.

Table 2: Groundwater Sampling Plan

Borehole ID	Field Parameter Measurements	Groundwater Analysis	QA/QC Samples
MW18-01 (BH18-4)	pH, EC, temperature, DO, turbidity	Metals and inorganics, PAHs, PHCs, VOCs	Trip blank and spike for VOCs only
MW18-02 (BH18-12)			
MW18-03 (BH18-13)			

Borehole ID	Field Parameter Measurements	Groundwater Analysis	QA/QC Samples
MW18-04 (BH18-14)			Duplicate for all parameters
MW18-05 (BH18-20)			

If permission is granted, collect groundwater samples from the existing monitoring wells on the Site.

SURVEYING

Direct surveyor to survey horizontal and vertical locations at new monitoring wells (ground surface and top of pipe elevations). Top of pipe elevation to be measured at the reference point (notch cut into well pipe).

CHAIN-OF-CUSTODY

Chain-of-Custody Item	Information
Analytical Laboratory	Maxxam
Generic Site Condition Standards	Table 9, fine to medium.
Use Record of Site Condition analytical procedures?	Yes
Turn-around Time	Regular
Golder Reporting Contact	Prabhjot Bal
Project-Specific Quote Number (if applicable)	None
Golder Billing Contact	Erti Manasaku
Is an EQuiS EDD Required?	No

MANAGEMENT OF INVESTIGATION DERIVED WASTE

- Keep waste soil and water segregated into separate drums
- Label drums for waste management purposes, include Golder Associates, project number, date and drum contents (soil, purge water)
- Discuss best location to store drums (should be accessible for future pick-up). Record inventory of waste containers on Daily Log

APPENDIX B

Borehole Logs

PROJECT: 1784521

RECORD OF BOREHOLE: BH18-1

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: Mach 27, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108 mm Diam. Solid Stem Auger	TOPSOIL (150 mm)		0.00							
		FILL - (CL) SILTY CLAY, trace sand, trace gravel; brown with oxidation staining; cohesive, w~PL		0.15							
1											
		END OF BOREHOLE		1.52							
		NOTE:									
2		1. Borehole dry at the completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

GTA-BHS 005 S:\CLIENTS\PRENIX\NIAGARAFALLSGOLFCOURSE\02_DATA\GINT\1784521.GPJ GAL-MIS.GDT 18-5-3

PROJECT: 1784521

RECORD OF BOREHOLE: BH18-2

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: Mach 27, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108 mm Diam. Solid Stem	TOPSOIL (150 mm)		0.00							
		FILL - (CL) SILTY CLAY, trace organics, trace sand, trace gravel; grey to reddish brown with oxidation staining; cohesive, w~PL		0.15							
1											
		END OF BOREHOLE		1.52							
		NOTES:									
2		1. Borehole dry at the completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

GTA-BHS 005 S:\CLIENTS\PRENIX\NIAGARAFALLSGOLFCOURSE\02_DATA\GINT\1784521.GPJ GAL-MIS.GDT 18-5-3

PROJECT: 1784521

RECORD OF BOREHOLE: BH18-3

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: Mach 27, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108 mm Diam. Solid Stem Auger	TOPSOIL (150 mm)		0.00							
		FILL - (CL) SILTY CLAY, trace sand, trace gravel; grey with oxidation staining and mixed organics; cohesive, w~PL		0.15							
1											
		END OF BOREHOLE		1.52							
		NOTES:									
2		1. Borehole dry at the completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-4

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: March 27, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕; Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE											GR SA SI CL
0	Power Auger 108 mm Dia. Solid Stem	TOPSOIL (150 mm)		0.00									
		(Cl) SILTY CLAY, trace sand, trace gravel; brown; cohesive, w~PL, stiff to very stiff		0.15	1	SS	5						
1					2	SS	9						
2					3	SS	20						
					4	SS	20						
3					5	SS	11						
4					6	SS	11						
					7	SS	8						
5		END OF BOREHOLE		5.18									
		NOTES:											
		1. Water level measured in monitoring well.											
		Date: March 29, 2018 — Depth (m): 6.2											
		Date: April 12, 2018 — Depth (m): 4.3											
6													
7													
8													
9													
10													

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DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

PROJECT: 1784521

RECORD OF BOREHOLE: BH18-5

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: Mach 27, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108 mm Diam. Solid Stem	TOPSOIL (150 mm)		0.00							
		FILL - (CL) SILTY CLAY, trace sand, trace gravel; brown, black, grey, with mixed organics; cohesive, w~PL - Some gravel encountered at a depth of 0.6 m below ground surface.		0.15							
1											
		END OF BOREHOLE NOTES: 1. Borehole dry at the completion of drilling.		1.52							
2											
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-6

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: Mach 27, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108 mm Diam. Solid Stem	TOPSOIL (150 mm)		0.00							
		FILL - (CL) SILTY CLAY, trace sand, trace gravel; brown; cohesive, w~PL		0.15							
1											
		END OF BOREHOLE		1.52							
		NOTES:									
2		1. Borehole dry at the completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-7

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: Mach 27, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108mm mm Diam. Solid Stem Auger	TOPSOIL (150 mm)		0.00							
		FILL - (CL) SILTY CLAY, trace gravel, with organics; grey to reddish brown; cohesive, w<PL		0.15							
1											
		END OF BOREHOLE		1.52							
		NOTES:									
2		1. Borehole dry at the completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-8

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: Mach 27, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108mm mm Diam. Solid Stem Auger	TOPSOIL (150 mm)		0.00							
		FILL - (CL) SILTY CLAY, trace gravel, trace organics, some to trace sand; reddish brown to dark grey; cohesive, w<PL		0.15							
1											
		END OF BOREHOLE		1.52							
		NOTES:									
2		1. Borehole dry at the completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-9

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: March 28, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (20 40 60 80) nat V. + Q - ● rem V. ⊕ U - ○	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp W Wl (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108mm mm Diam. Solid Stem Auger	TOPSOIL		0.00							
		FILL - (CL) SILTY CLAY, trace organics; dark grey with black and red stains; cohesive, w<PL		0.15							
1											
		END OF BOREHOLE		1.52							
		NOTES:									
2		1. Borehole dry at the completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-10

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: March 28, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108mm mm Diam. Solid Stem Auger	TOPSOIL (150 mm)		0.00							
		FILL (CL) SILTY CLAY, trace gravel, trace organics; reddish brown with black stains, bedded; cohesive, w<PL		0.15							
1											
		END OF BOREHOLE		1.52							
		NOTES:									
2		1. Borehole dry at the completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-11

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: March 28, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108mm mm Diam. Solid Stem Auger	TOPSOIL (200 mm)		0.00							
		FILL - (CL) SILTY CLAY, trace gravel, trace sand; reddish brown; cohesive, w<PL		0.15							
1											
		END OF BOREHOLE		1.52							
		NOTES:									
2		1. Borehole dry at the completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-12

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: March 26, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	POWER AUGER 100 mm Diam. Solid Stem	TOPSOIL to silty clay with organics (150 mm)		0.00	1	SS	10				
1		FILL - (SM) SILTY SAND; black; non-cohesive, wet, compact		0.70	2	SS	16				
		FILL - (CL) SILTY CLAY, trace gravel; dark brown; cohesive, w<PL, firm		1.32	3	SS	5				
2		(CI) SILTY CLAY; grey to brown; cohesive, w~PL to w>PL, very stiff to stiff		2.13	4	SS	20				
3					5	SS	30				
4					6	SS	19				
5					7	SS	14				
		END OF BOREHOLE		5.18							
6		NOTES:									
		1. Water encountered at a depth of 3.8 m below ground surface measured upon completion.									
		2. Water level measured in monitoring well.									
7		Date: March 29, 2018 — Depth (m): 1.7; April 12, 2018 — 2.2									
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-13

SHEET 1 OF 1

LOCATION: South East of Maintenance Building

BORING DATE: March 23, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE											GR SA SI CL
0	Power Auger 108mm mm Diam. Solid Stem Auger	TOPSOIL (150 mm)		0.00									
		FILL - (CL) SILTY CLAY, trace gravel with silt seams; brown to reddish brown; cohesive, w~PL, stiff		0.15	1	SS	9						
1					2	SS	11						
2					3	SS	11						
		(Cl) SILTY CLAY; reddish brown; cohesive, w<PL to w>PL, very stiff to very soft		2.44	4	SS	10						
3					5	SS	8						
4					6	SS	17						
					7	SS							
5		END OF BOREHOLE		5.18									
6		NOTES:											
		1. Water encountered at a depth of 4.2 m below ground surface upon completion of drilling.											
		2. Water level measured in monitoring well.											
7		Date — Depth (m): March 29, 2018 — 3.8; April 9, 2018 — 3.6; April 12, 2018 — 3.8											
8													
9													
10													

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-14

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: Mach 23, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Power Auger 108mm mm Diam. Solid Stem Auger	TOPSOIL		0.00							
		FILL - (CL) SILTY CLAY with sand seams; reddish brown to grey mattled; cohesive, w<PL, firm		0.15	1	SS	2				
1					2	SS	10				
		(CI) SILTY CLAY, trace sand, silt seams; brown to reddish brown; cohesive, w~PL to w<PL, stiff		1.52	3	SS	11				
2					4	SS	9				
3					5	SS	5				
4					6	SS	24				
5					7	SS	0				
		END OF BOREHOLE		5.18							
6		NOTES:									
		1. Borehole dry at completion of drilling.									
		2. Water level measured in monitoring well.									
7		Date / Depth (m): March 29, 2018 — 4.1; April 9, 2018 — 3.9; April 12, 2018 — 4.0									
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-15

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: March 28, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG:

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108mm mm Diam. Solid Stem Auger	TOPSOIL (150 mm)		0.00							
		FILL - (CL) SILTY CLAY, trace gravel, trace organics; grey to reddish brown; cohesive, w<PL, firm		0.15							
1											
		END OF BOREHOLE		1.52							
		NOTES:									
2		1. Borehole dry at the completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-16

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: March 28, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108mm mm Diam. Solid Stem Auger	TOPSOIL		0.00							
		FILL - (CL) SILTY CLAY, trace organics; light grey to reddish brown; cohesive; w<PL,		0.15							
1											
		END OF BOREHOLE		1.52							
		NOTES:									
2		1. Borehole dry at the completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

GTA-BHS 005 S:\CLIENTS\PRENIX\NIAGARAFALLSGOLFCOURSE\02_DATA\GINT\1784521.GPJ GAL-MIS.GDT 18-5-3

PROJECT: 1784521

RECORD OF BOREHOLE: BH18-17

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: March 28, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108mm mm Diam. Solid Stem Auger	TOPSOIL		0.00							
		FILL - (CL) SILTY CLAY, trace gravel, trace organics; light grey with reddish brown with black stains; cohesive, w<PL		0.15							
1											
		END OF BOREHOLE		1.52							
		NOTES:									
2		1. Borehole dry at the completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-18

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: March 28, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108mm mm Diam. Solid Stem Auger	TOPSOIL		0.00							
		FILL (CL) SILTY CLAY; trace sand, trace gravel; light grey to brown; cohesive, w<PL		0.15							
1											
		END OF BOREHOLE		1.52							
		NOTES:									
2		1. Borehole dry at completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-19

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: March 26, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: DIRECT PUSH

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp ○W WI) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	Direct Push 108mm mm Diam. Solid Stem Auger	TOPSOIL		0.00							
		FILL - (CL) SILTY CLAY, trace organics; brown to reddish brown; cohesive, w~PL		0.15							
1											
2		END OF BOREHOLE		1.83							
		NOTES:									
		1. Borehole dry at completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

CHECKED: JR

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PROJECT: 1784521

RECORD OF BOREHOLE: BH18-20

SHEET 1 OF 1

LOCATION: See Figure 1

BORING DATE: March 26, 2018

DATUM: Ground Surface

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DRILL RIG: Geoprobe

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION / GRAIN SIZE DISTRIBUTION (%)
		GROUND SURFACE									GR SA SI CL
0	POWER AUGER 108mm mm Diam. Solid Stem Auger	TOPSOIL (150 mm)		0.00							
		FILL - (CL) SILTY CLAY, trace gravel, trace organics; grey to reddish brown; cohesive, w<PL, stiff to very stiff		0.15	1	SS	7				
1					2	SS	18				
					3	SS	21				
2		(CI) SILTY CLAY, trace gravel; reddish brown to light grey; cohesive, w<PL, very stiff to firm		2.13	4	SS	20				
3					5	SS	11				
4					6	SS	11				
5					7	SS	7				
6		END OF BOREHOLE		6.10							
7		NOTES:									
8		1. Borehole dry upon completion of drilling.									
9		2. Water level measured in monitoring well.									
10		Date: March 29, 2018 — Depth (m): 6.1; April 12, 2018 — 6.1									

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DEPTH SCALE

1 : 50

GOLDER

LOGGED: TP/PH

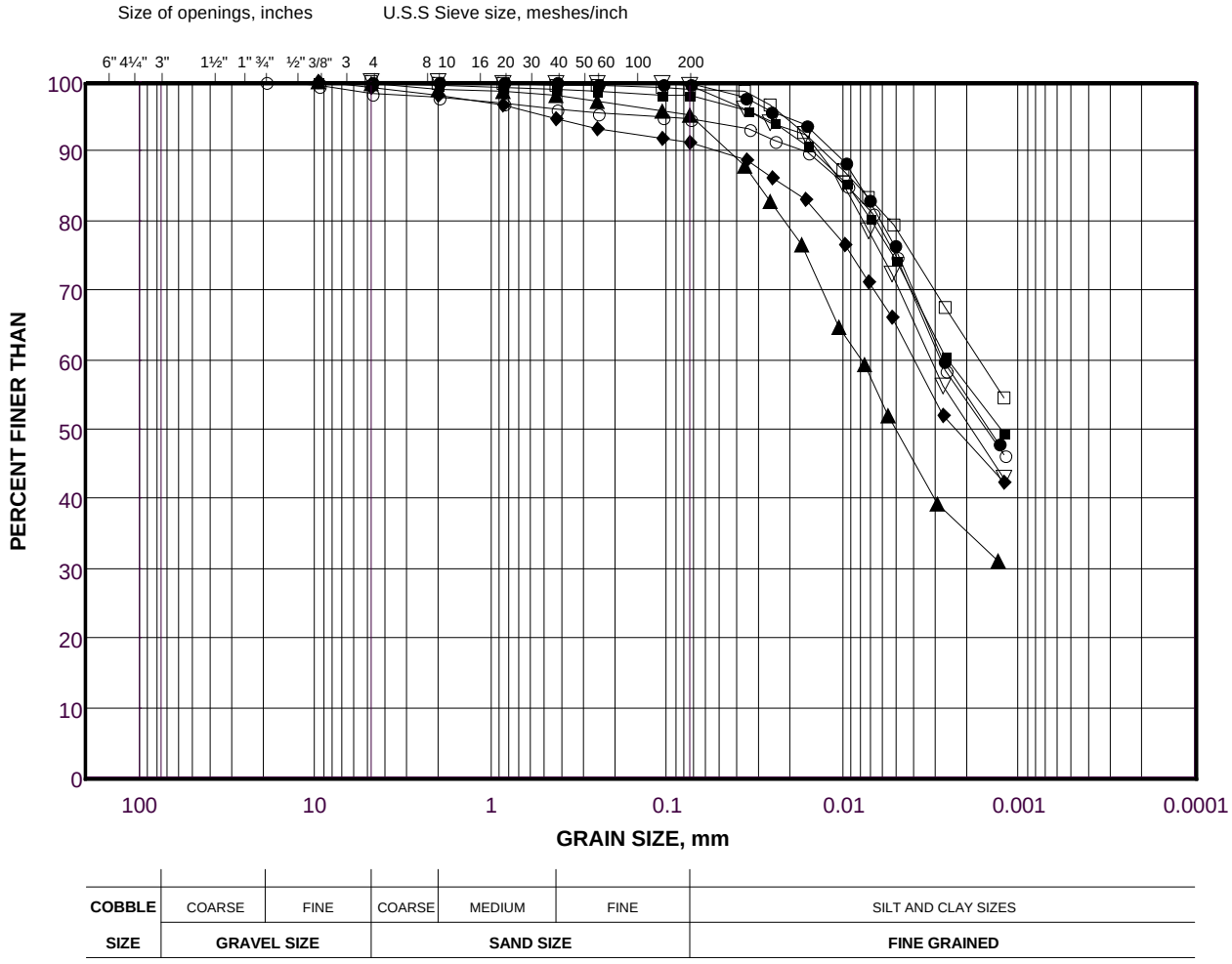
CHECKED: JR

APPENDIX C

Grain Size Analysis

GRAIN SIZE DISTRIBUTION
(CL/CI) SILTY CLAY

FIGURE 2



LEGEND

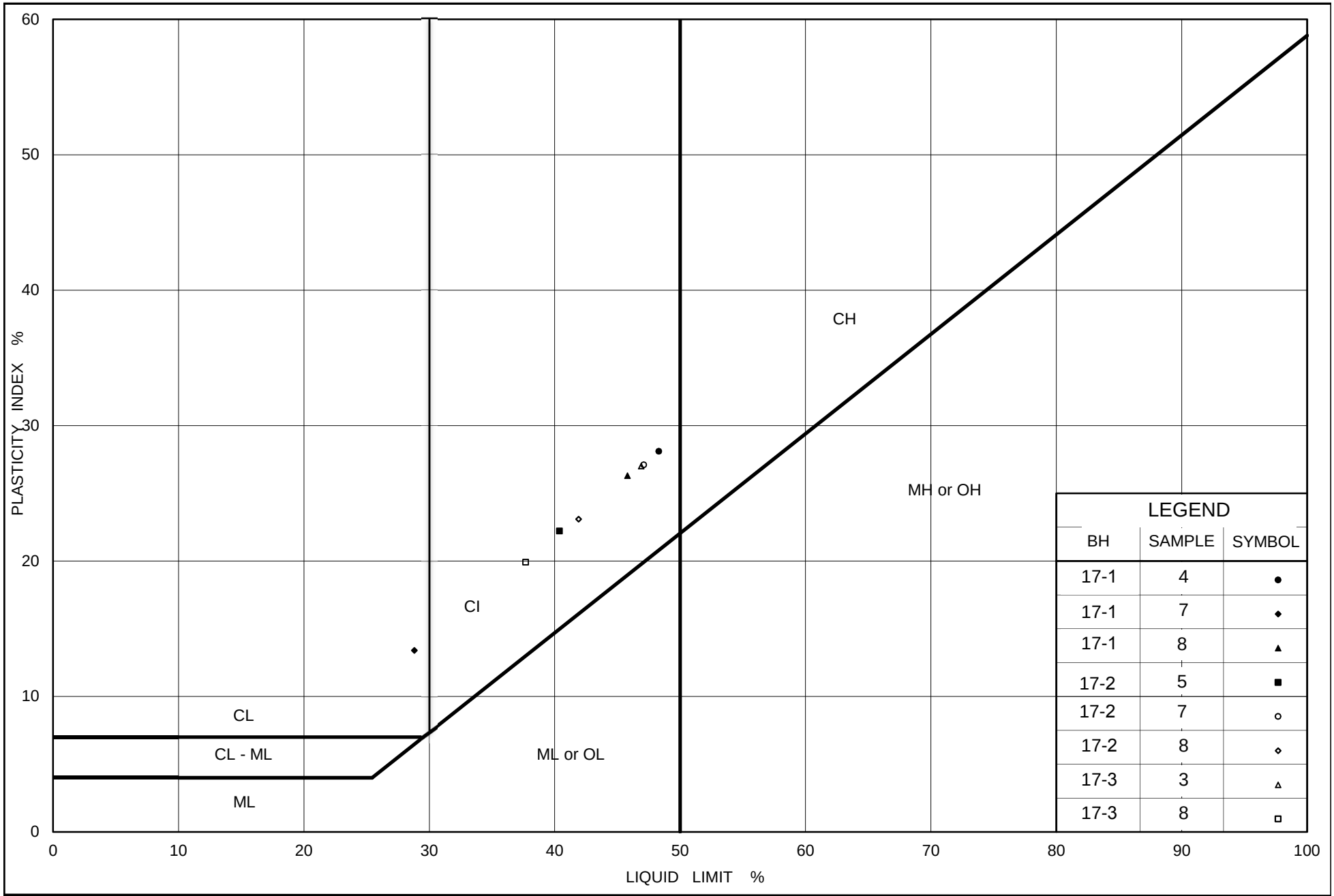
SYMBOL	Borehole	SAMPLE	DEPTH(m)
●	17-3	3	1.52 - 2.13
■	17-1	4	2.29 - 2.90
◆	17-2	5	3.05 - 3.66
◘	17-1	7	4.57 - 5.18
▽	17-3	8	6.86 - 7.47
❍	17-2	8	6.10 - 6.71
□	17-1	8	5.33 - 5.94

Project Number: 1784521

(1000) Checked By: JET

Golder Associates

Date: 26-Feb-18



GOLDER

PLASTICITY CHART
(CL-CI) SILTY CLAY

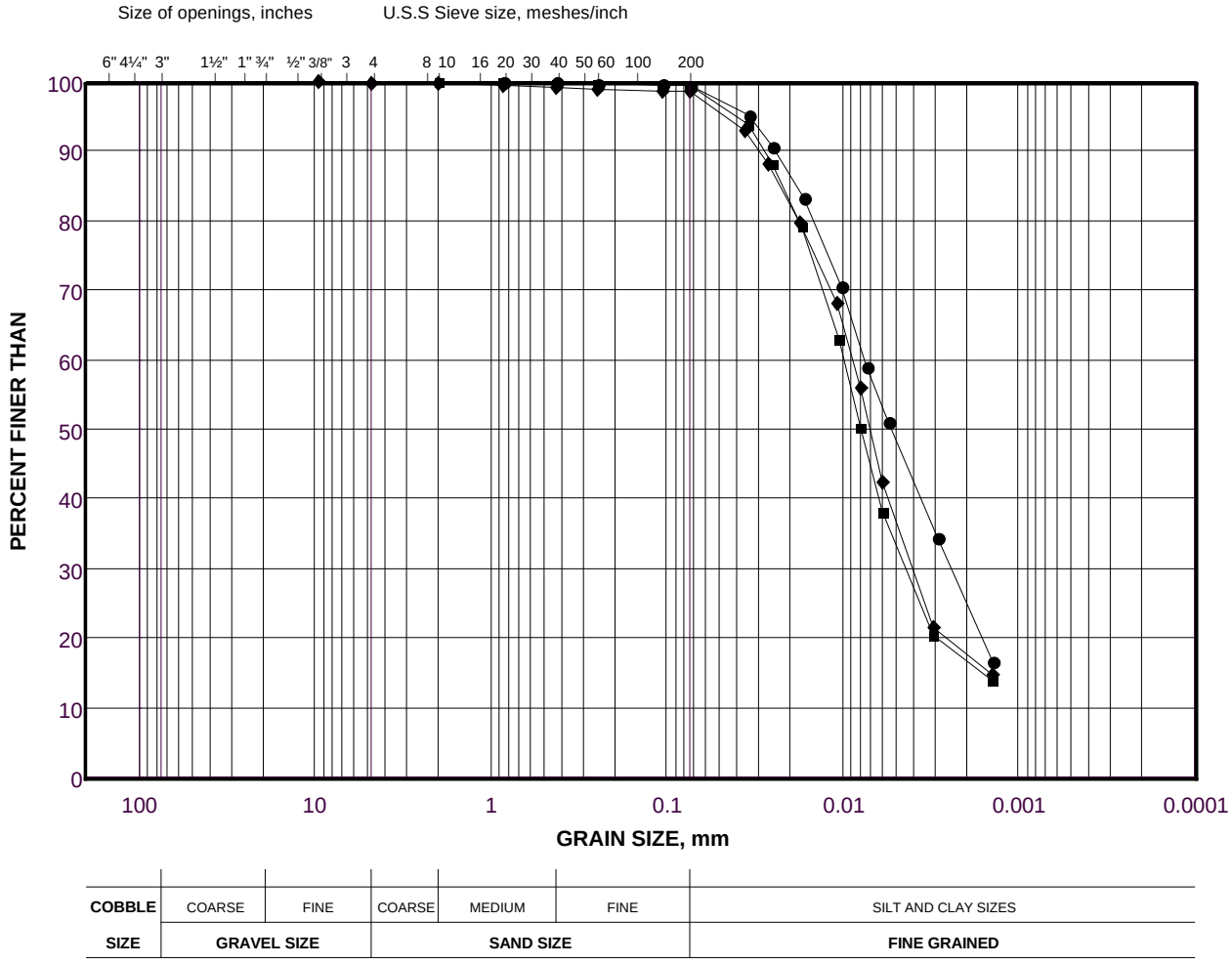
Figure No. 3

Project No. 1784521 (1000)

Checked By: JET

GRAIN SIZE DISTRIBUTION
(CL-ML/CL) - SILTY CLAY

FIGURE 4



LEGEND

SYMBOL	Borehole	SAMPLE	DEPTH(m)
●	17-3	10	10.67 - 11.28
■	17-1	10	9.14 - 9.75
◆	17-2	11	10.67 - 11.28

Project Number: 1784521

(1000) Checked By: JET

Golder Associates

Date: 26-Feb-18

APPENDIX D

Laboratory Certificates of Analysis

Maxxam
A Bureau Veritas Group Company

Your Project #: 1784521
Your C.O.C. #: 672012-01-01

Attention: Erti Mansaku

Golder Associates Ltd
6925 Century Ave
Suite 100
Mississauga, ON
CANADA L5N 7K2

Report Date: 2018/07/11
Report #: R5289515
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8G7238
Received: 2018/07/05, 15:20

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum	4	N/A	2018/07/10	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum	4	N/A	2018/07/09		EPA 8260C m
Chloride by Automated Colourimetry	4	N/A	2018/07/09	CAM SOP-00463	EPA 325.2 m
Chromium (VI) in Water	4	N/A	2018/07/10	CAM SOP-00436	EPA 7199 m
Free (WAD) Cyanide	4	N/A	2018/07/07	CAM SOP-00457	OMOE E3015 m
Petroleum Hydrocarbons F2-F4 in Water (1)	4	2018/07/09	2018/07/10	CAM SOP-00316	CCME PHC-CWS m
Mercury	3	2018/07/09	2018/07/09	CAM SOP-00453	EPA 7470A m
Mercury	1	2018/07/10	2018/07/10	CAM SOP-00453	EPA 7470A m
Dissolved Metals by ICPMS	4	N/A	2018/07/09	CAM SOP-00447	EPA 6020B m
PAH Compounds in Water by GC/MS (SIM)	4	2018/07/09	2018/07/10	CAM SOP-00318	EPA 8270D m
Volatile Organic Compounds and F1 PHCs	6	N/A	2018/07/08	CAM SOP-00230	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: 1784521
Your C.O.C. #: 672012-01-01

Attention: Erti Mansaku

Golder Associates Ltd
6925 Century Ave
Suite 100
Mississauga, ON
CANADA L5N 7K2

Report Date: 2018/07/11
Report #: R5289515
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8G7238
Received: 2018/07/05, 15:20

(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: EGitej@maxxam.ca
Phone# (905)817-5829

==========

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

Maxxam Job #: B8G7238
Report Date: 2018/07/11

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: TP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		HDK237			HDK238		
Sampling Date		2018/07/04			2018/07/04		
COC Number		672012-01-01			672012-01-01		
	UNITS	TRIP BLANK	RDL	QC Batch	TRIP SPIKE	RDL	QC Batch
Volatile Organics							
Acetone (2-Propanone)	ug/L	<10	10	5614467	100	10	5614467
Benzene	ug/L	<0.20	0.20	5614467	95	0.20	5614467
Bromodichloromethane	ug/L	<0.50	0.50	5614467	90	0.50	5614467
Bromoform	ug/L	<1.0	1.0	5614467	85	1.0	5614467
Bromomethane	ug/L	<0.50	0.50	5614467	90	0.50	5614467
Carbon Tetrachloride	ug/L	<0.20	0.20	5614467	90	0.20	5614467
Chlorobenzene	ug/L	<0.20	0.20	5614467	90	0.20	5614467
Chloroform	ug/L	<0.20	0.20	5614467	95	0.20	5614467
Dibromochloromethane	ug/L	<0.50	0.50	5614467	90	0.50	5614467
1,2-Dichlorobenzene	ug/L	<0.50	0.50	5614467	90	0.50	5614467
1,3-Dichlorobenzene	ug/L	<0.50	0.50	5614467	85	0.50	5614467
1,4-Dichlorobenzene	ug/L	<0.50	0.50	5614467	85	0.50	5614467
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	5614467	90	1.0	5614467
1,1-Dichloroethane	ug/L	<0.20	0.20	5614467	100	0.20	5614467
1,2-Dichloroethane	ug/L	<0.50	0.50	5614467	95	0.50	5614467
1,1-Dichloroethylene	ug/L	<0.20	0.20	5614467	95	0.20	5614467
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	5614467	95	0.50	5614467
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	5614467	90	0.50	5614467
1,2-Dichloropropane	ug/L	<0.20	0.20	5614467	100	0.20	5614467
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	5614467	65	0.30	5614467
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	5614467	65	0.40	5614467
Ethylbenzene	ug/L	<0.20	0.20	5614467	85	0.20	5614467
Ethylene Dibromide	ug/L	<0.20	0.20	5614467	95	0.20	5614467
Hexane	ug/L	<1.0	1.0	5614467	50	1.0	5614467
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	5614467	100	2.0	5614467
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	5614467	95	10	5614467
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	5614467	80	5.0	5614467
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	5614467	90	0.50	5614467
Styrene	ug/L	<0.50	0.50	5614467	80	0.50	5614467
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	5614467	90	0.50	5614467
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	5614467	95	0.50	5614467
Tetrachloroethylene	ug/L	<0.20	0.20	5614467	85	0.20	5614467
Toluene	ug/L	<0.20	0.20	5614467	90	0.20	5614467
1,1,1-Trichloroethane	ug/L	<0.20	0.20	5614467	90	0.20	5614467
1,1,2-Trichloroethane	ug/L	<0.50	0.50	5614467	110	0.50	5614467
Trichloroethylene	ug/L	<0.20	0.20	5614467	90	0.20	5614467

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B8G7238
Report Date: 2018/07/11

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: TP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		HDK237			HDK238		
Sampling Date		2018/07/04			2018/07/04		
COC Number		672012-01-01			672012-01-01		
	UNITS	**TRIP BLANK**	**RDL**	**QC Batch**	**TRIP SPIKE**	**RDL**	**QC Batch**
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	5614467	90	0.50	5614467
Vinyl Chloride	ug/L	<0.20	0.20	5614467	95	0.20	5614467
p+m-Xylene	ug/L	<0.20	0.20	5614467	85	0.20	5614467
o-Xylene	ug/L	<0.20	0.20	5614467	85	0.20	5614467
Total Xylenes	ug/L	<0.20	0.20	5614467			
F1 (C6-C10)	ug/L	<25	25	5614467			
F1 (C6-C10) - BTEX	ug/L	<25	25	5614467			
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	94		5614467	94		5614467
D4-1,2-Dichloroethane	%	107		5614467	104		5614467
D8-Toluene	%	97		5614467	100		5614467

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B8G7238
Report Date: 2018/07/11

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: TP

O.REG 153 METALS & INORGANICS PKG (WTR)

Maxxam ID		HDK233			HDK234			HDK234		
Sampling Date		2018/07/04 10:30			2018/07/04 11:15			2018/07/04 11:15		
COC Number		672012-01-01			672012-01-01			672012-01-01		
	UNITS	MW18-12	RDL	QC Batch	MW18-13	RDL	QC Batch	MW18-13 Lab-Dup	RDL	QC Batch
Inorganics										
WAD Cyanide (Free)	ug/L	<1	1	5616446	<1	1	5616446			
Dissolved Chloride (Cl-)	mg/L	500	5.0	5616972	110	1.0	5616972	110	1.0	5616972
Metals										
Chromium (VI)	ug/L	<0.50	0.50	5616984	<0.50	0.50	5616984			
Mercury (Hg)	ug/L	<0.1	0.1	5618998	<0.1	0.1	5620555			
Dissolved Antimony (Sb)	ug/L	<0.50	0.50	5616603	<0.50	0.50	5616603			
Dissolved Arsenic (As)	ug/L	1.2	1.0	5616603	<1.0	1.0	5616603			
Dissolved Barium (Ba)	ug/L	26	2.0	5616603	58	2.0	5616603			
Dissolved Beryllium (Be)	ug/L	<0.50	0.50	5616603	<0.50	0.50	5616603			
Dissolved Boron (B)	ug/L	220	10	5616603	150	10	5616603			
Dissolved Cadmium (Cd)	ug/L	0.12	0.10	5616603	<0.10	0.10	5616603			
Dissolved Chromium (Cr)	ug/L	<5.0	5.0	5616603	<5.0	5.0	5616603			
Dissolved Cobalt (Co)	ug/L	5.9	0.50	5616603	<0.50	0.50	5616603			
Dissolved Copper (Cu)	ug/L	3.2	1.0	5616603	1.8	1.0	5616603			
Dissolved Lead (Pb)	ug/L	<0.50	0.50	5616603	<0.50	0.50	5616603			
Dissolved Molybdenum (Mo)	ug/L	1.9	0.50	5616603	6.1	0.50	5616603			
Dissolved Nickel (Ni)	ug/L	7.2	1.0	5616603	1.8	1.0	5616603			
Dissolved Selenium (Se)	ug/L	<2.0	2.0	5616603	<2.0	2.0	5616603			
Dissolved Silver (Ag)	ug/L	<0.10	0.10	5616603	<0.10	0.10	5616603			
Dissolved Sodium (Na)	ug/L	350000	100	5616603	64000	100	5616603			
Dissolved Thallium (Tl)	ug/L	<0.050	0.050	5616603	<0.050	0.050	5616603			
Dissolved Uranium (U)	ug/L	31	0.10	5616603	13	0.10	5616603			
Dissolved Vanadium (V)	ug/L	<0.50	0.50	5616603	1.2	0.50	5616603			
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	5616603	<5.0	5.0	5616603			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B8G7238
Report Date: 2018/07/11

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: TP

O.REG 153 METALS & INORGANICS PKG (WTR)

Maxxam ID		HDK235			HDK235			HDK236		
Sampling Date		2018/07/04 11:55			2018/07/04 11:55			2018/07/04		
COC Number		672012-01-01			672012-01-01			672012-01-01		
	UNITS	MW18-14	RDL	QC Batch	MW18-14 Lab-Dup	RDL	QC Batch	MW18-100	RDL	QC Batch
Inorganics										
WAD Cyanide (Free)	ug/L	<1	1	5616446				<1	1	5616446
Dissolved Chloride (Cl-)	mg/L	67	1.0	5618257	63	1.0	5618257	110	1.0	5616972
Metals										
Chromium (VI)	ug/L	<0.50	0.50	5616984				<0.50	0.50	5616984
Mercury (Hg)	ug/L	<0.1	0.1	5618998				<0.1	0.1	5618998
Dissolved Antimony (Sb)	ug/L	<0.50	0.50	5616603				<0.50	0.50	5616603
Dissolved Arsenic (As)	ug/L	<1.0	1.0	5616603				<1.0	1.0	5616603
Dissolved Barium (Ba)	ug/L	39	2.0	5616603				58	2.0	5616603
Dissolved Beryllium (Be)	ug/L	<0.50	0.50	5616603				<0.50	0.50	5616603
Dissolved Boron (B)	ug/L	70	10	5616603				150	10	5616603
Dissolved Cadmium (Cd)	ug/L	<0.10	0.10	5616603				<0.10	0.10	5616603
Dissolved Chromium (Cr)	ug/L	<5.0	5.0	5616603				<5.0	5.0	5616603
Dissolved Cobalt (Co)	ug/L	<0.50	0.50	5616603				<0.50	0.50	5616603
Dissolved Copper (Cu)	ug/L	1.3	1.0	5616603				1.7	1.0	5616603
Dissolved Lead (Pb)	ug/L	<0.50	0.50	5616603				<0.50	0.50	5616603
Dissolved Molybdenum (Mo)	ug/L	2.8	0.50	5616603				6.2	0.50	5616603
Dissolved Nickel (Ni)	ug/L	<1.0	1.0	5616603				1.9	1.0	5616603
Dissolved Selenium (Se)	ug/L	<2.0	2.0	5616603				<2.0	2.0	5616603
Dissolved Silver (Ag)	ug/L	<0.10	0.10	5616603				<0.10	0.10	5616603
Dissolved Sodium (Na)	ug/L	43000	100	5616603				65000	100	5616603
Dissolved Thallium (Tl)	ug/L	<0.050	0.050	5616603				<0.050	0.050	5616603
Dissolved Uranium (U)	ug/L	11	0.10	5616603				13	0.10	5616603
Dissolved Vanadium (V)	ug/L	1.7	0.50	5616603				1.0	0.50	5616603
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	5616603				<5.0	5.0	5616603

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B8G7238
Report Date: 2018/07/11

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: TP

O.REG 153 PAHS (WATER)

Maxxam ID		HDK233	HDK234	HDK235	HDK236		
Sampling Date		2018/07/04 10:30	2018/07/04 11:15	2018/07/04 11:55	2018/07/04		
COC Number		672012-01-01	672012-01-01	672012-01-01	672012-01-01		
	UNITS	MW18-12	MW18-13	MW18-14	MW18-100	RDL	QC Batch
Calculated Parameters							
Methylnaphthalene, 2-(1-)	ug/L	<0.071	<0.071	<0.071	<0.071	0.071	5615867
Polyaromatic Hydrocarbons							
Acenaphthene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
Acenaphthylene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
Anthracene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
Benzo(a)anthracene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
Benzo(a)pyrene	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	5619446
Benzo(b/j)fluoranthene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
Benzo(g,h,i)perylene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
Benzo(k)fluoranthene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
Chrysene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
Dibenz(a,h)anthracene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
Fluoranthene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
Fluorene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
1-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
2-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
Naphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
Phenanthrene	ug/L	<0.030	<0.030	<0.030	<0.030	0.030	5619446
Pyrene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	5619446
Surrogate Recovery (%)							
D10-Anthracene	%	103	98	100	95		5619446
D14-Terphenyl (FS)	%	81	69	70	71		5619446
D8-Acenaphthylene	%	97	91	94	89		5619446

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Maxxam ID		HDK233	HDK234	HDK235	HDK236		
Sampling Date		2018/07/04 10:30	2018/07/04 11:15	2018/07/04 11:55	2018/07/04		
COC Number		672012-01-01	672012-01-01	672012-01-01	672012-01-01		
	UNITS	MW18-12	MW18-13	MW18-14	MW18-100	RDL	QC Batch
Calculated Parameters							
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5615868
Volatile Organics							
Acetone (2-Propanone)	ug/L	<10	<10	<10	<10	10	5614467
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5614467
Bromodichloromethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
Bromoform	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	5614467
Bromomethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5614467
Chlorobenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5614467
Chloroform	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5614467
Dibromochloromethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	5614467
1,1-Dichloroethane	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5614467
1,2-Dichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
1,1-Dichloroethylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5614467
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5614467
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	<0.30	0.30	5614467
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	5614467
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5614467
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5614467
Hexane	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	5614467
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	5614467
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	<10	<10	10	5614467
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	5614467
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
Styrene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
Tetrachloroethylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5614467
Toluene	ug/L	0.55	<0.20	<0.20	<0.20	0.20	5614467

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Maxxam ID		HDK233	HDK234	HDK235	HDK236		
Sampling Date		2018/07/04 10:30	2018/07/04 11:15	2018/07/04 11:55	2018/07/04		
COC Number		672012-01-01	672012-01-01	672012-01-01	672012-01-01		
	UNITS	MW18-12	MW18-13	MW18-14	MW18-100	RDL	QC Batch
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5614467
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
Trichloroethylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5614467
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5614467
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5614467
p+m-Xylene	ug/L	0.23	<0.20	<0.20	<0.20	0.20	5614467
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	5614467
Total Xylenes	ug/L	0.23	<0.20	<0.20	<0.20	0.20	5614467
F1 (C6-C10)	ug/L	<25	<25	<25	<25	25	5614467
F1 (C6-C10) - BTEX	ug/L	<25	<25	<25	<25	25	5614467
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	<100	100	5619448
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	<200	<200	200	5619448
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	<200	200	5619448
Reached Baseline at C50	ug/L	Yes	Yes	Yes	Yes		5619448
Surrogate Recovery (%)							
o-Terphenyl	%	98	97	99	99		5619448
4-Bromofluorobenzene	%	94	93	93	94		5614467
D4-1,2-Dichloroethane	%	107	107	105	105		5614467
D8-Toluene	%	97	97	97	97		5614467

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QC Batch = Quality Control Batch

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Maxxam Job #: B8G7238
Report Date: 2018/07/11

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: TP

TEST SUMMARY

Maxxam ID: HDK233
Sample ID: MW18-12
Matrix: Water

Collected: 2018/07/04
Shipped:
Received: 2018/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5615867	N/A	2018/07/10	Automated Statchk
1,3-Dichloropropene Sum	CALC	5615868	N/A	2018/07/09	Automated Statchk
Chloride by Automated Colourimetry	KONE	5616972	N/A	2018/07/09	Deonarine Ramnarine
Chromium (VI) in Water	IC	5616984	N/A	2018/07/10	Rupinder Sihota
Free (WAD) Cyanide	SKAL/CN	5616446	N/A	2018/07/07	Louise Harding
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5619448	2018/07/09	2018/07/10	Zhiyue (Frank) Zhu
Mercury	CV/AA	5618998	2018/07/09	2018/07/09	Ron Morrison
Dissolved Metals by ICPMS	ICP/MS	5616603	N/A	2018/07/09	Thao Nguyen
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5619446	2018/07/09	2018/07/10	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5614467	N/A	2018/07/08	Denis Reid

Maxxam ID: HDK234
Sample ID: MW18-13
Matrix: Water

Collected: 2018/07/04
Shipped:
Received: 2018/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5615867	N/A	2018/07/10	Automated Statchk
1,3-Dichloropropene Sum	CALC	5615868	N/A	2018/07/09	Automated Statchk
Chloride by Automated Colourimetry	KONE	5616972	N/A	2018/07/09	Deonarine Ramnarine
Chromium (VI) in Water	IC	5616984	N/A	2018/07/10	Rupinder Sihota
Free (WAD) Cyanide	SKAL/CN	5616446	N/A	2018/07/07	Louise Harding
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5619448	2018/07/09	2018/07/10	Zhiyue (Frank) Zhu
Mercury	CV/AA	5620555	2018/07/10	2018/07/10	Ron Morrison
Dissolved Metals by ICPMS	ICP/MS	5616603	N/A	2018/07/09	Thao Nguyen
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5619446	2018/07/09	2018/07/10	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5614467	N/A	2018/07/08	Denis Reid

Maxxam ID: HDK234 Dup
Sample ID: MW18-13
Matrix: Water

Collected: 2018/07/04
Shipped:
Received: 2018/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	5616972	N/A	2018/07/09	Deonarine Ramnarine

Maxxam ID: HDK235
Sample ID: MW18-14
Matrix: Water

Collected: 2018/07/04
Shipped:
Received: 2018/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5615867	N/A	2018/07/10	Automated Statchk
1,3-Dichloropropene Sum	CALC	5615868	N/A	2018/07/09	Automated Statchk
Chloride by Automated Colourimetry	KONE	5618257	N/A	2018/07/09	Deonarine Ramnarine
Chromium (VI) in Water	IC	5616984	N/A	2018/07/10	Rupinder Sihota
Free (WAD) Cyanide	SKAL/CN	5616446	N/A	2018/07/07	Louise Harding
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5619448	2018/07/09	2018/07/10	Zhiyue (Frank) Zhu
Mercury	CV/AA	5618998	2018/07/09	2018/07/09	Ron Morrison

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Maxxam Job #: B8G7238
Report Date: 2018/07/11

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: TP

TEST SUMMARY

Maxxam ID: HDK235
Sample ID: MW18-14
Matrix: Water

Collected: 2018/07/04
Shipped:
Received: 2018/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	5616603	N/A	2018/07/09	Thao Nguyen
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5619446	2018/07/09	2018/07/10	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5614467	N/A	2018/07/08	Denis Reid

Maxxam ID: HDK235 Dup
Sample ID: MW18-14
Matrix: Water

Collected: 2018/07/04
Shipped:
Received: 2018/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	5618257	N/A	2018/07/09	Deonarine Ramnarine

Maxxam ID: HDK236
Sample ID: MW18-100
Matrix: Water

Collected: 2018/07/04
Shipped:
Received: 2018/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5615867	N/A	2018/07/10	Automated Statchk
1,3-Dichloropropene Sum	CALC	5615868	N/A	2018/07/09	Automated Statchk
Chloride by Automated Colourimetry	KONE	5616972	N/A	2018/07/09	Deonarine Ramnarine
Chromium (VI) in Water	IC	5616984	N/A	2018/07/10	Rupinder Sihota
Free (WAD) Cyanide	SKAL/CN	5616446	N/A	2018/07/07	Louise Harding
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5619448	2018/07/09	2018/07/10	Zhiyue (Frank) Zhu
Mercury	CV/AA	5618998	2018/07/09	2018/07/09	Ron Morrison
Dissolved Metals by ICPMS	ICP/MS	5616603	N/A	2018/07/09	Thao Nguyen
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5619446	2018/07/09	2018/07/10	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5614467	N/A	2018/07/08	Denis Reid

Maxxam ID: HDK237
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2018/07/04
Shipped:
Received: 2018/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5614467	N/A	2018/07/08	Denis Reid

Maxxam ID: HDK238
Sample ID: TRIP SPIKE
Matrix: Water

Collected: 2018/07/04
Shipped:
Received: 2018/07/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5614467	N/A	2018/07/08	Denis Reid

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Maxxam Job #: B8G7238
Report Date: 2018/07/11

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: TP

GENERAL COMMENTS

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

Package 1	3.0°C

Sample HDK238 [TRIP SPIKE] : VOCF1 Analysis: Trip Spike results are expressed as percent recoveries.

Results relate only to the items tested.

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A Bureau Veritas Group Company

Maxxam Job #: B8G7238
Report Date: 2018/07/11

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: TP

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5614467	4-Bromofluorobenzene	2018/07/07	98	70 - 130	98	70 - 130	95	%		
5614467	D4-1,2-Dichloroethane	2018/07/07	103	70 - 130	99	70 - 130	99	%		
5614467	D8-Toluene	2018/07/07	102	70 - 130	103	70 - 130	99	%		
5619446	D10-Anthracene	2018/07/09	100	50 - 130	106	50 - 130	99	%		
5619446	D14-Terphenyl (FS)	2018/07/09	91	50 - 130	97	50 - 130	90	%		
5619446	D8-Acenaphthylene	2018/07/09	94	50 - 130	99	50 - 130	93	%		
5619448	o-Terphenyl	2018/07/09	98	60 - 130	99	60 - 130	94	%		
5614467	1,1,1,2-Tetrachloroethane	2018/07/07	100	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5614467	1,1,1-Trichloroethane	2018/07/07	95	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5614467	1,1,2,2-Tetrachloroethane	2018/07/07	106	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5614467	1,1,2-Trichloroethane	2018/07/07	109	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
5614467	1,1-Dichloroethane	2018/07/07	101	70 - 130	102	70 - 130	<0.20	ug/L	1.6	30
5614467	1,1-Dichloroethylene	2018/07/07	99	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5614467	1,2-Dichlorobenzene	2018/07/07	100	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5614467	1,2-Dichloroethane	2018/07/07	101	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5614467	1,2-Dichloropropane	2018/07/07	106	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
5614467	1,3-Dichlorobenzene	2018/07/07	100	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5614467	1,4-Dichlorobenzene	2018/07/07	101	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
5614467	Acetone (2-Propanone)	2018/07/07	109	60 - 140	94	60 - 140	<10	ug/L	NC	30
5614467	Benzene	2018/07/07	98	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5614467	Bromodichloromethane	2018/07/07	98	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5614467	Bromoform	2018/07/07	100	70 - 130	94	70 - 130	<1.0	ug/L	NC	30
5614467	Bromomethane	2018/07/07	85	60 - 140	84	60 - 140	<0.50	ug/L	NC	30
5614467	Carbon Tetrachloride	2018/07/07	95	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5614467	Chlorobenzene	2018/07/07	98	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5614467	Chloroform	2018/07/07	99	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5614467	cis-1,2-Dichloroethylene	2018/07/07	100	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5614467	cis-1,3-Dichloropropene	2018/07/07	97	70 - 130	93	70 - 130	<0.30	ug/L	NC	30
5614467	Dibromochloromethane	2018/07/07	101	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5614467	Dichlorodifluoromethane (FREON 12)	2018/07/07	74	60 - 140	80	60 - 140	<1.0	ug/L	NC	30
5614467	Ethylbenzene	2018/07/07	99	70 - 130	102	70 - 130	<0.20	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5614467	Ethylene Dibromide	2018/07/07	103	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5614467	F1 (C6-C10) - BTEX	2018/07/07					<25	ug/L	NC	30
5614467	F1 (C6-C10)	2018/07/07	91	60 - 140	101	60 - 140	<25	ug/L	NC	30
5614467	Hexane	2018/07/07	100	70 - 130	103	70 - 130	<1.0	ug/L	NC	30
5614467	Methyl Ethyl Ketone (2-Butanone)	2018/07/07	110	60 - 140	96	60 - 140	<10	ug/L	NC	30
5614467	Methyl Isobutyl Ketone	2018/07/07	101	70 - 130	92	70 - 130	<5.0	ug/L	NC	30
5614467	Methyl t-butyl ether (MTBE)	2018/07/07	98	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5614467	Methylene Chloride(Dichloromethane)	2018/07/07	103	70 - 130	101	70 - 130	<2.0	ug/L	NC	30
5614467	o-Xylene	2018/07/07	99	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
5614467	p+m-Xylene	2018/07/07	96	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5614467	Styrene	2018/07/07	99	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
5614467	Tetrachloroethylene	2018/07/07	94	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5614467	Toluene	2018/07/07	96	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5614467	Total Xylenes	2018/07/07					<0.20	ug/L	NC	30
5614467	trans-1,2-Dichloroethylene	2018/07/07	98	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5614467	trans-1,3-Dichloropropene	2018/07/07	103	70 - 130	97	70 - 130	<0.40	ug/L	NC	30
5614467	Trichloroethylene	2018/07/07	96	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5614467	Trichlorofluoromethane (FREON 11)	2018/07/07	95	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5614467	Vinyl Chloride	2018/07/07	95	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5616446	WAD Cyanide (Free)	2018/07/07	104	80 - 120	94	80 - 120	<1	ug/L	NC	20
5616603	Dissolved Antimony (Sb)	2018/07/09	106	80 - 120	106	80 - 120	<0.50	ug/L	NC	20
5616603	Dissolved Arsenic (As)	2018/07/09	97	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
5616603	Dissolved Barium (Ba)	2018/07/09	98	80 - 120	101	80 - 120	<2.0	ug/L	1.2	20
5616603	Dissolved Beryllium (Be)	2018/07/09	99	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
5616603	Dissolved Boron (B)	2018/07/09	98	80 - 120	100	80 - 120	<10	ug/L	2.3	20
5616603	Dissolved Cadmium (Cd)	2018/07/09	100	80 - 120	100	80 - 120	<0.10	ug/L	15	20
5616603	Dissolved Chromium (Cr)	2018/07/09	94	80 - 120	97	80 - 120	<5.0	ug/L	NC	20
5616603	Dissolved Cobalt (Co)	2018/07/09	93	80 - 120	97	80 - 120	<0.50	ug/L	NC	20
5616603	Dissolved Copper (Cu)	2018/07/09	98	80 - 120	101	80 - 120	<1.0	ug/L	1.6	20
5616603	Dissolved Lead (Pb)	2018/07/09	93	80 - 120	96	80 - 120	<0.50	ug/L	NC	20
5616603	Dissolved Molybdenum (Mo)	2018/07/09	103	80 - 120	101	80 - 120	<0.50	ug/L	NC	20

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5616603	Dissolved Nickel (Ni)	2018/07/09	92	80 - 120	96	80 - 120	<1.0	ug/L	NC	20
5616603	Dissolved Selenium (Se)	2018/07/09	101	80 - 120	101	80 - 120	<2.0	ug/L	1.6	20
5616603	Dissolved Silver (Ag)	2018/07/09	97	80 - 120	98	80 - 120	<0.10	ug/L	NC	20
5616603	Dissolved Sodium (Na)	2018/07/09	NC	80 - 120	97	80 - 120	<100	ug/L	0.64	20
5616603	Dissolved Thallium (Tl)	2018/07/09	93	80 - 120	96	80 - 120	<0.050	ug/L	NC	20
5616603	Dissolved Uranium (U)	2018/07/09	94	80 - 120	96	80 - 120	<0.10	ug/L	1.8	20
5616603	Dissolved Vanadium (V)	2018/07/09	97	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
5616603	Dissolved Zinc (Zn)	2018/07/09	93	80 - 120	98	80 - 120	<5.0	ug/L	3.4	20
5616972	Dissolved Chloride (Cl-)	2018/07/09	108	80 - 120	101	80 - 120	<1.0	mg/L	0.25	20
5616984	Chromium (VI)	2018/07/10	104	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
5618257	Dissolved Chloride (Cl-)	2018/07/09	102	80 - 120	103	80 - 120	<1.0	mg/L	5.4	20
5618998	Mercury (Hg)	2018/07/09	103	75 - 125	101	80 - 120	<0.1	ug/L	NC	20
5619446	1-Methylnaphthalene	2018/07/09	114	50 - 130	115	50 - 130	<0.050	ug/L	1.1	30
5619446	2-Methylnaphthalene	2018/07/09	106	50 - 130	105	50 - 130	<0.050	ug/L	12	30
5619446	Acenaphthene	2018/07/09	108	50 - 130	108	50 - 130	<0.050	ug/L	0.93	30
5619446	Acenaphthylene	2018/07/09	107	50 - 130	109	50 - 130	<0.050	ug/L	NC	30
5619446	Anthracene	2018/07/09	103	50 - 130	104	50 - 130	<0.050	ug/L	NC	30
5619446	Benzo(a)anthracene	2018/07/09	104	50 - 130	103	50 - 130	<0.050	ug/L	NC	30
5619446	Benzo(a)pyrene	2018/07/09	109	50 - 130	108	50 - 130	<0.010	ug/L	NC	30
5619446	Benzo(b/j)fluoranthene	2018/07/09	113	50 - 130	111	50 - 130	<0.050	ug/L	NC	30
5619446	Benzo(g,h,i)perylene	2018/07/09	103	50 - 130	102	50 - 130	<0.050	ug/L	NC	30
5619446	Benzo(k)fluoranthene	2018/07/09	114	50 - 130	112	50 - 130	<0.050	ug/L	NC	30
5619446	Chrysene	2018/07/09	108	50 - 130	108	50 - 130	<0.050	ug/L	NC	30
5619446	Dibenz(a,h)anthracene	2018/07/09	103	50 - 130	101	50 - 130	<0.050	ug/L	NC	30
5619446	Fluoranthene	2018/07/09	109	50 - 130	110	50 - 130	<0.050	ug/L	NC	30
5619446	Fluorene	2018/07/09	104	50 - 130	104	50 - 130	<0.050	ug/L	0.50	30
5619446	Indeno(1,2,3-cd)pyrene	2018/07/09	105	50 - 130	105	50 - 130	<0.050	ug/L	NC	30
5619446	Naphthalene	2018/07/09	109	50 - 130	111	50 - 130	<0.050	ug/L	5.9	30
5619446	Phenanthrene	2018/07/09	111	50 - 130	111	50 - 130	<0.030	ug/L	14	30
5619446	Pyrene	2018/07/09	110	50 - 130	110	50 - 130	<0.050	ug/L	NC	30
5619448	F2 (C10-C16 Hydrocarbons)	2018/07/10	98	50 - 130	102	60 - 130	<100	ug/L	2.3	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5619448	F3 (C16-C34 Hydrocarbons)	2018/07/10	97	50 - 130	102	60 - 130	<200	ug/L	NC	30
5619448	F4 (C34-C50 Hydrocarbons)	2018/07/10	96	50 - 130	102	60 - 130	<200	ug/L	NC	30
5620555	Mercury (Hg)	2018/07/10	100	75 - 125	105	80 - 120	<0.1	ug/L	NC	20

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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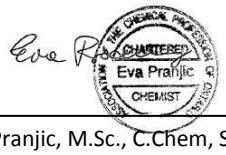
Maxxam Job #: B8G7238
Report Date: 2018/07/11

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: TP

VALIDATION SIGNATURE PAGE

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



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

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

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05-Jul-18 15:20

Ema Gitej

B8G7238

PS4 ENV-900

Presence of Visible Particulate/Sediment

Maxxam Analytics
CAM FCD-01013/5

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

Bottle Types

			Inorganics					Organics											Hydrocarbons							Volatiles				Other
	Sample ID	All	CrVI	CN	General	Hg	Metals (Diss.)	Organic 1 of 2	Organic 2 of 2	PCB 1 of 2	PCB 2 of 2	Pest/ Herb 1 of 2	Pest/ Herb 2 of 2	SVOC/ ABN 1 of 2	SVOC/ ABN 2 of 2	PAH 1 of 2	PAH 2 of 2	Dioxin /Furan	F1 Vial 1	F1 Vial 2	F1 Vial 3	F1 Vial 4	F2-F4 1 of 2	F2-F4 2 of 2	F4G	VOC Vial 1	VOC Vial 2	VOC Vial 3	VOC Vial 4	
1	MW 18-13	TS																											
2	MW 18-14	↓																											
3	MW 18-100	↓																											
4																													
5																													
6																													
7																													
8																													
9																													
10																													

Comments: Except for dissolved metals, mercury & chromium

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

Recorded By: (signature/print) Rajeet Parampreet Singh

Maxxam
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05-Jul-18 15:20
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B8G7238
PS4 ENV-900

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name:	#1326 Golder Associates Ltd	Company Name:		Quotation #:	B80683
Attention:	Accounts Payable	Attention:	Erti Mansaku ; Prabhjot Bal	P.O. #:	
Address:	6925 Century Ave Suite 100 Mississauga ON L5N 7K2	Address:		Project:	1784521
Tel:	(905) 567-4444 Fax: (905) 567-6561	Tel:	Fax:	Project Name:	
Email:	AP_CustomerService@golder.com	Email:	Erti_Mansaku@golder.com ; Prabhjot_Bal@golder.com	Site #:	
				Sampled By:	J. Proks

e Only:
Bottle Order #: 672012
Project Manager: Ema Gitej
C#672012-01-01

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

Regulation 153 (2011)
☐ Table 1 ☐ Res/Park ☐ Medium/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ For RSC
☐ Table ___

Other Regulations
☐ CCME ☐ Sanitary Sewer Bylaw
☐ Reg 558 ☐ Storm Sewer Bylaw
☐ MISA Municipality ____
☐ PWQO
☐ Other ____

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ____

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ✓
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ____ Time Required: ____ ☐
Rush Confirmation Number: ____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	O Reg 153 VOCs by HS & F1-F4	O Reg 153 PAHs	O Reg 153 Metals & Inorganics Pkg	Volatile Organic Compounds and F1 PHCs	# of Bottles	Comments
1		MW18-12	July 4, 2018	10:30	GW	Y	✓	✓	✓	✓	10	
2		MW18-13	"	11:15	GW	Y	✓	✓	✓	✓	10	
3		MW18-14	"	11:55	GW	Y	✓	✓	✓	✓	10	
4		MW18-100	"	—	GW	Y	✓	✓	✓	✓	10	
5		~~NEW~~ TRIP BLANK	"	—	WQ	N	✓				24	
6												
7												
8												
9												
10												

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
1 TOM PROKS	18/07/05	9:00	[illegible]	2018/07/05	15:20	

Laboratory Use Only
Time Sensitive
Temperature (°C) on Recei: 4 | 3 | 2
Custody Seal: Present ✓ / Intact

Custody Seal	Yes	No
Present	✓	
Intact		

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

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

White: Maxxa Yellow: Client

Maxxam
A Bureau Veritas Group Company

Your Project #: 1784521

Attention: Erti Mansaku

Golder Associates Ltd
6925 Century Ave
Suite 100
Mississauga, ON
CANADA L5N 7K2

Your C.O.C. #: 655578-01-01, 655578-02-01, 655578-03-01

Report Date: 2018/04/06
Report #: R5067640
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B872322
Received: 2018/04/02, 15:40

Sample Matrix: Soil
Samples Received: 23

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum	6	N/A	2018/04/05	CAM SOP-00301	EPA 8270D m
Methylnaphthalene Sum	17	N/A	2018/04/06	CAM SOP-00301	EPA 8270D m
Hot Water Extractable Boron	3	2018/04/04	2018/04/04	CAM SOP-00408	R153 Ana. Prot. 2011
Hot Water Extractable Boron	20	2018/04/05	2018/04/06	CAM SOP-00408	R153 Ana. Prot. 2011
1,3-Dichloropropene Sum	21	N/A	2018/04/05		EPA 8260C m
1,3-Dichloropropene Sum	1	N/A	2018/04/06		EPA 8260C m
Free (WAD) Cyanide	23	2018/04/04	2018/04/05	CAM SOP-00457	OMOE E3015 m
Cyanide (WAD) in Leachates	1	N/A	2018/04/05	CAM SOP-00457	OMOE 3015 m
Conductivity	23	2018/04/05	2018/04/05	CAM SOP-00414	OMOE E3530 v1 m
Hexavalent Chromium in Soil by IC (1)	23	2018/04/04	2018/04/05	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydrocarbons F2-F4 in Soil (2)	6	2018/04/04	2018/04/05	CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric)	1	2018/04/06	2018/04/06	CAM SOP-00316	CCME PHC-CWS m
Fluoride by ISE in Leachates	1	2018/04/04	2018/04/05	CAM SOP-00449	SM 23 4500-F- C m
Mercury (TCLP Leachable) (mg/L)	1	N/A	2018/04/05	CAM SOP-00453	EPA 7470A m
Strong Acid Leachable Metals by ICPMS	22	2018/04/04	2018/04/04	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	1	2018/04/05	2018/04/05	CAM SOP-00447	EPA 6020B m
Total Metals in TCLP Leachate by ICPMS	1	2018/04/04	2018/04/05	CAM SOP-00447	EPA 6020B m
Moisture	19	N/A	2018/04/04	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture	4	N/A	2018/04/05	CAM SOP-00445	Carter 2nd ed 51.2 m
Nitrate(NO3) + Nitrite(NO2) in Leachate	1	N/A	2018/04/05	CAM SOP-00440	SM 23 4500-NO3I/NO2B
OC Pesticides (Selected) & PCB (3)	7	2018/04/03	2018/04/04	CAM SOP-00307	SW846 8081, 8082
OC Pesticides (Selected) & PCB (3)	16	2018/04/04	2018/04/05	CAM SOP-00307	SW846 8081, 8082
OC Pesticides Summed Parameters	22	N/A	2018/04/04	CAM SOP-00307	EPA 8081/8082 m
OC Pesticides Summed Parameters	1	N/A	2018/04/05	CAM SOP-00307	EPA 8081/8082 m
PAH Compounds in Soil by GC/MS (SIM)	9	2018/04/04	2018/04/04	CAM SOP-00318	EPA 8270D m
PAH Compounds in Soil by GC/MS (SIM)	14	2018/04/04	2018/04/05	CAM SOP-00318	EPA 8270D m
Polychlorinated Biphenyl in Leachate	1	2018/04/04	2018/04/05	CAM SOP-00309	EPA 8082A m

Maxxam
A Bureau Veritas Group Company

Your Project #: 1784521

Attention: Erti Mansaku

Golder Associates Ltd
6925 Century Ave
Suite 100
Mississauga, ON
CANADA L5N 7K2

Your C.O.C. #: 655578-01-01, 655578-02-01, 655578-03-01

Report Date: 2018/04/06
Report #: R5067640
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B872322
Received: 2018/04/02, 15:40

Sample Matrix: Soil
Samples Received: 23

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
pH CaCl2 EXTRACT	3	2018/04/04	2018/04/04	CAM SOP-00413	EPA 9045 D m
pH CaCl2 EXTRACT	20	2018/04/05	2018/04/05	CAM SOP-00413	EPA 9045 D m
Sodium Adsorption Ratio (SAR)	23	N/A	2018/04/06	CAM SOP-00102	EPA 6010C
TCLP Zero Headspace Extraction	1	2018/04/03	2018/04/04	CAM SOP-00430	EPA 1311 m
Volatile Organic Compounds and F1 PHCs	6	N/A	2018/04/05	CAM SOP-00230	EPA 8260C m
VOCs in ZHE Leachates	1	2018/04/04	2018/04/04	CAM SOP-00228	EPA 8260C m
Volatile Organic Compounds in Soil	2	N/A	2018/04/04	CAM SOP-00228	EPA 8260C m
Volatile Organic Compounds in Soil	13	N/A	2018/04/05	CAM SOP-00228	EPA 8260C m
Volatile Organic Compounds in Soil	1	N/A	2018/04/06	CAM SOP-00228	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Your Project #: 1784521

Attention: Erti Mansaku

Golder Associates Ltd
6925 Century Ave
Suite 100
Mississauga, ON
CANADA L5N 7K2

Your C.O.C. #: 655578-01-01, 655578-02-01, 655578-03-01

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MAXXAM JOB #: B872322
Received: 2018/04/02, 15:40

(1) Soils are reported on a dry weight basis unless otherwise specified.
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.
(3) Chlordane (Total) = Alpha Chlordane + Gamma Chlordane

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: EGitej@maxxam.ca
Phone# (905)817-5829
==========
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		GJG937		GJG938		GJG939		
Sampling Date		2018/03/23 09:59		2018/03/23 13:30		2018/03/26 09:30		
COC Number		655578-01-01		655578-01-01		655578-01-01		
	UNITS	BH18-13	QC Batch	BH18-14	QC Batch	BH18-19	RDL	QC Batch
Calculated Parameters								
Sodium Adsorption Ratio	N/A	0.44	5466210	0.57	5466210	0.64		5466210
Inorganics								
Conductivity	mS/cm	0.22	5469396	0.22	5469396	0.42	0.002	5469396
Available (CaCl2) pH	pH	7.78	5469288	7.91	5468782	7.84		5469288
WAD Cyanide (Free)	ug/g	<0.01	5468936	<0.01	5468938	<0.01	0.01	5468936
Chromium (VI)	ug/g	<0.2	5469114	<0.2	5468818	<0.2	0.2	5469114
Metals								
Hot Water Ext. Boron (B)	ug/g	0.079	5471581	0.13	5471581	0.078	0.050	5471581
Acid Extractable Antimony (Sb)	ug/g	<0.20	5468793	0.24	5468793	<0.20	0.20	5468793
Acid Extractable Arsenic (As)	ug/g	4.8	5468793	6.0	5468793	4.5	1.0	5468793
Acid Extractable Barium (Ba)	ug/g	140	5468793	99	5468793	160	0.50	5468793
Acid Extractable Beryllium (Be)	ug/g	1.0	5468793	0.83	5468793	1.1	0.20	5468793
Acid Extractable Boron (B)	ug/g	11	5468793	10	5468793	12	5.0	5468793
Acid Extractable Cadmium (Cd)	ug/g	<0.10	5468793	<0.10	5468793	0.11	0.10	5468793
Acid Extractable Chromium (Cr)	ug/g	29	5468793	25	5468793	30	1.0	5468793
Acid Extractable Cobalt (Co)	ug/g	15	5468793	13	5468793	15	0.10	5468793
Acid Extractable Copper (Cu)	ug/g	26	5468793	25	5468793	25	0.50	5468793
Acid Extractable Lead (Pb)	ug/g	11	5468793	11	5468793	11	1.0	5468793
Acid Extractable Molybdenum (Mo)	ug/g	0.53	5468793	0.73	5468793	0.55	0.50	5468793
Acid Extractable Nickel (Ni)	ug/g	34	5468793	30	5468793	36	0.50	5468793
Acid Extractable Selenium (Se)	ug/g	<0.50	5468793	<0.50	5468793	<0.50	0.50	5468793
Acid Extractable Silver (Ag)	ug/g	<0.20	5468793	<0.20	5468793	<0.20	0.20	5468793
Acid Extractable Thallium (Tl)	ug/g	0.18	5468793	0.17	5468793	0.19	0.050	5468793
Acid Extractable Uranium (U)	ug/g	1.0	5468793	0.91	5468793	1.1	0.050	5468793
Acid Extractable Vanadium (V)	ug/g	40	5468793	34	5468793	40	5.0	5468793
Acid Extractable Zinc (Zn)	ug/g	70	5468793	67	5468793	70	5.0	5468793
Acid Extractable Mercury (Hg)	ug/g	0.058	5468793	<0.050	5468793	<0.050	0.050	5468793

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		GJG939			GJG940	GJG941		
Sampling Date		2018/03/26 09:30			2018/03/26 11:05	2018/03/26 14:30		
COC Number		655578-01-01			655578-01-01	655578-01-01		
	UNITS	BH18-19 Lab-Dup	RDL	QC Batch	BH18-12	BH18-20	RDL	QC Batch
Calculated Parameters								
Sodium Adsorption Ratio	N/A				0.32	0.41		5466210
Inorganics								
Conductivity	mS/cm				0.15	0.61	0.002	5469396
Available (CaCl2) pH	pH				7.56	7.79		5469288
WAD Cyanide (Free)	ug/g				<0.01	<0.01	0.01	5468936
Chromium (VI)	ug/g				<0.2	<0.2	0.2	5469114
Metals								
Hot Water Ext. Boron (B)	ug/g	0.068	0.050	5471581	0.24	0.11	0.050	5471581
Acid Extractable Antimony (Sb)	ug/g				0.41	0.29	0.20	5468793
Acid Extractable Arsenic (As)	ug/g				4.1	7.5	1.0	5468793
Acid Extractable Barium (Ba)	ug/g				37	110	0.50	5468793
Acid Extractable Beryllium (Be)	ug/g				0.33	0.88	0.20	5468793
Acid Extractable Boron (B)	ug/g				5.3	12	5.0	5468793
Acid Extractable Cadmium (Cd)	ug/g				0.15	<0.10	0.10	5468793
Acid Extractable Chromium (Cr)	ug/g				11	27	1.0	5468793
Acid Extractable Cobalt (Co)	ug/g				6.1	16	0.10	5468793
Acid Extractable Copper (Cu)	ug/g				16	27	0.50	5468793
Acid Extractable Lead (Pb)	ug/g				29	13	1.0	5468793
Acid Extractable Molybdenum (Mo)	ug/g				<0.50	0.88	0.50	5468793
Acid Extractable Nickel (Ni)	ug/g				12	34	0.50	5468793
Acid Extractable Selenium (Se)	ug/g				<0.50	<0.50	0.50	5468793
Acid Extractable Silver (Ag)	ug/g				<0.20	<0.20	0.20	5468793
Acid Extractable Thallium (Tl)	ug/g				0.065	0.21	0.050	5468793
Acid Extractable Uranium (U)	ug/g				0.42	1.0	0.050	5468793
Acid Extractable Vanadium (V)	ug/g				18	38	5.0	5468793
Acid Extractable Zinc (Zn)	ug/g				56	73	5.0	5468793
Acid Extractable Mercury (Hg)	ug/g				0.072	<0.050	0.050	5468793

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		GJG941			GJG942	GJG943	GJG944		
Sampling Date		2018/03/26 14:30			2018/03/27 09:44	2018/03/27 11:15	2018/03/27 13:00		
COC Number		655578-01-01			655578-01-01	655578-01-01	655578-01-01		
	UNITS	BH18-20 Lab-Dup	RDL	QC Batch	BH18-04	BH18-01	BH18-03	RDL	QC Batch
Calculated Parameters									
Sodium Adsorption Ratio	N/A				0.28	0.22	0.24		5466210
Inorganics									
Conductivity	mS/cm	0.62	0.002	5469396	0.22	0.32	0.36	0.002	5469396
Available (CaCl2) pH	pH				6.29	7.48	7.46		5469288
WAD Cyanide (Free)	ug/g				0.02	0.02	0.02	0.01	5468936
Chromium (VI)	ug/g				<0.2	<0.2	<0.2	0.2	5469114
Metals									
Hot Water Ext. Boron (B)	ug/g				0.17	0.12	0.23	0.050	5471581
Acid Extractable Antimony (Sb)	ug/g				<0.20	0.21	0.23	0.20	5468793
Acid Extractable Arsenic (As)	ug/g				3.1	5.1	4.1	1.0	5468793
Acid Extractable Barium (Ba)	ug/g				64	100	110	0.50	5468793
Acid Extractable Beryllium (Be)	ug/g				0.49	0.92	0.90	0.20	5468793
Acid Extractable Boron (B)	ug/g				7.7	5.9	8.1	5.0	5468793
Acid Extractable Cadmium (Cd)	ug/g				<0.10	0.13	0.20	0.10	5468793
Acid Extractable Chromium (Cr)	ug/g				16	28	27	1.0	5468793
Acid Extractable Cobalt (Co)	ug/g				8.2	15	13	0.10	5468793
Acid Extractable Copper (Cu)	ug/g				13	17	19	0.50	5468793
Acid Extractable Lead (Pb)	ug/g				7.3	15	15	1.0	5468793
Acid Extractable Molybdenum (Mo)	ug/g				<0.50	0.63	0.90	0.50	5468793
Acid Extractable Nickel (Ni)	ug/g				18	28	27	0.50	5468793
Acid Extractable Selenium (Se)	ug/g				<0.50	<0.50	<0.50	0.50	5468793
Acid Extractable Silver (Ag)	ug/g				<0.20	<0.20	<0.20	0.20	5468793
Acid Extractable Thallium (Tl)	ug/g				0.087	0.20	0.17	0.050	5468793
Acid Extractable Uranium (U)	ug/g				0.53	0.64	0.74	0.050	5468793
Acid Extractable Vanadium (V)	ug/g				23	40	38	5.0	5468793
Acid Extractable Zinc (Zn)	ug/g				42	66	69	5.0	5468793
Acid Extractable Mercury (Hg)	ug/g				<0.050	<0.050	<0.050	0.050	5468793

RDL = Reportable Detection Limit
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Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		GJG944			GJG945	GJG946	GJG947		
Sampling Date		2018/03/27 13:00			2018/03/27 13:50	2018/03/27 14:45	2018/03/27 15:45		
COC Number		655578-01-01			655578-01-01	655578-01-01	655578-02-01		
	UNITS	BH18-03 Lab-Dup	RDL	QC Batch	BH18-02	BH18-07	BH18-05	RDL	QC Batch
Calculated Parameters									
Sodium Adsorption Ratio	N/A				0.19	0.47	0.42		5466210
Inorganics									
Conductivity	mS/cm				0.34	0.50	0.35	0.002	5469396
Available (CaCl2) pH	pH				5.35	7.68	7.54		5469288
WAD Cyanide (Free)	ug/g	0.01	0.01	5468936	<0.01	<0.01	<0.01	0.01	5468936
Chromium (VI)	ug/g	<0.2	0.2	5469114	0.3	<0.2	<0.2	0.2	5469114
Metals									
Hot Water Ext. Boron (B)	ug/g				0.15	0.28	0.52	0.050	5471581
Acid Extractable Antimony (Sb)	ug/g				<0.20	<0.20	<0.20	0.20	5468793
Acid Extractable Arsenic (As)	ug/g				1.4	3.5	4.3	1.0	5468793
Acid Extractable Barium (Ba)	ug/g				94	76	180	0.50	5468793
Acid Extractable Beryllium (Be)	ug/g				0.68	0.60	0.91	0.20	5468793
Acid Extractable Boron (B)	ug/g				<5.0	7.3	8.5	5.0	5468793
Acid Extractable Cadmium (Cd)	ug/g				<0.10	0.13	0.43	0.10	5468793
Acid Extractable Chromium (Cr)	ug/g				20	17	26	1.0	5468793
Acid Extractable Cobalt (Co)	ug/g				8.8	9.1	12	0.10	5468793
Acid Extractable Copper (Cu)	ug/g				8.1	18	23	0.50	5468793
Acid Extractable Lead (Pb)	ug/g				10	20	64	1.0	5468793
Acid Extractable Molybdenum (Mo)	ug/g				<0.50	<0.50	0.94	0.50	5468793
Acid Extractable Nickel (Ni)	ug/g				18	20	28	0.50	5468793
Acid Extractable Selenium (Se)	ug/g				<0.50	<0.50	<0.50	0.50	5468793
Acid Extractable Silver (Ag)	ug/g				<0.20	<0.20	<0.20	0.20	5468793
Acid Extractable Thallium (Tl)	ug/g				0.12	0.10	0.17	0.050	5468793
Acid Extractable Uranium (U)	ug/g				0.74	0.55	0.53	0.050	5468793
Acid Extractable Vanadium (V)	ug/g				24	25	32	5.0	5468793
Acid Extractable Zinc (Zn)	ug/g				74	61	260	5.0	5468793
Acid Extractable Mercury (Hg)	ug/g				<0.050	<0.050	<0.050	0.050	5468793

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		GJG948	GJG949	GJG950	GJG951	GJG952		
Sampling Date		2018/03/27 16:15	2018/03/28 09:11	2018/03/28 10:00	2018/03/28 10:40	2018/03/28 12:20		
COC Number		655578-02-01	655578-02-01	655578-02-01	655578-02-01	655578-02-01		
	UNITS	BH18-06	BH18-10	BH18-09	BH18-08	BH18-11	RDL	QC Batch
Calculated Parameters								
Sodium Adsorption Ratio	N/A	1.0	0.54	0.31	0.99	0.28		5466210
Inorganics								
Conductivity	mS/cm	0.65	0.27	0.36	0.24	0.13	0.002	5469396
Available (CaCl2) pH	pH	7.87	7.81	7.11	7.32	7.78		5469288
WAD Cyanide (Free)	ug/g	<0.01	<0.01	<0.01	0.03	<0.01	0.01	5468936
Chromium (VI)	ug/g	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	5469114
Metals								
Hot Water Ext. Boron (B)	ug/g	0.27	0.14	0.31	0.17	0.076	0.050	5471581
Acid Extractable Antimony (Sb)	ug/g	<0.20	0.29	0.31	0.20	0.25	0.20	5468793
Acid Extractable Arsenic (As)	ug/g	4.6	5.1	5.7	3.6	3.0	1.0	5468793
Acid Extractable Barium (Ba)	ug/g	130	120	120	61	37	0.50	5468793
Acid Extractable Beryllium (Be)	ug/g	0.94	0.99	1.0	0.50	0.35	0.20	5468793
Acid Extractable Boron (B)	ug/g	12	12	8.1	5.6	5.2	5.0	5468793
Acid Extractable Cadmium (Cd)	ug/g	0.11	0.12	0.17	<0.10	0.16	0.10	5468793
Acid Extractable Chromium (Cr)	ug/g	27	29	29	15	12	1.0	5468793
Acid Extractable Cobalt (Co)	ug/g	14	15	15	7.7	6.9	0.10	5468793
Acid Extractable Copper (Cu)	ug/g	24	26	20	12	12	0.50	5468793
Acid Extractable Lead (Pb)	ug/g	13	13	19	13	14	1.0	5468793
Acid Extractable Molybdenum (Mo)	ug/g	0.68	0.53	0.99	<0.50	<0.50	0.50	5468793
Acid Extractable Nickel (Ni)	ug/g	30	34	32	17	15	0.50	5468793
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5468793
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5468793
Acid Extractable Thallium (Tl)	ug/g	0.16	0.19	0.18	0.10	0.077	0.050	5468793
Acid Extractable Uranium (U)	ug/g	0.95	0.90	0.76	0.49	0.41	0.050	5468793
Acid Extractable Vanadium (V)	ug/g	37	39	41	22	20	5.0	5468793
Acid Extractable Zinc (Zn)	ug/g	69	71	81	44	56	5.0	5468793
Acid Extractable Mercury (Hg)	ug/g	<0.050	<0.050	0.053	<0.050	<0.050	0.050	5468793

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		GJG953		GJG954			GJG954		
Sampling Date		2018/03/28 14:00		2018/03/28 14:15			2018/03/28 14:15		
COC Number		655578-02-01		655578-02-01			655578-02-01		
	UNITS	BH18-15	QC Batch	BH18-18	RDL	QC Batch	BH18-18 Lab-Dup	RDL	QC Batch
Calculated Parameters									
Sodium Adsorption Ratio	N/A	0.18	5466210	0.26		5466210			
Inorganics									
Conductivity	mS/cm	0.31	5469666	0.19	0.002	5469666			
Available (CaCl2) pH	pH	7.37	5469288	7.63		5469288			
WAD Cyanide (Free)	ug/g	0.01	5468936	<0.01	0.01	5468936			
Chromium (VI)	ug/g	<0.2	5469114	<0.2	0.2	5469114			
Metals									
Hot Water Ext. Boron (B)	ug/g	0.26	5469087	0.088	0.050	5469087	0.088	0.050	5469087
Acid Extractable Antimony (Sb)	ug/g	0.29	5468793	<0.20	0.20	5469143	<0.20	0.20	5469143
Acid Extractable Arsenic (As)	ug/g	6.0	5468793	4.5	1.0	5469143	4.7	1.0	5469143
Acid Extractable Barium (Ba)	ug/g	120	5468793	140	0.50	5469143	140	0.50	5469143
Acid Extractable Beryllium (Be)	ug/g	0.92	5468793	1.2	0.20	5469143	1.1	0.20	5469143
Acid Extractable Boron (B)	ug/g	11	5468793	13	5.0	5469143	12	5.0	5469143
Acid Extractable Cadmium (Cd)	ug/g	<0.10	5468793	<0.10	0.10	5469143	<0.10	0.10	5469143
Acid Extractable Chromium (Cr)	ug/g	27	5468793	31	1.0	5469143	31	1.0	5469143
Acid Extractable Cobalt (Co)	ug/g	14	5468793	17	0.10	5469143	17	0.10	5469143
Acid Extractable Copper (Cu)	ug/g	24	5468793	26	0.50	5469143	26	0.50	5469143
Acid Extractable Lead (Pb)	ug/g	18	5468793	12	1.0	5469143	12	1.0	5469143
Acid Extractable Molybdenum (Mo)	ug/g	0.70	5468793	<0.50	0.50	5469143	<0.50	0.50	5469143
Acid Extractable Nickel (Ni)	ug/g	32	5468793	37	0.50	5469143	36	0.50	5469143
Acid Extractable Selenium (Se)	ug/g	<0.50	5468793	<0.50	0.50	5469143	<0.50	0.50	5469143
Acid Extractable Silver (Ag)	ug/g	<0.20	5468793	<0.20	0.20	5469143	<0.20	0.20	5469143
Acid Extractable Thallium (Tl)	ug/g	0.17	5468793	0.17	0.050	5469143	0.18	0.050	5469143
Acid Extractable Uranium (U)	ug/g	0.90	5468793	0.58	0.050	5469143	0.58	0.050	5469143
Acid Extractable Vanadium (V)	ug/g	36	5468793	43	5.0	5469143	42	5.0	5469143
Acid Extractable Zinc (Zn)	ug/g	75	5468793	71	5.0	5469143	69	5.0	5469143
Acid Extractable Mercury (Hg)	ug/g	<0.050	5468793	<0.050	0.050	5469143	<0.050	0.050	5469143

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		GJG955			GJG955			GJG956		
Sampling Date		2018/03/28 14:30			2018/03/28 14:30			2018/03/28 15:15		
COC Number		655578-02-01			655578-02-01			655578-02-01		
	UNITS	BH18-16	RDL	QC Batch	BH18-16 Lab-Dup	RDL	QC Batch	BH18-17	RDL	QC Batch
Calculated Parameters										
Sodium Adsorption Ratio	N/A	0.22		5466210				0.34		5466210
Inorganics										
Conductivity	mS/cm	0.37	0.002	5469396				0.30	0.002	5469396
Available (CaCl2) pH	pH	7.17		5469288				7.19		5469288
WAD Cyanide (Free)	ug/g	<0.01	0.01	5468936				0.03	0.01	5468936
Chromium (VI)	ug/g	<0.2	0.2	5469114				<0.2	0.2	5469114
Metals										
Hot Water Ext. Boron (B)	ug/g	0.25	0.050	5471581				0.19	0.050	5471581
Acid Extractable Antimony (Sb)	ug/g	0.31	0.20	5468793	0.20	0.20	5468793	0.22	0.20	5468793
Acid Extractable Arsenic (As)	ug/g	5.5	1.0	5468793	5.3	1.0	5468793	5.1	1.0	5468793
Acid Extractable Barium (Ba)	ug/g	120	0.50	5468793	120	0.50	5468793	120	0.50	5468793
Acid Extractable Beryllium (Be)	ug/g	1.1	0.20	5468793	1.0	0.20	5468793	1.1	0.20	5468793
Acid Extractable Boron (B)	ug/g	7.2	5.0	5468793	6.2	5.0	5468793	10	5.0	5468793
Acid Extractable Cadmium (Cd)	ug/g	<0.10	0.10	5468793	0.14	0.10	5468793	0.14	0.10	5468793
Acid Extractable Chromium (Cr)	ug/g	32	1.0	5468793	32	1.0	5468793	31	1.0	5468793
Acid Extractable Cobalt (Co)	ug/g	16	0.10	5468793	16	0.10	5468793	15	0.10	5468793
Acid Extractable Copper (Cu)	ug/g	21	0.50	5468793	21	0.50	5468793	23	0.50	5468793
Acid Extractable Lead (Pb)	ug/g	19	1.0	5468793	19	1.0	5468793	14	1.0	5468793
Acid Extractable Molybdenum (Mo)	ug/g	0.90	0.50	5468793	0.93	0.50	5468793	0.72	0.50	5468793
Acid Extractable Nickel (Ni)	ug/g	31	0.50	5468793	30	0.50	5468793	34	0.50	5468793
Acid Extractable Selenium (Se)	ug/g	<0.50	0.50	5468793	<0.50	0.50	5468793	<0.50	0.50	5468793
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	5468793	<0.20	0.20	5468793	<0.20	0.20	5468793
Acid Extractable Thallium (Tl)	ug/g	0.22	0.050	5468793	0.21	0.050	5468793	0.20	0.050	5468793
Acid Extractable Uranium (U)	ug/g	0.81	0.050	5468793	0.81	0.050	5468793	0.89	0.050	5468793
Acid Extractable Vanadium (V)	ug/g	45	5.0	5468793	44	5.0	5468793	42	5.0	5468793
Acid Extractable Zinc (Zn)	ug/g	77	5.0	5468793	79	5.0	5468793	84	5.0	5468793
Acid Extractable Mercury (Hg)	ug/g	<0.050	0.050	5468793	<0.050	0.050	5468793	<0.050	0.050	5468793

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		GJG956		GJG957		GJG958		
Sampling Date		2018/03/28 15:15		2018/03/26 11:05		2018/03/28 09:11		
COC Number		655578-02-01		655578-03-01		655578-03-01		
	UNITS	BH18-17 Lab-Dup	QC Batch	BH18-912	QC Batch	BH18-910	RDL	QC Batch
Calculated Parameters								
Sodium Adsorption Ratio	N/A			0.28	5466210	0.56		5466210
Inorganics								
Conductivity	mS/cm			0.14	5469396	0.24	0.002	5469396
Available (CaCl2) pH	pH	7.17	5469288	7.58	5468782	7.80		5469288
WAD Cyanide (Free)	ug/g			<0.01	5468938	<0.01	0.01	5468936
Chromium (VI)	ug/g			<0.2	5468818	<0.2	0.2	5469114
Metals								
Hot Water Ext. Boron (B)	ug/g			0.14	5471581	0.17	0.050	5471581
Acid Extractable Antimony (Sb)	ug/g			<0.20	5468793	0.25	0.20	5470671
Acid Extractable Arsenic (As)	ug/g			2.6	5468793	6.5	1.0	5470671
Acid Extractable Barium (Ba)	ug/g			36	5468793	120	0.50	5470671
Acid Extractable Beryllium (Be)	ug/g			0.34	5468793	0.90	0.20	5470671
Acid Extractable Boron (B)	ug/g			5.0	5468793	11	5.0	5470671
Acid Extractable Cadmium (Cd)	ug/g			0.19	5468793	0.15	0.10	5470671
Acid Extractable Chromium (Cr)	ug/g			11	5468793	29	1.0	5470671
Acid Extractable Cobalt (Co)	ug/g			6.4	5468793	14	0.10	5470671
Acid Extractable Copper (Cu)	ug/g			12	5468793	25	0.50	5470671
Acid Extractable Lead (Pb)	ug/g			17	5468793	18	1.0	5470671
Acid Extractable Molybdenum (Mo)	ug/g			<0.50	5468793	0.79	0.50	5470671
Acid Extractable Nickel (Ni)	ug/g			13	5468793	32	0.50	5470671
Acid Extractable Selenium (Se)	ug/g			<0.50	5468793	<0.50	0.50	5470671
Acid Extractable Silver (Ag)	ug/g			<0.20	5468793	<0.20	0.20	5470671
Acid Extractable Thallium (Tl)	ug/g			0.064	5468793	0.18	0.050	5470671
Acid Extractable Uranium (U)	ug/g			0.40	5468793	0.95	0.050	5470671
Acid Extractable Vanadium (V)	ug/g			18	5468793	36	5.0	5470671
Acid Extractable Zinc (Zn)	ug/g			56	5468793	74	5.0	5470671
Acid Extractable Mercury (Hg)	ug/g			<0.050	5468793	<0.050	0.050	5470671

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O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		GJG959		
Sampling Date		2018/03/28 15:30		
COC Number		655578-03-01		
	UNITS	TCLP	RDL	QC Batch
Calculated Parameters				
Sodium Adsorption Ratio	N/A	0.45		5466210
Inorganics				
Conductivity	mS/cm	1.4	0.002	5469666
Available (CaCl2) pH	pH	7.80		5468782
WAD Cyanide (Free)	ug/g	<0.01	0.01	5468938
Chromium (VI)	ug/g	<0.2	0.2	5468818
Metals				
Hot Water Ext. Boron (B)	ug/g	0.36	0.050	5469087
Acid Extractable Antimony (Sb)	ug/g	0.27	0.20	5469143
Acid Extractable Arsenic (As)	ug/g	6.1	1.0	5469143
Acid Extractable Barium (Ba)	ug/g	120	0.50	5469143
Acid Extractable Beryllium (Be)	ug/g	0.95	0.20	5469143
Acid Extractable Boron (B)	ug/g	16	5.0	5469143
Acid Extractable Cadmium (Cd)	ug/g	0.13	0.10	5469143
Acid Extractable Chromium (Cr)	ug/g	28	1.0	5469143
Acid Extractable Cobalt (Co)	ug/g	15	0.10	5469143
Acid Extractable Copper (Cu)	ug/g	23	0.50	5469143
Acid Extractable Lead (Pb)	ug/g	12	1.0	5469143
Acid Extractable Molybdenum (Mo)	ug/g	1.1	0.50	5469143
Acid Extractable Nickel (Ni)	ug/g	32	0.50	5469143
Acid Extractable Selenium (Se)	ug/g	<0.50	0.50	5469143
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	5469143
Acid Extractable Thallium (Tl)	ug/g	0.16	0.050	5469143
Acid Extractable Uranium (U)	ug/g	1.1	0.050	5469143
Acid Extractable Vanadium (V)	ug/g	36	5.0	5469143
Acid Extractable Zinc (Zn)	ug/g	76	5.0	5469143
Acid Extractable Mercury (Hg)	ug/g	<0.050	0.050	5469143

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 OC PESTICIDES (SOIL)

Maxxam ID		GJG937	GJG938		GJG939			GJG940		
Sampling Date		2018/03/23 09:59	2018/03/23 13:30		2018/03/26 09:30			2018/03/26 11:05		
COC Number		655578-01-01	655578-01-01		655578-01-01			655578-01-01		
	UNITS	BH18-13	BH18-14	QC Batch	BH18-19	RDL	QC Batch	BH18-12	RDL	QC Batch
Calculated Parameters										
Chlordane (Total)	ug/g	<0.0020	<0.0020	5465492	<0.0020	0.0020	5465492	<0.0040	0.0040	5465492
o,p-DDD + p,p-DDD	ug/g	<0.0020	<0.0020	5465492	<0.0020	0.0020	5465492	0.0044	0.0020	5465492
o,p-DDE + p,p-DDE	ug/g	<0.0020	<0.0020	5465492	<0.0020	0.0020	5465492	0.014	0.0020	5465492
o,p-DDT + p,p-DDT	ug/g	<0.0020	<0.0020	5465492	<0.0020	0.0020	5465492	0.031	0.0020	5465492
Total Endosulfan	ug/g	<0.0020	<0.0020	5465492	<0.0020	0.0020	5465492	<0.0020	0.0020	5465492
Total PCB	ug/g	<0.015	<0.015	5465492	<0.015	0.015	5465492	<0.015	0.015	5465492
Pesticides & Herbicides										
Aldrin	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
a-Chlordane	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0040 (1)	0.0040	5468813
g-Chlordane	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	0.0025	0.0020	5468813
o,p-DDD	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
p,p-DDD	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	0.0044	0.0020	5468813
o,p-DDE	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
p,p-DDE	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	0.014	0.0020	5468813
o,p-DDT	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	0.0024	0.0020	5468813
p,p-DDT	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	0.028	0.0020	5468813
Dieldrin	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	0.0052	0.0020	5468813
Lindane	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Endosulfan I (alpha)	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Endosulfan II (beta)	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Endrin	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Heptachlor	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Heptachlor epoxide	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Hexachlorobenzene	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Hexachlorobutadiene	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Hexachloroethane	ug/g	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Methoxychlor	ug/g	<0.0050	<0.0050	5468813	<0.0050	0.0050	5467304	<0.0050	0.0050	5468813
Aroclor 1242	ug/g	<0.015	<0.015	5468813	<0.015	0.015	5467304	<0.015	0.015	5468813
Aroclor 1248	ug/g	<0.015	<0.015	5468813	<0.015	0.015	5467304	<0.015	0.015	5468813
Aroclor 1254	ug/g	<0.015	<0.015	5468813	<0.015	0.015	5467304	<0.015	0.015	5468813
Aroclor 1260	ug/g	<0.015	<0.015	5468813	<0.015	0.015	5467304	<0.015	0.015	5468813
Surrogate Recovery (%)										
2,4,5,6-Tetrachloro-m-xylene	%	102	60	5468813	78		5467304	103		5468813
Decachlorobiphenyl	%	102	55	5468813	86		5467304	117		5468813

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Detection Limit was raised due to matrix interferences.

Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 OC PESTICIDES (SOIL)

Maxxam ID		GJG941	GJG942		GJG943		GJG944		
Sampling Date		2018/03/26 14:30	2018/03/27 09:44		2018/03/27 11:15		2018/03/27 13:00		
COC Number		655578-01-01	655578-01-01		655578-01-01		655578-01-01		
	UNITS	BH18-20	BH18-04	QC Batch	BH18-01	QC Batch	BH18-03	RDL	QC Batch
Calculated Parameters									
Chlordane (Total)	ug/g	<0.0020	<0.0020	5465492	<0.0020	5465492	<0.0020	0.0020	5465492
o,p-DDD + p,p-DDD	ug/g	<0.0020	<0.0020	5465492	<0.0020	5465492	<0.0020	0.0020	5465492
o,p-DDE + p,p-DDE	ug/g	<0.0020	<0.0020	5465492	<0.0020	5465492	<0.0020	0.0020	5465492
o,p-DDT + p,p-DDT	ug/g	<0.0020	<0.0020	5465492	<0.0020	5465492	<0.0020	0.0020	5465492
Total Endosulfan	ug/g	<0.0020	<0.0020	5465492	<0.0020	5465492	<0.0020	0.0020	5465492
Total PCB	ug/g	<0.015	<0.015	5465492	<0.015	5465492	<0.015	0.015	5465492
Pesticides & Herbicides									
Aldrin	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
a-Chlordane	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
g-Chlordane	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
o,p-DDD	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
p,p-DDD	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
o,p-DDE	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
p,p-DDE	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
o,p-DDT	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
p,p-DDT	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Dieldrin	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Lindane	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Endosulfan I (alpha)	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Endosulfan II (beta)	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Endrin	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Heptachlor	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Heptachlor epoxide	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Hexachlorobenzene	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Hexachlorobutadiene	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Hexachloroethane	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Methoxychlor	ug/g	<0.0050	<0.0050	5468813	<0.0050	5467304	<0.0050	0.0050	5468813
Aroclor 1242	ug/g	<0.015	<0.015	5468813	<0.015	5467304	<0.015	0.015	5468813
Aroclor 1248	ug/g	<0.015	<0.015	5468813	<0.015	5467304	<0.015	0.015	5468813
Aroclor 1254	ug/g	<0.015	<0.015	5468813	<0.015	5467304	<0.015	0.015	5468813
Aroclor 1260	ug/g	<0.015	<0.015	5468813	<0.015	5467304	<0.015	0.015	5468813
Surrogate Recovery (%)									
2,4,5,6-Tetrachloro-m-xylene	%	92	53	5468813	76	5467304	79		5468813
Decachlorobiphenyl	%	103	66	5468813	95	5467304	95		5468813

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 OC PESTICIDES (SOIL)

Maxxam ID		GJG945	GJG946		GJG947		GJG948		
Sampling Date		2018/03/27 13:50	2018/03/27 14:45		2018/03/27 15:45		2018/03/27 16:15		
COC Number		655578-01-01	655578-01-01		655578-02-01		655578-02-01		
	UNITS	BH18-02	BH18-07	QC Batch	BH18-05	QC Batch	BH18-06	RDL	QC Batch
Calculated Parameters									
Chlordane (Total)	ug/g	<0.0020	<0.0020	5465492	<0.0020	5465492	<0.0020	0.0020	5465492
o,p-DDD + p,p-DDD	ug/g	<0.0020	<0.0020	5465492	<0.0020	5465492	0.0052	0.0020	5465492
o,p-DDE + p,p-DDE	ug/g	<0.0020	<0.0020	5465492	<0.0020	5465492	0.021	0.0020	5465492
o,p-DDT + p,p-DDT	ug/g	<0.0020	<0.0020	5465492	<0.0020	5465492	0.0037	0.0020	5465492
Total Endosulfan	ug/g	<0.0020	<0.0020	5465492	<0.0020	5465492	<0.0020	0.0020	5465492
Total PCB	ug/g	<0.015	<0.015	5465492	<0.015	5465492	<0.015	0.015	5465492
Pesticides & Herbicides									
Aldrin	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
a-Chlordane	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
g-Chlordane	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
o,p-DDD	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
p,p-DDD	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	0.0052	0.0020	5468813
o,p-DDE	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
p,p-DDE	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	0.021	0.0020	5468813
o,p-DDT	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
p,p-DDT	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	0.0037	0.0020	5468813
Dieldrin	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Lindane	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Endosulfan I (alpha)	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Endosulfan II (beta)	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Endrin	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Heptachlor	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Heptachlor epoxide	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Hexachlorobenzene	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Hexachlorobutadiene	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Hexachloroethane	ug/g	<0.0020	<0.0020	5468813	<0.0020	5467304	<0.0020	0.0020	5468813
Methoxychlor	ug/g	<0.0050	<0.0050	5468813	<0.0050	5467304	<0.0050	0.0050	5468813
Aroclor 1242	ug/g	<0.015	<0.015	5468813	<0.015	5467304	<0.015	0.015	5468813
Aroclor 1248	ug/g	<0.015	<0.015	5468813	<0.015	5467304	<0.015	0.015	5468813
Aroclor 1254	ug/g	<0.015	<0.015	5468813	<0.015	5467304	<0.015	0.015	5468813
Aroclor 1260	ug/g	<0.015	<0.015	5468813	<0.015	5467304	<0.015	0.015	5468813
Surrogate Recovery (%)									
2,4,5,6-Tetrachloro-m-xylene	%	104	76	5468813	71	5467304	86		5468813
Decachlorobiphenyl	%	113	87	5468813	92	5467304	93		5468813

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 OC PESTICIDES (SOIL)

Maxxam ID		GJG949		GJG950			GJG951		
Sampling Date		2018/03/28 09:11		2018/03/28 10:00			2018/03/28 10:40		
COC Number		655578-02-01		655578-02-01			655578-02-01		
	UNITS	BH18-10	QC Batch	BH18-09	RDL	QC Batch	BH18-08	RDL	QC Batch
Calculated Parameters									
Chlordane (Total)	ug/g	<0.0020	5465492	<0.0020	0.0020	5465492	<0.0020	0.0020	5465492
o,p-DDD + p,p-DDD	ug/g	<0.0020	5465492	<0.0020	0.0020	5465492	<0.0020	0.0020	5465492
o,p-DDE + p,p-DDE	ug/g	<0.0020	5465492	<0.0020	0.0020	5465492	0.0036	0.0020	5465492
o,p-DDT + p,p-DDT	ug/g	<0.0020	5465492	<0.0020	0.0020	5465492	<0.0040	0.0040	5465492
Total Endosulfan	ug/g	<0.0020	5465492	<0.0020	0.0020	5465492	<0.0020	0.0020	5465492
Total PCB	ug/g	<0.015	5465492	<0.015	0.015	5465492	0.020	0.015	5465492
Pesticides & Herbicides									
Aldrin	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
a-Chlordane	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
g-Chlordane	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
o,p-DDD	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
p,p-DDD	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
o,p-DDE	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
p,p-DDE	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	0.0036	0.0020	5468813
o,p-DDT	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
p,p-DDT	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0040 (1)	0.0040	5468813
Dieldrin	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Lindane	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Endosulfan I (alpha)	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Endosulfan II (beta)	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Endrin	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Heptachlor	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Heptachlor epoxide	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Hexachlorobenzene	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Hexachlorobutadiene	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Hexachloroethane	ug/g	<0.0020	5468813	<0.0020	0.0020	5467304	<0.0020	0.0020	5468813
Methoxychlor	ug/g	<0.0050	5468813	<0.0050	0.0050	5467304	<0.0050	0.0050	5468813
Aroclor 1242	ug/g	<0.015	5468813	<0.015	0.015	5467304	<0.015	0.015	5468813
Aroclor 1248	ug/g	<0.015	5468813	<0.015	0.015	5467304	<0.015	0.015	5468813
Aroclor 1254	ug/g	<0.015	5468813	<0.015	0.015	5467304	0.020	0.015	5468813
Aroclor 1260	ug/g	<0.015	5468813	<0.015	0.015	5467304	<0.015	0.015	5468813
Surrogate Recovery (%)									
2,4,5,6-Tetrachloro-m-xylene	%	87	5468813	88		5467304	80		5468813
Decachlorobiphenyl	%	94	5468813	97		5467304	90		5468813

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Detection Limit was raised due to matrix interferences.

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 OC PESTICIDES (SOIL)

Maxxam ID		GJG952		GJG953	GJG954		GJG955		
Sampling Date		2018/03/28 12:20		2018/03/28 14:00	2018/03/28 14:15		2018/03/28 14:30		
COC Number		655578-02-01		655578-02-01	655578-02-01		655578-02-01		
	UNITS	BH18-11	QC Batch	BH18-15	BH18-18	QC Batch	BH18-16	RDL	QC Batch
Calculated Parameters									
Chlordane (Total)	ug/g	<0.0020	5465492	<0.0020	<0.0020	5465492	<0.0020	0.0020	5465492
o,p-DDD + p,p-DDD	ug/g	<0.0020	5465492	<0.0020	<0.0020	5465492	<0.0020	0.0020	5465492
o,p-DDE + p,p-DDE	ug/g	<0.0020	5465492	<0.0020	<0.0020	5465492	0.0026	0.0020	5465492
o,p-DDT + p,p-DDT	ug/g	0.0022	5465492	<0.0020	<0.0020	5465492	<0.0020	0.0020	5465492
Total Endosulfan	ug/g	<0.0020	5465492	<0.0020	<0.0020	5465492	<0.0020	0.0020	5465492
Total PCB	ug/g	<0.015	5465492	<0.015	<0.015	5465492	<0.015	0.015	5465492
Pesticides & Herbicides									
Aldrin	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
a-Chlordane	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
g-Chlordane	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
o,p-DDD	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
p,p-DDD	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
o,p-DDE	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
p,p-DDE	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	0.0026	0.0020	5467304
o,p-DDT	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
p,p-DDT	ug/g	0.0022	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
Dieldrin	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
Lindane	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
Endosulfan I (alpha)	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
Endosulfan II (beta)	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
Endrin	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
Heptachlor	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
Heptachlor epoxide	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
Hexachlorobenzene	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
Hexachlorobutadiene	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
Hexachloroethane	ug/g	<0.0020	5467304	<0.0020	<0.0020	5468813	<0.0020	0.0020	5467304
Methoxychlor	ug/g	<0.0050	5467304	<0.0050	<0.0050	5468813	<0.0050	0.0050	5467304
Aroclor 1242	ug/g	<0.015	5467304	<0.015	<0.015	5468813	<0.015	0.015	5467304
Aroclor 1248	ug/g	<0.015	5467304	<0.015	<0.015	5468813	<0.015	0.015	5467304
Aroclor 1254	ug/g	<0.015	5467304	<0.015	<0.015	5468813	<0.015	0.015	5467304
Aroclor 1260	ug/g	<0.015	5467304	<0.015	<0.015	5468813	<0.015	0.015	5467304
Surrogate Recovery (%)									
2,4,5,6-Tetrachloro-m-xylene	%	80	5467304	100	95	5468813	78		5467304
Decachlorobiphenyl	%	96	5467304	89	105	5468813	96		5467304

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 OC PESTICIDES (SOIL)

Maxxam ID		GJG956	GJG957			GJG957		
Sampling Date		2018/03/28 15:15	2018/03/26 11:05			2018/03/26 11:05		
COC Number		655578-02-01	655578-03-01			655578-03-01		
	UNITS	BH18-17	BH18-912	RDL	QC Batch	BH18-912 Lab-Dup	RDL	QC Batch
Calculated Parameters								
Chlordane (Total)	ug/g	<0.0020	<0.0020	0.0020	5465492			
o,p-DDD + p,p-DDD	ug/g	<0.0020	0.0039	0.0020	5465492			
o,p-DDE + p,p-DDE	ug/g	0.0028	0.0060	0.0020	5465492			
o,p-DDT + p,p-DDT	ug/g	<0.0020	0.012	0.0020	5465492			
Total Endosulfan	ug/g	<0.0020	<0.0020	0.0020	5465492			
Total PCB	ug/g	<0.015	<0.015	0.015	5465492			
Pesticides & Herbicides								
Aldrin	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
a-Chlordane	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
g-Chlordane	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
o,p-DDD	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
p,p-DDD	ug/g	<0.0020	0.0039	0.0020	5468813	0.0040	0.0020	5468813
o,p-DDE	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
p,p-DDE	ug/g	0.0028	0.0060	0.0020	5468813	0.0060	0.0020	5468813
o,p-DDT	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
p,p-DDT	ug/g	<0.0020	0.012	0.0020	5468813	0.012	0.0020	5468813
Dieldrin	ug/g	<0.0020	0.0030	0.0020	5468813	0.0030	0.0020	5468813
Lindane	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
Endosulfan I (alpha)	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
Endosulfan II (beta)	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
Endrin	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
Heptachlor	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
Heptachlor epoxide	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
Hexachlorobenzene	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
Hexachlorobutadiene	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
Hexachloroethane	ug/g	<0.0020	<0.0020	0.0020	5468813	<0.0020	0.0020	5468813
Methoxychlor	ug/g	<0.0050	<0.0050	0.0050	5468813	<0.0050	0.0050	5468813
Aroclor 1242	ug/g	<0.015	<0.015	0.015	5468813	<0.015	0.015	5468813
Aroclor 1248	ug/g	<0.015	<0.015	0.015	5468813	<0.015	0.015	5468813
Aroclor 1254	ug/g	<0.015	<0.015	0.015	5468813	<0.015	0.015	5468813
Aroclor 1260	ug/g	<0.015	<0.015	0.015	5468813	<0.015	0.015	5468813
Surrogate Recovery (%)								
2,4,5,6-Tetrachloro-m-xylene	%	90	90		5468813	90		5468813
Decachlorobiphenyl	%	100	94		5468813	96		5468813

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

O.REG 153 OC PESTICIDES (SOIL)

Maxxam ID		GJG958		GJG959		
Sampling Date		2018/03/28 09:11		2018/03/28 15:30		
COC Number		655578-03-01		655578-03-01		
	UNITS	BH18-910	QC Batch	TCLP	RDL	QC Batch
Calculated Parameters						
Chlordane (Total)	ug/g	<0.0020	5465492	<0.0020	0.0020	5465492
o,p-DDD + p,p-DDD	ug/g	<0.0020	5465492	<0.0020	0.0020	5465492
o,p-DDE + p,p-DDE	ug/g	<0.0020	5465492	<0.0020	0.0020	5465492
o,p-DDT + p,p-DDT	ug/g	<0.0020	5465492	<0.0020	0.0020	5465492
Total Endosulfan	ug/g	<0.0020	5465492	<0.0020	0.0020	5465492
Total PCB	ug/g	<0.015	5465492	<0.015	0.015	5465492
Pesticides & Herbicides						
Aldrin	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
a-Chlordane	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
g-Chlordane	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
o,p-DDD	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
p,p-DDD	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
o,p-DDE	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
p,p-DDE	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
o,p-DDT	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
p,p-DDT	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
Dieldrin	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
Lindane	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
Endosulfan I (alpha)	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
Endosulfan II (beta)	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
Endrin	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
Heptachlor	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
Heptachlor epoxide	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
Hexachlorobenzene	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
Hexachlorobutadiene	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
Hexachloroethane	ug/g	<0.0020	5467304	<0.0020	0.0020	5468813
Methoxychlor	ug/g	<0.0050	5467304	<0.0050	0.0050	5468813
Aroclor 1242	ug/g	<0.015	5467304	<0.015	0.015	5468813
Aroclor 1248	ug/g	<0.015	5467304	<0.015	0.015	5468813
Aroclor 1254	ug/g	<0.015	5467304	<0.015	0.015	5468813
Aroclor 1260	ug/g	<0.015	5467304	<0.015	0.015	5468813
Surrogate Recovery (%)						
2,4,5,6-Tetrachloro-m-xylene	%	88	5467304	82		5468813
Decachlorobiphenyl	%	108	5467304	100		5468813

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 PAHS (SOIL)

Maxxam ID		GJG937	GJG938			GJG938		
Sampling Date		2018/03/23 09:59	2018/03/23 13:30			2018/03/23 13:30		
COC Number		655578-01-01	655578-01-01			655578-01-01		
	UNITS	BH18-13	BH18-14	RDL	QC Batch	BH18-14 Lab-Dup	RDL	QC Batch
Calculated Parameters								
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	0.0071	5465375			
Polyaromatic Hydrocarbons								
Acenaphthene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Acenaphthylene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Anthracene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Benzo(a)anthracene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Benzo(a)pyrene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Benzo(b/j)fluoranthene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Benzo(g,h,i)perylene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Benzo(k)fluoranthene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Chrysene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Dibenz(a,h)anthracene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Fluoranthene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Fluorene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Naphthalene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Phenanthrene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Pyrene	ug/g	<0.0050	<0.0050	0.0050	5470066	<0.0050	0.0050	5470066
Surrogate Recovery (%)								
D10-Anthracene	%	89	88		5470066	81		5470066
D14-Terphenyl (FS)	%	93	93		5470066	83		5470066
D8-Acenaphthylene	%	86	87		5470066	80		5470066

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

O.REG 153 PAHS (SOIL)

Maxxam ID		GJG939			GJG940	GJG941	GJG942		
Sampling Date		2018/03/26 09:30			2018/03/26 11:05	2018/03/26 14:30	2018/03/27 09:44		
COC Number		655578-01-01			655578-01-01	655578-01-01	655578-01-01		
	UNITS	BH18-19	RDL	QC Batch	BH18-12	BH18-20	BH18-04	RDL	QC Batch
Inorganics									
Moisture	%	18	1.0	5468787					
Calculated Parameters									
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	0.0071	5466331	0.017	<0.0071	0.016	0.0071	5466331
Polyaromatic Hydrocarbons									
Acenaphthene	ug/g	<0.0050	0.0050	5469511	0.012	<0.0050	<0.0050	0.0050	5470066
Acenaphthylene	ug/g	<0.0050	0.0050	5469511	0.016	<0.0050	<0.0050	0.0050	5470066
Anthracene	ug/g	<0.0050	0.0050	5469511	0.036	<0.0050	<0.0050	0.0050	5470066
Benzo(a)anthracene	ug/g	<0.0050	0.0050	5469511	0.10	<0.0050	<0.0050	0.0050	5470066
Benzo(a)pyrene	ug/g	<0.0050	0.0050	5469511	0.093	<0.0050	<0.0050	0.0050	5470066
Benzo(b/j)fluoranthene	ug/g	<0.0050	0.0050	5469511	0.14	<0.0050	<0.0050	0.0050	5470066
Benzo(g,h,i)perylene	ug/g	<0.0050	0.0050	5469511	0.049	<0.0050	<0.0050	0.0050	5470066
Benzo(k)fluoranthene	ug/g	<0.0050	0.0050	5469511	0.049	<0.0050	<0.0050	0.0050	5470066
Chrysene	ug/g	<0.0050	0.0050	5469511	0.083	<0.0050	<0.0050	0.0050	5470066
Dibenz(a,h)anthracene	ug/g	<0.0050	0.0050	5469511	0.013	<0.0050	<0.0050	0.0050	5470066
Fluoranthene	ug/g	<0.0050	0.0050	5469511	0.21	<0.0050	<0.0050	0.0050	5470066
Fluorene	ug/g	<0.0050	0.0050	5469511	0.012	<0.0050	<0.0050	0.0050	5470066
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	0.0050	5469511	0.062	<0.0050	<0.0050	0.0050	5470066
1-Methylnaphthalene	ug/g	<0.0050	0.0050	5469511	0.0089	<0.0050	0.0072	0.0050	5470066
2-Methylnaphthalene	ug/g	<0.0050	0.0050	5469511	0.0081	<0.0050	0.0086	0.0050	5470066
Naphthalene	ug/g	<0.0050	0.0050	5469511	0.0083	<0.0050	0.0061	0.0050	5470066
Phenanthrene	ug/g	<0.0050	0.0050	5469511	0.16	<0.0050	0.0063	0.0050	5470066
Pyrene	ug/g	<0.0050	0.0050	5469511	0.19	<0.0050	<0.0050	0.0050	5470066
Surrogate Recovery (%)									
D10-Anthracene	%	89		5469511	93	92	92		5470066
D14-Terphenyl (FS)	%	88		5469511	93	97	86		5470066
D8-Acenaphthylene	%	82		5469511	93	90	92		5470066

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 PAHS (SOIL)

Maxxam ID		GJG943		GJG944	GJG945	GJG946	GJG947		
Sampling Date		2018/03/27 11:15		2018/03/27 13:00	2018/03/27 13:50	2018/03/27 14:45	2018/03/27 15:45		
COC Number		655578-01-01		655578-01-01	655578-01-01	655578-01-01	655578-02-01		
	UNITS	BH18-01	QC Batch	BH18-03	BH18-02	BH18-07	BH18-05	RDL	QC Batch
Inorganics									
Moisture	%	24	5469094	25	19	22	22	1.0	5468787
Calculated Parameters									
Methylnaphthalene, 2-(1-)	ug/g	0.018	5466331	<0.0071	<0.0071	<0.0071	<0.0071	0.0071	5466331
Polyaromatic Hydrocarbons									
Acenaphthene	ug/g	<0.0050	5469511	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
Acenaphthylene	ug/g	<0.0050	5469511	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
Anthracene	ug/g	<0.0050	5469511	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
Benzo(a)anthracene	ug/g	0.011	5469511	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
Benzo(a)pyrene	ug/g	0.012	5469511	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
Benzo(b/j)fluoranthene	ug/g	0.024	5469511	<0.0050	<0.0050	0.0081	<0.0050	0.0050	5469511
Benzo(g,h,i)perylene	ug/g	0.011	5469511	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
Benzo(k)fluoranthene	ug/g	0.0061	5469511	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
Chrysene	ug/g	0.018	5469511	<0.0050	<0.0050	0.0085	<0.0050	0.0050	5469511
Dibenz(a,h)anthracene	ug/g	<0.0050	5469511	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
Fluoranthene	ug/g	0.026	5469511	<0.0050	<0.0050	0.012	<0.0050	0.0050	5469511
Fluorene	ug/g	<0.0050	5469511	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
Indeno(1,2,3-cd)pyrene	ug/g	0.011	5469511	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
1-Methylnaphthalene	ug/g	0.0095	5469511	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
2-Methylnaphthalene	ug/g	0.0083	5469511	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
Naphthalene	ug/g	0.0057	5469511	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
Phenanthrene	ug/g	0.018	5469511	<0.0050	<0.0050	0.0085	<0.0050	0.0050	5469511
Pyrene	ug/g	0.019	5469511	<0.0050	<0.0050	0.011	<0.0050	0.0050	5469511
Surrogate Recovery (%)									
D10-Anthracene	%	84	5469511	88	78	90	82		5469511
D14-Terphenyl (FS)	%	88	5469511	90	84	92	83		5469511
D8-Acenaphthylene	%	82	5469511	86	79	87	82		5469511

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 PAHS (SOIL)

Maxxam ID		GJG948	GJG949	GJG950	GJG951	GJG952		
Sampling Date		2018/03/27 16:15	2018/03/28 09:11	2018/03/28 10:00	2018/03/28 10:40	2018/03/28 12:20		
COC Number		655578-02-01	655578-02-01	655578-02-01	655578-02-01	655578-02-01		
	UNITS	BH18-06	BH18-10	BH18-09	BH18-08	BH18-11	RDL	QC Batch
Inorganics								
Moisture	%	25	21	26	18	11	1.0	5468787
Calculated Parameters								
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	0.026	<0.0071	<0.0071	0.0071	5466331
Polyaromatic Hydrocarbons								
Acenaphthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
Acenaphthylene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.013	0.0050	5469511
Anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.011	0.0050	5469511
Benzo(a)anthracene	ug/g	<0.0050	<0.0050	0.019	0.017	0.037	0.0050	5469511
Benzo(a)pyrene	ug/g	<0.0050	<0.0050	0.021	0.016	0.037	0.0050	5469511
Benzo(b/j)fluoranthene	ug/g	0.0075	<0.0050	0.038	0.026	0.059	0.0050	5469511
Benzo(g,h,i)perylene	ug/g	<0.0050	<0.0050	0.016	0.012	0.032	0.0050	5469511
Benzo(k)fluoranthene	ug/g	<0.0050	<0.0050	0.010	0.0070	0.022	0.0050	5469511
Chrysene	ug/g	0.0067	<0.0050	0.031	0.020	0.030	0.0050	5469511
Dibenz(a,h)anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0065	0.0050	5469511
Fluoranthene	ug/g	0.0092	<0.0050	0.044	0.028	0.063	0.0050	5469511
Fluorene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5469511
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	<0.0050	0.017	0.011	0.032	0.0050	5469511
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.011	<0.0050	<0.0050	0.0050	5469511
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.015	<0.0050	<0.0050	0.0050	5469511
Naphthalene	ug/g	<0.0050	<0.0050	0.0077	<0.0050	<0.0050	0.0050	5469511
Phenanthrene	ug/g	0.014	<0.0050	0.026	0.016	0.023	0.0050	5469511
Pyrene	ug/g	0.0094	<0.0050	0.035	0.030	0.060	0.0050	5469511
Surrogate Recovery (%)								
D10-Anthracene	%	85	81	86	86	89		5469511
D14-Terphenyl (FS)	%	89	83	90	83	89		5469511
D8-Acenaphthylene	%	83	81	84	89	86		5469511

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 PAHS (SOIL)

Maxxam ID		GJG952			GJG953	GJG954		GJG955		
Sampling Date		2018/03/28 12:20			2018/03/28 14:00	2018/03/28 14:15		2018/03/28 14:30		
COC Number		655578-02-01			655578-02-01	655578-02-01		655578-02-01		
	UNITS	BH18-11 Lab-Dup	RDL	QC Batch	BH18-15	BH18-18	QC Batch	BH18-16	RDL	QC Batch
Inorganics										
Moisture	%	11	1.0	5468787	26	19	5468787	26	1.0	5469094
Calculated Parameters										
Methylnaphthalene, 2-(1-)	ug/g				<0.0071	<0.0071	5466331	<0.0071	0.0071	5466331
Polyaromatic Hydrocarbons										
Acenaphthene	ug/g	<0.0050	0.0050	5469511	<0.0050	<0.0050	5469511	<0.0050	0.0050	5469511
Acenaphthylene	ug/g	0.013	0.0050	5469511	<0.0050	<0.0050	5469511	<0.0050	0.0050	5469511
Anthracene	ug/g	0.012	0.0050	5469511	<0.0050	<0.0050	5469511	<0.0050	0.0050	5469511
Benzo(a)anthracene	ug/g	0.033	0.0050	5469511	<0.0050	<0.0050	5469511	0.0051	0.0050	5469511
Benzo(a)pyrene	ug/g	0.034	0.0050	5469511	<0.0050	<0.0050	5469511	0.0054	0.0050	5469511
Benzo(b/j)fluoranthene	ug/g	0.054	0.0050	5469511	0.0099	<0.0050	5469511	0.010	0.0050	5469511
Benzo(g,h,i)perylene	ug/g	0.028	0.0050	5469511	<0.0050	<0.0050	5469511	<0.0050	0.0050	5469511
Benzo(k)fluoranthene	ug/g	0.022	0.0050	5469511	<0.0050	<0.0050	5469511	<0.0050	0.0050	5469511
Chrysene	ug/g	0.029	0.0050	5469511	0.0080	<0.0050	5469511	0.0095	0.0050	5469511
Dibenz(a,h)anthracene	ug/g	0.0059	0.0050	5469511	<0.0050	<0.0050	5469511	<0.0050	0.0050	5469511
Fluoranthene	ug/g	0.055	0.0050	5469511	0.0083	<0.0050	5469511	0.012	0.0050	5469511
Fluorene	ug/g	<0.0050	0.0050	5469511	<0.0050	<0.0050	5469511	<0.0050	0.0050	5469511
Indeno(1,2,3-cd)pyrene	ug/g	0.029	0.0050	5469511	<0.0050	<0.0050	5469511	<0.0050	0.0050	5469511
1-Methylnaphthalene	ug/g	<0.0050	0.0050	5469511	<0.0050	<0.0050	5469511	<0.0050	0.0050	5469511
2-Methylnaphthalene	ug/g	<0.0050	0.0050	5469511	<0.0050	<0.0050	5469511	0.0070	0.0050	5469511
Naphthalene	ug/g	<0.0050	0.0050	5469511	<0.0050	<0.0050	5469511	<0.0050	0.0050	5469511
Phenanthrene	ug/g	0.019	0.0050	5469511	0.0073	<0.0050	5469511	0.0074	0.0050	5469511
Pyrene	ug/g	0.051	0.0050	5469511	0.0069	<0.0050	5469511	0.0087	0.0050	5469511
Surrogate Recovery (%)										
D10-Anthracene	%	82		5469511	91	83	5469511	88		5469511
D14-Terphenyl (FS)	%	84		5469511	89	86	5469511	93		5469511
D8-Acenaphthylene	%	78		5469511	92	82	5469511	91		5469511

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 PAHS (SOIL)

Maxxam ID		GJG956			GJG957			GJG958		
Sampling Date		2018/03/28 15:15			2018/03/26 11:05			2018/03/28 09:11		
COC Number		655578-02-01			655578-03-01			655578-03-01		
	UNITS	BH18-17	RDL	QC Batch	BH18-912	RDL	QC Batch	BH18-910	RDL	QC Batch
Inorganics										
Moisture	%	24	1.0	5468787				22	1.0	5468787
Calculated Parameters										
Methylnaphthalene, 2-(1-)	ug/g	0.013	0.0071	5466331	<0.0071	0.0071	5466331	<0.0071	0.0071	5466331
Polyaromatic Hydrocarbons										
Acenaphthene	ug/g	<0.0050	0.0050	5469511	<0.0050	0.0050	5470066	<0.0050	0.0050	5469511
Acenaphthylene	ug/g	<0.0050	0.0050	5469511	<0.0050	0.0050	5470066	<0.0050	0.0050	5469511
Anthracene	ug/g	<0.0050	0.0050	5469511	0.0051	0.0050	5470066	<0.0050	0.0050	5469511
Benzo(a)anthracene	ug/g	<0.0050	0.0050	5469511	0.023	0.0050	5470066	<0.0050	0.0050	5469511
Benzo(a)pyrene	ug/g	<0.0050	0.0050	5469511	0.026	0.0050	5470066	<0.0050	0.0050	5469511
Benzo(b/j)fluoranthene	ug/g	0.0060	0.0050	5469511	0.041	0.0050	5470066	<0.0050	0.0050	5469511
Benzo(g,h,i)perylene	ug/g	<0.0050	0.0050	5469511	0.021	0.0050	5470066	<0.0050	0.0050	5469511
Benzo(k)fluoranthene	ug/g	<0.0050	0.0050	5469511	0.013	0.0050	5470066	<0.0050	0.0050	5469511
Chrysene	ug/g	0.0051	0.0050	5469511	0.019	0.0050	5470066	0.0053	0.0050	5469511
Dibenz(a,h)anthracene	ug/g	<0.0050	0.0050	5469511	<0.0050	0.0050	5470066	<0.0050	0.0050	5469511
Fluoranthene	ug/g	0.0071	0.0050	5469511	0.044	0.0050	5470066	0.0077	0.0050	5469511
Fluorene	ug/g	<0.0050	0.0050	5469511	<0.0050	0.0050	5470066	<0.0050	0.0050	5469511
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	0.0050	5469511	0.015	0.0050	5470066	<0.0050	0.0050	5469511
1-Methylnaphthalene	ug/g	<0.0050	0.0050	5469511	<0.0050	0.0050	5470066	<0.0050	0.0050	5469511
2-Methylnaphthalene	ug/g	0.013	0.0050	5469511	0.0051	0.0050	5470066	<0.0050	0.0050	5469511
Naphthalene	ug/g	<0.0050	0.0050	5469511	<0.0050	0.0050	5470066	<0.0050	0.0050	5469511
Phenanthrene	ug/g	<0.0050	0.0050	5469511	0.015	0.0050	5470066	0.0067	0.0050	5469511
Pyrene	ug/g	<0.0050	0.0050	5469511	0.041	0.0050	5470066	0.0066	0.0050	5469511
Surrogate Recovery (%)										
D10-Anthracene	%	81		5469511	93		5470066	88		5469511
D14-Terphenyl (FS)	%	86		5469511	93		5470066	89		5469511
D8-Acenaphthylene	%	81		5469511	91		5470066	88		5469511

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 PAHS (SOIL)

Maxxam ID		GJG959		
Sampling Date		2018/03/28 15:30		
COC Number		655578-03-01		
	UNITS	TCLP	RDL	QC Batch
Inorganics				
Moisture	%	20	1.0	5469094
Calculated Parameters				
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	0.0071	5466331
Polyaromatic Hydrocarbons				
Acenaphthene	ug/g	<0.0050	0.0050	5469511
Acenaphthylene	ug/g	<0.0050	0.0050	5469511
Anthracene	ug/g	<0.0050	0.0050	5469511
Benzo(a)anthracene	ug/g	<0.0050	0.0050	5469511
Benzo(a)pyrene	ug/g	<0.0050	0.0050	5469511
Benzo(b/j)fluoranthene	ug/g	<0.0050	0.0050	5469511
Benzo(g,h,i)perylene	ug/g	<0.0050	0.0050	5469511
Benzo(k)fluoranthene	ug/g	<0.0050	0.0050	5469511
Chrysene	ug/g	<0.0050	0.0050	5469511
Dibenz(a,h)anthracene	ug/g	<0.0050	0.0050	5469511
Fluoranthene	ug/g	<0.0050	0.0050	5469511
Fluorene	ug/g	<0.0050	0.0050	5469511
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	0.0050	5469511
1-Methylnaphthalene	ug/g	<0.0050	0.0050	5469511
2-Methylnaphthalene	ug/g	<0.0050	0.0050	5469511
Naphthalene	ug/g	<0.0050	0.0050	5469511
Phenanthrene	ug/g	<0.0050	0.0050	5469511
Pyrene	ug/g	<0.0050	0.0050	5469511
Surrogate Recovery (%)				
D10-Anthracene	%	84		5469511
D14-Terphenyl (FS)	%	82		5469511
D8-Acenaphthylene	%	81		5469511

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Maxxam ID		GJG937	GJG938			GJG938		
Sampling Date		2018/03/23 09:59	2018/03/23 13:30			2018/03/23 13:30		
COC Number		655578-01-01	655578-01-01			655578-01-01		
	UNITS	BH18-13	BH18-14	RDL	QC Batch	BH18-14 Lab-Dup	RDL	QC Batch
Inorganics								
Moisture	%	19	21	1.0	5468787			
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	<0.050	0.050	5466232			
Volatile Organics								
Acetone (2-Propanone)	ug/g	<0.50	<0.50	0.50	5468638			
Benzene	ug/g	<0.020	<0.020	0.020	5468638			
Bromodichloromethane	ug/g	<0.050	<0.050	0.050	5468638			
Bromoform	ug/g	<0.050	<0.050	0.050	5468638			
Bromomethane	ug/g	<0.050	<0.050	0.050	5468638			
Carbon Tetrachloride	ug/g	<0.050	<0.050	0.050	5468638			
Chlorobenzene	ug/g	<0.050	<0.050	0.050	5468638			
Chloroform	ug/g	<0.050	<0.050	0.050	5468638			
Dibromochloromethane	ug/g	<0.050	<0.050	0.050	5468638			
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	0.050	5468638			
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	0.050	5468638			
1,4-Dichlorobenzene	ug/g	<0.050	<0.050	0.050	5468638			
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	0.050	5468638			
1,1-Dichloroethane	ug/g	<0.050	<0.050	0.050	5468638			
1,2-Dichloroethane	ug/g	<0.050	<0.050	0.050	5468638			
1,1-Dichloroethylene	ug/g	<0.050	<0.050	0.050	5468638			
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	0.050	5468638			
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	0.050	5468638			
1,2-Dichloropropane	ug/g	<0.050	<0.050	0.050	5468638			
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	0.030	5468638			
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	0.040	5468638			
Ethylbenzene	ug/g	<0.020	<0.020	0.020	5468638			
Ethylene Dibromide	ug/g	<0.050	<0.050	0.050	5468638			
Hexane	ug/g	<0.050	<0.050	0.050	5468638			
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	0.050	5468638			
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	0.50	5468638			
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	0.50	5468638			
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	0.050	5468638			
Styrene	ug/g	<0.050	<0.050	0.050	5468638			
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	0.050	5468638			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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

Maxxam ID		GJG937	GJG938			GJG938		
Sampling Date		2018/03/23 09:59	2018/03/23 13:30			2018/03/23 13:30		
COC Number		655578-01-01	655578-01-01			655578-01-01		
	UNITS	BH18-13	BH18-14	RDL	QC Batch	BH18-14 Lab-Dup	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	0.050	5468638			
Tetrachloroethylene	ug/g	<0.050	<0.050	0.050	5468638			
Toluene	ug/g	<0.020	<0.020	0.020	5468638			
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	0.050	5468638			
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	0.050	5468638			
Trichloroethylene	ug/g	<0.050	<0.050	0.050	5468638			
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	0.050	5468638			
Vinyl Chloride	ug/g	<0.020	<0.020	0.020	5468638			
p+m-Xylene	ug/g	<0.020	<0.020	0.020	5468638			
o-Xylene	ug/g	<0.020	<0.020	0.020	5468638			
Total Xylenes	ug/g	<0.020	<0.020	0.020	5468638			
F1 (C6-C10)	ug/g	<10	<10	10	5468638			
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	5468638			
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	10	5470056	<10	10	5470056
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	50	5470056	<50	50	5470056
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	50	5470056	<50	50	5470056
Reached Baseline at C50	ug/g	Yes	Yes		5470056	Yes		5470056
Surrogate Recovery (%)								
o-Terphenyl	%	101	103		5470056	103		5470056
4-Bromofluorobenzene	%	96	96		5468638			
D10-o-Xylene	%	105	112		5468638			
D4-1,2-Dichloroethane	%	104	103		5468638			
D8-Toluene	%	98	99		5468638			

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Lab-Dup = Laboratory Initiated Duplicate

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

Maxxam ID		GJG940		GJG941	GJG942	GJG957		
Sampling Date		2018/03/26 11:05		2018/03/26 14:30	2018/03/27 09:44	2018/03/26 11:05		
COC Number		655578-01-01		655578-01-01	655578-01-01	655578-03-01		
	UNITS	BH18-12	QC Batch	BH18-20	BH18-04	BH18-912	RDL	QC Batch
Inorganics								
Moisture	%	13	5469094	17	28	14	1.0	5468787
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	5466232	<0.050	<0.050	<0.050	0.050	5466232
Volatile Organics								
Acetone (2-Propanone)	ug/g	<0.50	5468638	<0.50	<0.50	<0.50	0.50	5468638
Benzene	ug/g	<0.020	5468638	<0.020	<0.020	<0.020	0.020	5468638
Bromodichloromethane	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Bromoform	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Bromomethane	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Carbon Tetrachloride	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Chlorobenzene	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Chloroform	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Dibromochloromethane	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
1,2-Dichlorobenzene	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
1,3-Dichlorobenzene	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
1,4-Dichlorobenzene	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
1,1-Dichloroethane	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
1,2-Dichloroethane	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
1,1-Dichloroethylene	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
cis-1,2-Dichloroethylene	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
trans-1,2-Dichloroethylene	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
1,2-Dichloropropane	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
cis-1,3-Dichloropropene	ug/g	<0.030	5468638	<0.030	<0.030	<0.030	0.030	5468638
trans-1,3-Dichloropropene	ug/g	<0.040	5468638	<0.040	<0.040	<0.040	0.040	5468638
Ethylbenzene	ug/g	<0.020	5468638	<0.020	<0.020	<0.020	0.020	5468638
Ethylene Dibromide	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Hexane	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Methylene Chloride(Dichloromethane)	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	5468638	<0.50	<0.50	<0.50	0.50	5468638
Methyl Isobutyl Ketone	ug/g	<0.50	5468638	<0.50	<0.50	<0.50	0.50	5468638
Methyl t-butyl ether (MTBE)	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Styrene	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
1,1,1,2-Tetrachloroethane	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
1,1,2,2-Tetrachloroethane	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

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

Maxxam ID		GJG940		GJG941	GJG942	GJG957		
Sampling Date		2018/03/26 11:05		2018/03/26 14:30	2018/03/27 09:44	2018/03/26 11:05		
COC Number		655578-01-01		655578-01-01	655578-01-01	655578-03-01		
	UNITS	BH18-12	QC Batch	BH18-20	BH18-04	BH18-912	RDL	QC Batch
Tetrachloroethylene	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Toluene	ug/g	<0.020	5468638	<0.020	<0.020	<0.020	0.020	5468638
1,1,1-Trichloroethane	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
1,1,2-Trichloroethane	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Trichloroethylene	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	5468638	<0.050	<0.050	<0.050	0.050	5468638
Vinyl Chloride	ug/g	<0.020	5468638	<0.020	<0.020	<0.020	0.020	5468638
p+m-Xylene	ug/g	<0.020	5468638	<0.020	<0.020	<0.020	0.020	5468638
o-Xylene	ug/g	<0.020	5468638	<0.020	<0.020	<0.020	0.020	5468638
Total Xylenes	ug/g	<0.020	5468638	<0.020	<0.020	<0.020	0.020	5468638
F1 (C6-C10)	ug/g	<10	5468638	<10	<10	<10	10	5468638
F1 (C6-C10) - BTEX	ug/g	<10	5468638	<10	<10	<10	10	5468638
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	5470056	<10	<10	<10	10	5470056
F3 (C16-C34 Hydrocarbons)	ug/g	<50	5470056	<50	<50	<50	50	5470056
F4 (C34-C50 Hydrocarbons)	ug/g	<50	5470056	<50	<50	57	50	5470056
Reached Baseline at C50	ug/g	Yes	5470056	Yes	Yes	No		5470056
Surrogate Recovery (%)								
o-Terphenyl	%	104	5470056	107	98	104		5470056
4-Bromofluorobenzene	%	94	5468638	95	97	96		5468638
D10-o-Xylene	%	96	5468638	100	102	102		5468638
D4-1,2-Dichloroethane	%	105	5468638	103	104	104		5468638
D8-Toluene	%	98	5468638	98	98	98		5468638

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS (SOIL)

Maxxam ID		GJG939	GJG943	GJG944	GJG945	GJG946		
Sampling Date		2018/03/26 09:30	2018/03/27 11:15	2018/03/27 13:00	2018/03/27 13:50	2018/03/27 14:45		
COC Number		655578-01-01	655578-01-01	655578-01-01	655578-01-01	655578-01-01		
	UNITS	BH18-19	BH18-01	BH18-03	BH18-02	BH18-07	RDL	QC Batch
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5466232
Volatile Organics								
Acetone (2-Propanone)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5467202
Benzene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
Bromodichloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Bromoform	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Bromomethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Carbon Tetrachloride	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Chlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Chloroform	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Dibromochloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,4-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,2-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,2-Dichloropropane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5467202
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	5467202
Ethylbenzene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
Ethylene Dibromide	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Hexane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5467202
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5467202
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Styrene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Tetrachloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 VOCS BY HS (SOIL)

Maxxam ID		GJG939	GJG943	GJG944	GJG945	GJG946		
Sampling Date		2018/03/26 09:30	2018/03/27 11:15	2018/03/27 13:00	2018/03/27 13:50	2018/03/27 14:45		
COC Number		655578-01-01	655578-01-01	655578-01-01	655578-01-01	655578-01-01		
	UNITS	BH18-19	BH18-01	BH18-03	BH18-02	BH18-07	RDL	QC Batch
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Trichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Vinyl Chloride	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
p+m-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
Total Xylenes	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	99	100	100	99	99		5467202
D10-o-Xylene	%	123	127	129	123	129		5467202
D4-1,2-Dichloroethane	%	96	96	97	97	97		5467202
D8-Toluene	%	96	97	98	96	97		5467202

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

O.REG 153 VOCS BY HS (SOIL)

Maxxam ID		GJG947	GJG948	GJG949	GJG950	GJG951		
Sampling Date		2018/03/27 15:45	2018/03/27 16:15	2018/03/28 09:11	2018/03/28 10:00	2018/03/28 10:40		
COC Number		655578-02-01	655578-02-01	655578-02-01	655578-02-01	655578-02-01		
	UNITS	BH18-05	BH18-06	BH18-10	BH18-09	BH18-08	RDL	QC Batch
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5466232
Volatile Organics								
Acetone (2-Propanone)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5467202
Benzene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
Bromodichloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Bromoform	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Bromomethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Carbon Tetrachloride	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Chlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Chloroform	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Dibromochloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,4-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,2-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,2-Dichloropropane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5467202
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	5467202
Ethylbenzene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
Ethylene Dibromide	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Hexane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5467202
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5467202
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Styrene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Tetrachloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Toluene	ug/g	<0.020	<0.020	<0.020	0.028	<0.020	0.020	5467202

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 VOCS BY HS (SOIL)

Maxxam ID		GJG947	GJG948	GJG949	GJG950	GJG951		
Sampling Date		2018/03/27 15:45	2018/03/27 16:15	2018/03/28 09:11	2018/03/28 10:00	2018/03/28 10:40		
COC Number		655578-02-01	655578-02-01	655578-02-01	655578-02-01	655578-02-01		
	UNITS	BH18-05	BH18-06	BH18-10	BH18-09	BH18-08	RDL	QC Batch
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Trichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Vinyl Chloride	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
p+m-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
Total Xylenes	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	99	96	99	98	99		5467202
D10-o-Xylene	%	124	104	123	120	122		5467202
D4-1,2-Dichloroethane	%	98	97	96	98	97		5467202
D8-Toluene	%	97	97	98	95	97		5467202

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS (SOIL)

Maxxam ID		GJG952	GJG953	GJG954	GJG955	GJG956		
Sampling Date		2018/03/28 12:20	2018/03/28 14:00	2018/03/28 14:15	2018/03/28 14:30	2018/03/28 15:15		
COC Number		655578-02-01	655578-02-01	655578-02-01	655578-02-01	655578-02-01		
	UNITS	BH18-11	BH18-15	BH18-18	BH18-16	BH18-17	RDL	QC Batch
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5466232
Volatile Organics								
Acetone (2-Propanone)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5467202
Benzene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
Bromodichloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Bromoform	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Bromomethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Carbon Tetrachloride	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Chlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Chloroform	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Dibromochloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,4-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,2-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,2-Dichloropropane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5467202
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	5467202
Ethylbenzene	ug/g	<0.020	<0.020	<0.020	<0.020	0.021	0.020	5467202
Ethylene Dibromide	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Hexane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5467202
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5467202
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Styrene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Tetrachloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	0.023	0.020	5467202

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 VOCS BY HS (SOIL)

Maxxam ID		GJG952	GJG953	GJG954	GJG955	GJG956		
Sampling Date		2018/03/28 12:20	2018/03/28 14:00	2018/03/28 14:15	2018/03/28 14:30	2018/03/28 15:15		
COC Number		655578-02-01	655578-02-01	655578-02-01	655578-02-01	655578-02-01		
	UNITS	BH18-11	BH18-15	BH18-18	BH18-16	BH18-17	RDL	QC Batch
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Trichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5467202
Vinyl Chloride	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
p+m-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
Total Xylenes	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5467202
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	99	99	99	97	99		5467202
D10-o-Xylene	%	123	128	126	122	123		5467202
D4-1,2-Dichloroethane	%	97	97	97	98	98		5467202
D8-Toluene	%	98	96	97	95	97		5467202

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS (SOIL)

Maxxam ID		GJG958		
Sampling Date		2018/03/28 09:11		
COC Number		655578-03-01		
	UNITS	BH18-910	RDL	QC Batch
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	0.050	5466232
Volatile Organics				
Acetone (2-Propanone)	ug/g	<0.50	0.50	5467202
Benzene	ug/g	<0.020	0.020	5467202
Bromodichloromethane	ug/g	<0.050	0.050	5467202
Bromoform	ug/g	<0.050	0.050	5467202
Bromomethane	ug/g	<0.050	0.050	5467202
Carbon Tetrachloride	ug/g	<0.050	0.050	5467202
Chlorobenzene	ug/g	<0.050	0.050	5467202
Chloroform	ug/g	<0.050	0.050	5467202
Dibromochloromethane	ug/g	<0.050	0.050	5467202
1,2-Dichlorobenzene	ug/g	<0.050	0.050	5467202
1,3-Dichlorobenzene	ug/g	<0.050	0.050	5467202
1,4-Dichlorobenzene	ug/g	<0.050	0.050	5467202
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	0.050	5467202
1,1-Dichloroethane	ug/g	<0.050	0.050	5467202
1,2-Dichloroethane	ug/g	<0.050	0.050	5467202
1,1-Dichloroethylene	ug/g	<0.050	0.050	5467202
cis-1,2-Dichloroethylene	ug/g	<0.050	0.050	5467202
trans-1,2-Dichloroethylene	ug/g	<0.050	0.050	5467202
1,2-Dichloropropane	ug/g	<0.050	0.050	5467202
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	5467202
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	5467202
Ethylbenzene	ug/g	<0.020	0.020	5467202
Ethylene Dibromide	ug/g	<0.050	0.050	5467202
Hexane	ug/g	<0.050	0.050	5467202
Methylene Chloride(Dichloromethane)	ug/g	<0.050	0.050	5467202
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	0.50	5467202
Methyl Isobutyl Ketone	ug/g	<0.50	0.50	5467202
Methyl t-butyl ether (MTBE)	ug/g	<0.050	0.050	5467202
Styrene	ug/g	<0.050	0.050	5467202
1,1,1,2-Tetrachloroethane	ug/g	<0.050	0.050	5467202
1,1,2,2-Tetrachloroethane	ug/g	<0.050	0.050	5467202
Tetrachloroethylene	ug/g	<0.050	0.050	5467202
Toluene	ug/g	<0.020	0.020	5467202

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS (SOIL)

Maxxam ID		GJG958		
Sampling Date		2018/03/28 09:11		
COC Number		655578-03-01		
	UNITS	BH18-910	RDL	QC Batch
1,1,1-Trichloroethane	ug/g	<0.050	0.050	5467202
1,1,2-Trichloroethane	ug/g	<0.050	0.050	5467202
Trichloroethylene	ug/g	<0.050	0.050	5467202
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	0.050	5467202
Vinyl Chloride	ug/g	<0.020	0.020	5467202
p+m-Xylene	ug/g	<0.020	0.020	5467202
o-Xylene	ug/g	<0.020	0.020	5467202
Total Xylenes	ug/g	<0.020	0.020	5467202
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	99		5467202
D10-o-Xylene	%	127		5467202
D4-1,2-Dichloroethane	%	98		5467202
D8-Toluene	%	97		5467202

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 558 TCLP BENZENE HS (SOIL)

Maxxam ID		GJG959		
Sampling Date		2018/03/28 15:30		
COC Number		655578-03-01		
	UNITS	TCLP	RDL	QC Batch
Charge/Prep Analysis				
Amount Extracted (Wet Weight) (g)	N/A	23	N/A	5467214
Volatile Organics				
Leachable Benzene	mg/L	<0.020	0.020	5468649
Surrogate Recovery (%)				
Leachable 4-Bromofluorobenzene	%	100		5468649
Leachable D4-1,2-Dichloroethane	%	97		5468649
Leachable D8-Toluene	%	98		5468649

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 558 TCLP INORGANICS PACKAGE (SOIL)

Maxxam ID		GJG959		
Sampling Date		2018/03/28 15:30		
COC Number		655578-03-01		
	UNITS	TCLP	RDL	QC Batch
Inorganics				
Leachable Fluoride (F-)	mg/L	0.36	0.10	5469738
Leachable WAD Cyanide (Free)	mg/L	<0.010	0.010	5469740
Leachable Nitrite (N)	mg/L	<0.10	0.10	5469739
Leachable Nitrate (N)	mg/L	<1.0	1.0	5469739
Leachable Nitrate + Nitrite (N)	mg/L	<1.0	1.0	5469739
Metals				
Leachable Mercury (Hg)	mg/L	<0.0010	0.0010	5469204
Leachable Arsenic (As)	mg/L	<0.2	0.2	5469453
Leachable Barium (Ba)	mg/L	0.3	0.2	5469453
Leachable Boron (B)	mg/L	0.3	0.1	5469453
Leachable Cadmium (Cd)	mg/L	<0.05	0.05	5469453
Leachable Chromium (Cr)	mg/L	<0.1	0.1	5469453
Leachable Lead (Pb)	mg/L	<0.1	0.1	5469453
Leachable Selenium (Se)	mg/L	<0.1	0.1	5469453
Leachable Silver (Ag)	mg/L	<0.01	0.01	5469453
Leachable Uranium (U)	mg/L	<0.01	0.01	5469453

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 558 TCLP PCBS (SOIL)

Maxxam ID		GJG959		
Sampling Date		2018/03/28 15:30		
COC Number		655578-03-01		
	UNITS	TCLP	RDL	QC Batch
PCBs				
Leachable Total PCB	ug/L	<3.0	3.0	5469269
Surrogate Recovery (%)				
Leachable Decachlorobiphenyl	%	99		5469269

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		GJG957		
Sampling Date		2018/03/26 11:05		
COC Number		655578-03-01		
	UNITS	BH18-912	RDL	QC Batch
F2-F4 Hydrocarbons				
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	370	100	5472626

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

TEST SUMMARY

Maxxam ID: GJG937
Sample ID: BH18-13
Matrix: Soil

Collected: 2018/03/23
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5465375	N/A	2018/04/05	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5470056	2018/04/04	2018/04/05	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5470066	2018/04/04	2018/04/04	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5468638	N/A	2018/04/05	Denis Reid

Maxxam ID: GJG938
Sample ID: BH18-14
Matrix: Soil

Collected: 2018/03/23
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5465375	N/A	2018/04/05	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468938	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5468818	2018/04/04	2018/04/05	Sally Coughlin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5470056	2018/04/04	2018/04/05	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5470066	2018/04/04	2018/04/04	Mitesh Raj
pH CaCl2 EXTRACT	AT	5468782	2018/04/04	2018/04/04	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5468638	N/A	2018/04/05	Denis Reid

Maxxam ID: GJG938 Dup
Sample ID: BH18-14
Matrix: Soil

Collected: 2018/03/23
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5470056	2018/04/04	2018/04/05	Zhiyue (Frank) Zhu
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5470066	2018/04/04	2018/04/04	Mitesh Raj

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

TEST SUMMARY

Maxxam ID: GJG939
Sample ID: BH18-19
Matrix: Soil

Collected: 2018/03/26
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5467304	2018/04/03	2018/04/04	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/04	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/04	Juan Pangilinan

Maxxam ID: GJG939 Dup
Sample ID: BH18-19
Matrix: Soil

Collected: 2018/03/26
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John

Maxxam ID: GJG940
Sample ID: BH18-12
Matrix: Soil

Collected: 2018/03/26
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/05	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5470056	2018/04/04	2018/04/05	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5469094	N/A	2018/04/05	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5470066	2018/04/04	2018/04/05	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5468638	N/A	2018/04/05	Denis Reid

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

TEST SUMMARY

Maxxam ID: GJG941
Sample ID: BH18-20
Matrix: Soil

Collected: 2018/03/26
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/05	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5470056	2018/04/04	2018/04/05	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5470066	2018/04/04	2018/04/05	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5468638	N/A	2018/04/05	Denis Reid

Maxxam ID: GJG941 Dup
Sample ID: BH18-20
Matrix: Soil

Collected: 2018/03/26
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar

Maxxam ID: GJG942
Sample ID: BH18-04
Matrix: Soil

Collected: 2018/03/27
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/05	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5470056	2018/04/04	2018/04/05	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5470066	2018/04/04	2018/04/05	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5468638	N/A	2018/04/05	Denis Reid

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

TEST SUMMARY

Maxxam ID: GJG943
Sample ID: BH18-01
Matrix: Soil

Collected: 2018/03/27
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5469094	N/A	2018/04/05	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5467304	2018/04/03	2018/04/04	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/04	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/04	Juan Pangilinan

Maxxam ID: GJG944
Sample ID: BH18-03
Matrix: Soil

Collected: 2018/03/27
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/04	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/05	Juan Pangilinan

Maxxam ID: GJG944 Dup
Sample ID: BH18-03
Matrix: Soil

Collected: 2018/03/27
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

TEST SUMMARY

Maxxam ID: GJG945
Sample ID: BH18-02
Matrix: Soil

Collected: 2018/03/27
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/04	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/05	Juan Pangilinan

Maxxam ID: GJG946
Sample ID: BH18-07
Matrix: Soil

Collected: 2018/03/27
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/04	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/05	Juan Pangilinan

Maxxam ID: GJG947
Sample ID: BH18-05
Matrix: Soil

Collected: 2018/03/27
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

TEST SUMMARY

Maxxam ID: GJG947
Sample ID: BH18-05
Matrix: Soil

Collected: 2018/03/27
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5467304	2018/04/03	2018/04/04	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/04	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/05	Juan Pangilinan

Maxxam ID: GJG948
Sample ID: BH18-06
Matrix: Soil

Collected: 2018/03/27
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/06	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/05	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/06	Juan Pangilinan

Maxxam ID: GJG949
Sample ID: BH18-10
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

TEST SUMMARY

Maxxam ID: GJG949
Sample ID: BH18-10
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/05	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/05	Juan Pangilinan

Maxxam ID: GJG950
Sample ID: BH18-09
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5467304	2018/04/03	2018/04/04	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/05	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/05	Juan Pangilinan

Maxxam ID: GJG951
Sample ID: BH18-08
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/05	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/05	Juan Pangilinan

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

TEST SUMMARY

Maxxam ID: GJG952
Sample ID: BH18-11
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5467304	2018/04/03	2018/04/04	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/04	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/05	Juan Pangilinan

Maxxam ID: GJG952 Dup
Sample ID: BH18-11
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/04	Mitesh Raj

Maxxam ID: GJG953
Sample ID: BH18-15
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5469087	2018/04/04	2018/04/04	Suban Kanapathippllai
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469666	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/05	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/05	Juan Pangilinan

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

TEST SUMMARY

Maxxam ID: GJG954
Sample ID: BH18-18
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5469087	2018/04/04	2018/04/04	Suban Kanapathippllai
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469666	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5469143	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/05	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/05	Juan Pangilinan

Maxxam ID: GJG954 Dup
Sample ID: BH18-18
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	5469087	2018/04/04	2018/04/04	Suban Kanapathippllai
Strong Acid Leachable Metals by ICPMS	ICP/MS	5469143	2018/04/04	2018/04/04	Daniel Teclu

Maxxam ID: GJG955
Sample ID: BH18-16
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5469094	N/A	2018/04/05	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5467304	2018/04/03	2018/04/04	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/05	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/05	Juan Pangilinan

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

TEST SUMMARY

Maxxam ID: GJG955 Dup
Sample ID: BH18-16
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu

Maxxam ID: GJG956
Sample ID: BH18-17
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/05	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/05	Juan Pangilinan

Maxxam ID: GJG956 Dup
Sample ID: BH18-17
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai

Maxxam ID: GJG957
Sample ID: BH18-912
Matrix: Soil

Collected: 2018/03/26
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/05	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468938	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5468818	2018/04/04	2018/04/05	Sally Coughlin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5470056	2018/04/04	2018/04/05	Zhiyue (Frank) Zhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	5472626	2018/04/06	2018/04/06	Dhara Patel
Strong Acid Leachable Metals by ICPMS	ICP/MS	5468793	2018/04/04	2018/04/04	Daniel Teclu
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

TEST SUMMARY

Maxxam ID: GJG957
Sample ID: BH18-912
Matrix: Soil

Collected: 2018/03/26
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5470066	2018/04/04	2018/04/05	Mitesh Raj
pH CaCl2 EXTRACT	AT	5468782	2018/04/04	2018/04/04	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5468638	N/A	2018/04/05	Denis Reid

Maxxam ID: GJG957 Dup
Sample ID: BH18-912
Matrix: Soil

Collected: 2018/03/26
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng

Maxxam ID: GJG958
Sample ID: BH18-910
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5471581	2018/04/05	2018/04/06	Jolly John
1,3-Dichloropropene Sum	CALC	5466232	N/A	2018/04/05	Automated Statchk
Free (WAD) Cyanide	TECH	5468936	2018/04/04	2018/04/05	Louise Harding
Conductivity	AT	5469396	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5469114	2018/04/04	2018/04/05	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5470671	2018/04/05	2018/04/05	Viviana Canzonieri
Moisture	BAL	5468787	N/A	2018/04/04	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	5467304	2018/04/03	2018/04/04	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/05	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/05	Mitesh Raj
pH CaCl2 EXTRACT	AT	5469288	2018/04/05	2018/04/05	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5467202	N/A	2018/04/05	Juan Pangilinan

Maxxam ID: GJG959
Sample ID: TCLP
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5466331	N/A	2018/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	5469087	2018/04/04	2018/04/04	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	5468938	2018/04/04	2018/04/05	Louise Harding
Cyanide (WAD) in Leachates	SKAL/CN	5469740	N/A	2018/04/05	Xuanhong Qiu
Conductivity	AT	5469666	2018/04/05	2018/04/05	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5468818	2018/04/04	2018/04/05	Sally Coughlin
Fluoride by ISE in Leachates	ISE	5469738	2018/04/04	2018/04/05	Surinder Rai
Mercury (TCLP Leachable) (mg/L)	CV/AA	5469204	N/A	2018/04/05	Ron Morrison
Strong Acid Leachable Metals by ICPMS	ICP/MS	5469143	2018/04/04	2018/04/04	Daniel Teclu

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Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

TEST SUMMARY

Maxxam ID: GJG959
Sample ID: TCLP
Matrix: Soil

Collected: 2018/03/28
Shipped:
Received: 2018/04/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	5469453	2018/04/04	2018/04/05	Thao Nguyen
Moisture	BAL	5469094	N/A	2018/04/05	Prgya Panchal
Nitrate(NO3) + Nitrite(NO2) in Leachate	LACH	5469739	N/A	2018/04/05	Chandra Nandlal
OC Pesticides (Selected) & PCB	GC/ECD	5468813	2018/04/04	2018/04/05	Li Peng
OC Pesticides Summed Parameters	CALC	5465492	N/A	2018/04/04	Automated Statchk
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5469511	2018/04/04	2018/04/05	Mitesh Raj
Polychlorinated Biphenyl in Leachate	GC/ECD	5469269	2018/04/04	2018/04/05	Svitlana Shaula
pH CaCl2 EXTRACT	AT	5468782	2018/04/04	2018/04/04	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5466210	N/A	2018/04/06	Automated Statchk
TCLP Zero Headspace Extraction		5467214	2018/04/03	2018/04/04	Walt Wang
VOCs in ZHE Leachates	GC/MS	5468649	2018/04/04	2018/04/04	Manpreet Sarao

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GENERAL COMMENTS

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

Package 1	1.7°C
Package 2	1.3°C

Sample GJG952 [BH18-11] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample GJG957 [BH18-912] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Results relate only to the items tested.

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Maxxam Job #: B872322
Report Date: 2018/04/06

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
5467202	4-Bromofluorobenzene	2018/04/04	101	60 - 140	103	60 - 140	101	%				
5467202	D10-o-Xylene	2018/04/04	128	60 - 130	120	60 - 130	118	%				
5467202	D4-1,2-Dichloroethane	2018/04/04	95	60 - 140	102	60 - 140	103	%				
5467202	D8-Toluene	2018/04/04	100	60 - 140	97	60 - 140	95	%				
5467304	2,4,5,6-Tetrachloro-m-xylene	2018/04/04	87	50 - 130	83	50 - 130	81	%				
5467304	Decachlorobiphenyl	2018/04/04	121	50 - 130	102	50 - 130	90	%				
5468638	4-Bromofluorobenzene	2018/04/04	103	60 - 140	104	60 - 140	99	%				
5468638	D10-o-Xylene	2018/04/04	95	60 - 130	93	60 - 130	89	%				
5468638	D4-1,2-Dichloroethane	2018/04/04	104	60 - 140	103	60 - 140	102	%				
5468638	D8-Toluene	2018/04/04	99	60 - 140	100	60 - 140	95	%				
5468649	Leachable 4-Bromofluorobenzene	2018/04/04	102	70 - 130	101	70 - 130	101	%				
5468649	Leachable D4-1,2-Dichloroethane	2018/04/04	98	70 - 130	101	70 - 130	98	%				
5468649	Leachable D8-Toluene	2018/04/04	99	70 - 130	98	70 - 130	97	%				
5468813	2,4,5,6-Tetrachloro-m-xylene	2018/04/05	108	50 - 130	92	50 - 130	84	%				
5468813	Decachlorobiphenyl	2018/04/05	124	50 - 130	107	50 - 130	103	%				
5469269	Leachable Decachlorobiphenyl	2018/04/04	95	30 - 130	95	30 - 130	90	%				
5469511	D10-Anthracene	2018/04/04	89	50 - 130	89	50 - 130	90	%				
5469511	D14-Terphenyl (FS)	2018/04/04	87	50 - 130	91	50 - 130	93	%				
5469511	D8-Acenaphthylene	2018/04/04	84	50 - 130	86	50 - 130	86	%				
5470056	o-Terphenyl	2018/04/05	101	60 - 130	98	60 - 130	105	%				
5470066	D10-Anthracene	2018/04/04	95	50 - 130	97	50 - 130	90	%				
5470066	D14-Terphenyl (FS)	2018/04/04	97	50 - 130	92	50 - 130	92	%				
5470066	D8-Acenaphthylene	2018/04/04	94	50 - 130	89	50 - 130	87	%				
5467202	1,1,1,2-Tetrachloroethane	2018/04/04	103	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
5467202	1,1,1-Trichloroethane	2018/04/04	103	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
5467202	1,1,2,2-Tetrachloroethane	2018/04/04	100	60 - 140	107	60 - 130	<0.050	ug/g	NC	50		
5467202	1,1,2-Trichloroethane	2018/04/04	98	60 - 140	102	60 - 130	<0.050	ug/g	NC	50		
5467202	1,1-Dichloroethane	2018/04/04	100	60 - 140	98	60 - 130	<0.050	ug/g	NC	50		
5467202	1,1-Dichloroethylene	2018/04/04	100	60 - 140	93	60 - 130	<0.050	ug/g	NC	50		
5467202	1,2-Dichlorobenzene	2018/04/04	103	60 - 140	99	60 - 130	<0.050	ug/g	NC	50		
5467202	1,2-Dichloroethane	2018/04/04	97	60 - 140	103	60 - 130	<0.050	ug/g	NC	50		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
5467202	1,2-Dichloropropane	2018/04/04	99	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
5467202	1,3-Dichlorobenzene	2018/04/04	104	60 - 140	96	60 - 130	<0.050	ug/g	NC	50		
5467202	1,4-Dichlorobenzene	2018/04/04	104	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
5467202	Acetone (2-Propanone)	2018/04/04	91	60 - 140	100	60 - 140	<0.50	ug/g	NC	50		
5467202	Benzene	2018/04/04	100	60 - 140	98	60 - 130	<0.020	ug/g	NC	50		
5467202	Bromodichloromethane	2018/04/04	99	60 - 140	102	60 - 130	<0.050	ug/g	NC	50		
5467202	Bromoform	2018/04/04	99	60 - 140	107	60 - 130	<0.050	ug/g	NC	50		
5467202	Bromomethane	2018/04/04	104	60 - 140	100	60 - 140	<0.050	ug/g	NC	50		
5467202	Carbon Tetrachloride	2018/04/04	103	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
5467202	Chlorobenzene	2018/04/04	102	60 - 140	99	60 - 130	<0.050	ug/g	NC	50		
5467202	Chloroform	2018/04/04	102	60 - 140	102	60 - 130	<0.050	ug/g	NC	50		
5467202	cis-1,2-Dichloroethylene	2018/04/04	102	60 - 140	101	60 - 130	<0.050	ug/g	NC	50		
5467202	cis-1,3-Dichloropropene	2018/04/04	92	60 - 140	94	60 - 130	<0.030	ug/g	NC	50		
5467202	Dibromochloromethane	2018/04/04	100	60 - 140	103	60 - 130	<0.050	ug/g	NC	50		
5467202	Dichlorodifluoromethane (FREON 12)	2018/04/04	107	60 - 140	98	60 - 140	<0.050	ug/g	NC	50		
5467202	Ethylbenzene	2018/04/04	99	60 - 140	92	60 - 130	<0.020	ug/g	NC	50		
5467202	Ethylene Dibromide	2018/04/04	101	60 - 140	108	60 - 130	<0.050	ug/g	NC	50		
5467202	Hexane	2018/04/04	99	60 - 140	91	60 - 130	<0.050	ug/g	NC	50		
5467202	Methyl Ethyl Ketone (2-Butanone)	2018/04/04	87	60 - 140	100	60 - 140	<0.50	ug/g	NC	50		
5467202	Methyl Isobutyl Ketone	2018/04/04	88	60 - 140	102	60 - 130	<0.50	ug/g	NC	50		
5467202	Methyl t-butyl ether (MTBE)	2018/04/04	97	60 - 140	99	60 - 130	<0.050	ug/g	NC	50		
5467202	Methylene Chloride(Dichloromethane)	2018/04/04	104	60 - 140	105	60 - 130	<0.050	ug/g	NC	50		
5467202	o-Xylene	2018/04/04	99	60 - 140	93	60 - 130	<0.020	ug/g	NC	50		
5467202	p+m-Xylene	2018/04/04	98	60 - 140	91	60 - 130	<0.020	ug/g	NC	50		
5467202	Styrene	2018/04/04	100	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
5467202	Tetrachloroethylene	2018/04/04	107	60 - 140	98	60 - 130	<0.050	ug/g	NC	50		
5467202	Toluene	2018/04/04	100	60 - 140	95	60 - 130	<0.020	ug/g	NC	50		
5467202	Total Xylenes	2018/04/04					<0.020	ug/g	NC	50		
5467202	trans-1,2-Dichloroethylene	2018/04/04	104	60 - 140	99	60 - 130	<0.050	ug/g	NC	50		
5467202	trans-1,3-Dichloropropene	2018/04/04	92	60 - 140	93	60 - 130	<0.040	ug/g	NC	50		
5467202	Trichloroethylene	2018/04/04	106	60 - 140	102	60 - 130	<0.050	ug/g	NC	50		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
5467202	Trichlorofluoromethane (FREON 11)	2018/04/04	103	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
5467202	Vinyl Chloride	2018/04/04	100	60 - 140	94	60 - 130	<0.020	ug/g	NC	50		
5467304	a-Chlordane	2018/04/04	97	50 - 130	91	50 - 130	<0.0020	ug/g	NC	40		
5467304	Aldrin	2018/04/04	89	50 - 130	85	50 - 130	<0.0020	ug/g	NC	40		
5467304	Aroclor 1242	2018/04/04					<0.015	ug/g	200 (1)	40		
5467304	Aroclor 1248	2018/04/04					<0.015	ug/g				
5467304	Aroclor 1254	2018/04/04					<0.015	ug/g				
5467304	Aroclor 1260	2018/04/04					<0.015	ug/g				
5467304	Dieldrin	2018/04/04	101	50 - 130	101	50 - 130	<0.0020	ug/g	NC	40		
5467304	Endosulfan I (alpha)	2018/04/04	87	50 - 130	77	50 - 130	<0.0020	ug/g	NC	40		
5467304	Endosulfan II (beta)	2018/04/04	98	50 - 130	86	50 - 130	<0.0020	ug/g	NC	40		
5467304	Endrin	2018/04/04	98	50 - 130	95	50 - 130	<0.0020	ug/g	NC	40		
5467304	g-Chlordane	2018/04/04	94	50 - 130	91	50 - 130	<0.0020	ug/g	NC	40		
5467304	Heptachlor epoxide	2018/04/04	86	50 - 130	83	50 - 130	<0.0020	ug/g	NC	40		
5467304	Heptachlor	2018/04/04	96	50 - 130	94	50 - 130	<0.0020	ug/g	NC	40		
5467304	Hexachlorobenzene	2018/04/04	97	50 - 130	92	50 - 130	<0.0020	ug/g	NC	40		
5467304	Hexachlorobutadiene	2018/04/04	68	50 - 130	101	50 - 130	<0.0020	ug/g	NC	40		
5467304	Hexachloroethane	2018/04/04	51	50 - 130	77	50 - 130	<0.0020	ug/g	NC	40		
5467304	Lindane	2018/04/04	74	50 - 130	76	50 - 130	<0.0020	ug/g	NC	40		
5467304	Methoxychlor	2018/04/04	126	50 - 130	129	50 - 130	<0.0050	ug/g	NC	40		
5467304	o,p-DDD	2018/04/04	108	50 - 130	102	50 - 130	<0.0020	ug/g	NC	40		
5467304	o,p-DDE	2018/04/04	101	50 - 130	97	50 - 130	<0.0020	ug/g	NC	40		
5467304	o,p-DDT	2018/04/04	125	50 - 130	117	50 - 130	<0.0020	ug/g	NC	40		
5467304	p,p-DDD	2018/04/04	100	50 - 130	93	50 - 130	<0.0020	ug/g	NC	40		
5467304	p,p-DDE	2018/04/04	105	50 - 130	87	50 - 130	<0.0020	ug/g	NC	40		
5467304	p,p-DDT	2018/04/04	127	50 - 130	124	50 - 130	<0.0020	ug/g	NC	40		
5468638	1,1,1,2-Tetrachloroethane	2018/04/05	99	60 - 140	99	60 - 130	<0.050	ug/g	NC	50		
5468638	1,1,1-Trichloroethane	2018/04/05	97	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
5468638	1,1,2,2-Tetrachloroethane	2018/04/05	97	60 - 140	94	60 - 130	<0.050	ug/g	NC	50		
5468638	1,1,2-Trichloroethane	2018/04/05	95	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
5468638	1,1-Dichloroethane	2018/04/05	91	60 - 140	93	60 - 130	<0.050	ug/g	NC	50		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
5468638	1,1-Dichloroethylene	2018/04/05	90	60 - 140	93	60 - 130	<0.050	ug/g	NC	50		
5468638	1,2-Dichlorobenzene	2018/04/05	100	60 - 140	98	60 - 130	<0.050	ug/g	NC	50		
5468638	1,2-Dichloroethane	2018/04/05	97	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
5468638	1,2-Dichloropropane	2018/04/05	89	60 - 140	91	60 - 130	<0.050	ug/g	NC	50		
5468638	1,3-Dichlorobenzene	2018/04/05	105	60 - 140	105	60 - 130	<0.050	ug/g	NC	50		
5468638	1,4-Dichlorobenzene	2018/04/05	102	60 - 140	102	60 - 130	<0.050	ug/g	NC	50		
5468638	Acetone (2-Propanone)	2018/04/05	97	60 - 140	99	60 - 140	<0.50	ug/g	NC	50		
5468638	Benzene	2018/04/05	91	60 - 140	93	60 - 130	<0.020	ug/g	NC	50		
5468638	Bromodichloromethane	2018/04/05	93	60 - 140	93	60 - 130	<0.050	ug/g	NC	50		
5468638	Bromoform	2018/04/05	94	60 - 140	92	60 - 130	<0.050	ug/g	NC	50		
5468638	Bromomethane	2018/04/05	90	60 - 140	93	60 - 140	<0.050	ug/g	NC	50		
5468638	Carbon Tetrachloride	2018/04/05	98	60 - 140	101	60 - 130	<0.050	ug/g	NC	50		
5468638	Chlorobenzene	2018/04/05	94	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
5468638	Chloroform	2018/04/05	94	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
5468638	cis-1,2-Dichloroethylene	2018/04/05	96	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
5468638	cis-1,3-Dichloropropene	2018/04/05	81	60 - 140	82	60 - 130	<0.030	ug/g	NC	50		
5468638	Dibromochloromethane	2018/04/05	95	60 - 140	94	60 - 130	<0.050	ug/g	NC	50		
5468638	Dichlorodifluoromethane (FREON 12)	2018/04/05	95	60 - 140	97	60 - 140	<0.050	ug/g	NC	50		
5468638	Ethylbenzene	2018/04/05	92	60 - 140	94	60 - 130	<0.020	ug/g	NC	50		
5468638	Ethylene Dibromide	2018/04/05	96	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
5468638	F1 (C6-C10) - BTEX	2018/04/05					<10	ug/g	NC	30		
5468638	F1 (C6-C10)	2018/04/05	111	60 - 140	97	80 - 120	<10	ug/g	NC	30		
5468638	Hexane	2018/04/05	86	60 - 140	89	60 - 130	<0.050	ug/g	NC	50		
5468638	Methyl Ethyl Ketone (2-Butanone)	2018/04/05	86	60 - 140	86	60 - 140	<0.50	ug/g	NC	50		
5468638	Methyl Isobutyl Ketone	2018/04/05	83	60 - 140	81	60 - 130	<0.50	ug/g	NC	50		
5468638	Methyl t-butyl ether (MTBE)	2018/04/05	91	60 - 140	91	60 - 130	<0.050	ug/g	NC	50		
5468638	Methylene Chloride(Dichloromethane)	2018/04/05	91	60 - 140	92	60 - 130	<0.050	ug/g	NC	50		
5468638	o-Xylene	2018/04/05	91	60 - 140	92	60 - 130	<0.020	ug/g	NC	50		
5468638	p+m-Xylene	2018/04/05	88	60 - 140	90	60 - 130	<0.020	ug/g	NC	50		
5468638	Styrene	2018/04/05	91	60 - 140	92	60 - 130	<0.050	ug/g	NC	50		
5468638	Tetrachloroethylene	2018/04/05	99	60 - 140	102	60 - 130	<0.050	ug/g	NC	50		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
5468638	Toluene	2018/04/05	88	60 - 140	90	60 - 130	<0.020	ug/g	NC	50		
5468638	Total Xylenes	2018/04/05					<0.020	ug/g	NC	50		
5468638	trans-1,2-Dichloroethylene	2018/04/05	97	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
5468638	trans-1,3-Dichloropropene	2018/04/05	81	60 - 140	81	60 - 130	<0.040	ug/g	NC	50		
5468638	Trichloroethylene	2018/04/05	97	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
5468638	Trichlorofluoromethane (FREON 11)	2018/04/05	97	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
5468638	Vinyl Chloride	2018/04/05	88	60 - 140	95	60 - 130	<0.020	ug/g	NC	50		
5468649	Leachable Benzene	2018/04/04	96	70 - 130	95	70 - 130	<0.020	mg/L				
5468782	Available (CaCl2) pH	2018/04/04			99	97 - 103			1.2	N/A		
5468787	Moisture	2018/04/04							3.6	20		
5468793	Acid Extractable Antimony (Sb)	2018/04/04	86	75 - 125	96	80 - 120	<0.20	ug/g	NC	30		
5468793	Acid Extractable Arsenic (As)	2018/04/04	101	75 - 125	101	80 - 120	<1.0	ug/g	3.7	30		
5468793	Acid Extractable Barium (Ba)	2018/04/04	NC	75 - 125	95	80 - 120	<0.50	ug/g	0.73	30		
5468793	Acid Extractable Beryllium (Be)	2018/04/04	102	75 - 125	98	80 - 120	<0.20	ug/g	6.2	30		
5468793	Acid Extractable Boron (B)	2018/04/04	88	75 - 125	97	80 - 120	<5.0	ug/g	14	30		
5468793	Acid Extractable Cadmium (Cd)	2018/04/04	98	75 - 125	95	80 - 120	<0.10	ug/g	NC	30		
5468793	Acid Extractable Chromium (Cr)	2018/04/04	NC	75 - 125	97	80 - 120	<1.0	ug/g	0.69	30		
5468793	Acid Extractable Cobalt (Co)	2018/04/04	101	75 - 125	102	80 - 120	<0.10	ug/g	0.86	30		
5468793	Acid Extractable Copper (Cu)	2018/04/04	97	75 - 125	99	80 - 120	<0.50	ug/g	0.71	30		
5468793	Acid Extractable Lead (Pb)	2018/04/04	102	75 - 125	101	80 - 120	<1.0	ug/g	0.33	30		
5468793	Acid Extractable Mercury (Hg)	2018/04/04	98	75 - 125	98	80 - 120	<0.050	ug/g	NC	30		
5468793	Acid Extractable Molybdenum (Mo)	2018/04/04	99	75 - 125	99	80 - 120	<0.50	ug/g	3.2	30		
5468793	Acid Extractable Nickel (Ni)	2018/04/04	NC	75 - 125	102	80 - 120	<0.50	ug/g	3.0	30		
5468793	Acid Extractable Selenium (Se)	2018/04/04	103	75 - 125	104	80 - 120	<0.50	ug/g	NC	30		
5468793	Acid Extractable Silver (Ag)	2018/04/04	100	75 - 125	97	80 - 120	<0.20	ug/g	NC	30		
5468793	Acid Extractable Thallium (Tl)	2018/04/04	99	75 - 125	99	80 - 120	<0.050	ug/g	7.2	30		
5468793	Acid Extractable Uranium (U)	2018/04/04	100	75 - 125	97	80 - 120	<0.050	ug/g	0.12	30		
5468793	Acid Extractable Vanadium (V)	2018/04/04	NC	75 - 125	99	80 - 120	<5.0	ug/g	2.1	30		
5468793	Acid Extractable Zinc (Zn)	2018/04/04	NC	75 - 125	97	80 - 120	<5.0	ug/g	2.5	30		
5468813	a-Chlordane	2018/04/05	110	50 - 130	119	50 - 130	<0.0020	ug/g	NC	40		
5468813	Aldrin	2018/04/05	112	50 - 130	88	50 - 130	<0.0020	ug/g	NC	40		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
5468813	Aroclor 1242	2018/04/05					<0.015	ug/g	NC	40		
5468813	Aroclor 1248	2018/04/05					<0.015	ug/g	NC	40		
5468813	Aroclor 1254	2018/04/05					<0.015	ug/g	NC	40		
5468813	Aroclor 1260	2018/04/05					<0.015	ug/g	NC	40		
5468813	Dieldrin	2018/04/05	114	50 - 130	129	50 - 130	<0.0020	ug/g	2.3	40		
5468813	Endosulfan I (alpha)	2018/04/05	102	50 - 130	107	50 - 130	<0.0020	ug/g	NC	40		
5468813	Endosulfan II (beta)	2018/04/05	123	50 - 130	119	50 - 130	<0.0020	ug/g	NC	40		
5468813	Endrin	2018/04/05	128	50 - 130	126	50 - 130	<0.0020	ug/g	NC	40		
5468813	g-Chlordane	2018/04/05	126	50 - 130	114	50 - 130	<0.0020	ug/g	NC	40		
5468813	Heptachlor epoxide	2018/04/05	118	50 - 130	116	50 - 130	<0.0020	ug/g	NC	40		
5468813	Heptachlor	2018/04/05	118	50 - 130	93	50 - 130	<0.0020	ug/g	NC	40		
5468813	Hexachlorobenzene	2018/04/05	115	50 - 130	107	50 - 130	<0.0020	ug/g	NC	40		
5468813	Hexachlorobutadiene	2018/04/05	83	50 - 130	90	50 - 130	<0.0020	ug/g	NC	40		
5468813	Hexachloroethane	2018/04/05	59	50 - 130	75	50 - 130	<0.0020	ug/g	NC	40		
5468813	Lindane	2018/04/05	112	50 - 130	102	50 - 130	<0.0020	ug/g	NC	40		
5468813	Methoxychlor	2018/04/05	146 (3)	50 - 130	147 (3)	50 - 130	<0.0050	ug/g	NC	40		
5468813	o,p-DDD	2018/04/05	111	50 - 130	129	50 - 130	<0.0020	ug/g	NC	40		
5468813	o,p-DDE	2018/04/05	125	50 - 130	107	50 - 130	<0.0020	ug/g	NC	40		
5468813	o,p-DDT	2018/04/05	113	50 - 130	119	50 - 130	<0.0020	ug/g	NC	40		
5468813	p,p-DDD	2018/04/05	106	50 - 130	124	50 - 130	<0.0020	ug/g	2.6	40		
5468813	p,p-DDE	2018/04/05	NC (2)	50 - 130	99	50 - 130	<0.0020	ug/g	0	40		
5468813	p,p-DDT	2018/04/05	NC	50 - 130	130	50 - 130	<0.0020	ug/g	0.22	40		
5468818	Chromium (VI)	2018/04/05	84	75 - 125	90	80 - 120	<0.2	ug/g	NC	35		
5468936	WAD Cyanide (Free)	2018/04/05	96	75 - 125	99	80 - 120	<0.01	ug/g	9.8	35		
5468938	WAD Cyanide (Free)	2018/04/05	102	75 - 125	99	80 - 120	<0.01	ug/g	NC	35		
5469087	Hot Water Ext. Boron (B)	2018/04/04	102	75 - 125	102	75 - 125	<0.050	ug/g	1.0	40		
5469094	Moisture	2018/04/05							0	20		
5469114	Chromium (VI)	2018/04/05	0 (4)	75 - 125	91	80 - 120	<0.2	ug/g	NC	35		
5469143	Acid Extractable Antimony (Sb)	2018/04/04	84	75 - 125	107	80 - 120	<0.20	ug/g	NC	30		
5469143	Acid Extractable Arsenic (As)	2018/04/04	99	75 - 125	104	80 - 120	<1.0	ug/g	5.7	30		
5469143	Acid Extractable Barium (Ba)	2018/04/04	NC	75 - 125	98	80 - 120	<0.50	ug/g	1.6	30		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
5469143	Acid Extractable Beryllium (Be)	2018/04/04	106	75 - 125	105	80 - 120	<0.20	ug/g	4.1	30		
5469143	Acid Extractable Boron (B)	2018/04/04	88	75 - 125	102	80 - 120	<5.0	ug/g	7.0	30		
5469143	Acid Extractable Cadmium (Cd)	2018/04/04	101	75 - 125	103	80 - 120	<0.10	ug/g	NC	30		
5469143	Acid Extractable Chromium (Cr)	2018/04/04	NC	75 - 125	97	80 - 120	<1.0	ug/g	1.1	30		
5469143	Acid Extractable Cobalt (Co)	2018/04/04	94	75 - 125	100	80 - 120	<0.10	ug/g	3.3	30		
5469143	Acid Extractable Copper (Cu)	2018/04/04	NC	75 - 125	101	80 - 120	<0.50	ug/g	0.13	30		
5469143	Acid Extractable Lead (Pb)	2018/04/04	103	75 - 125	104	80 - 120	<1.0	ug/g	0.21	30		
5469143	Acid Extractable Mercury (Hg)	2018/04/04	104	75 - 125	101	80 - 120	<0.050	ug/g	NC	30		
5469143	Acid Extractable Molybdenum (Mo)	2018/04/04	98	75 - 125	102	80 - 120	<0.50	ug/g	NC	30		
5469143	Acid Extractable Nickel (Ni)	2018/04/04	NC	75 - 125	101	80 - 120	<0.50	ug/g	2.4	30		
5469143	Acid Extractable Selenium (Se)	2018/04/04	96	75 - 125	102	80 - 120	<0.50	ug/g	NC	30		
5469143	Acid Extractable Silver (Ag)	2018/04/04	98	75 - 125	103	80 - 120	<0.20	ug/g	NC	30		
5469143	Acid Extractable Thallium (Tl)	2018/04/04	101	75 - 125	103	80 - 120	<0.050	ug/g	6.0	30		
5469143	Acid Extractable Uranium (U)	2018/04/04	100	75 - 125	101	80 - 120	<0.050	ug/g	0.15	30		
5469143	Acid Extractable Vanadium (V)	2018/04/04	NC	75 - 125	100	80 - 120	<5.0	ug/g	2.4	30		
5469143	Acid Extractable Zinc (Zn)	2018/04/04	NC	75 - 125	103	80 - 120	<5.0	ug/g	2.8	30		
5469204	Leachable Mercury (Hg)	2018/04/05	106	75 - 125	98	80 - 120	<0.0010	mg/L	NC	25	<0.0010	mg/L
5469269	Leachable Total PCB	2018/04/04	99	30 - 130	100	30 - 130	<3.0	ug/L	NC	40		
5469288	Available (CaCl2) pH	2018/04/05			100	97 - 103			0.29	N/A		
5469396	Conductivity	2018/04/05			99	90 - 110	<0.002	mS/cm	1.9	10		
5469453	Leachable Arsenic (As)	2018/04/04	98	80 - 120	99	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L
5469453	Leachable Barium (Ba)	2018/04/04	NC	80 - 120	95	80 - 120	<0.2	mg/L	0.91	35	<0.2	mg/L
5469453	Leachable Boron (B)	2018/04/04	104	80 - 120	92	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
5469453	Leachable Cadmium (Cd)	2018/04/04	101	80 - 120	93	80 - 120	<0.05	mg/L	NC	35	<0.05	mg/L
5469453	Leachable Chromium (Cr)	2018/04/04	99	80 - 120	97	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
5469453	Leachable Lead (Pb)	2018/04/04	96	80 - 120	93	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
5469453	Leachable Selenium (Se)	2018/04/04	97	80 - 120	96	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L
5469453	Leachable Silver (Ag)	2018/04/04	94	80 - 120	95	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L
5469453	Leachable Uranium (U)	2018/04/04	96	80 - 120	92	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L
5469511	1-Methylnaphthalene	2018/04/04	107	50 - 130	105	50 - 130	<0.0050	ug/g	NC	40		
5469511	2-Methylnaphthalene	2018/04/04	91	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
5469511	Acenaphthene	2018/04/04	89	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40		
5469511	Acenaphthylene	2018/04/04	90	50 - 130	88	50 - 130	<0.0050	ug/g	4.6	40		
5469511	Anthracene	2018/04/04	88	50 - 130	87	50 - 130	<0.0050	ug/g	4.1	40		
5469511	Benzo(a)anthracene	2018/04/04	92	50 - 130	89	50 - 130	<0.0050	ug/g	12	40		
5469511	Benzo(a)pyrene	2018/04/04	86	50 - 130	86	50 - 130	<0.0050	ug/g	8.8	40		
5469511	Benzo(b/j)fluoranthene	2018/04/04	87	50 - 130	90	50 - 130	<0.0050	ug/g	9.2	40		
5469511	Benzo(g,h,i)perylene	2018/04/04	74	50 - 130	79	50 - 130	<0.0050	ug/g	15	40		
5469511	Benzo(k)fluoranthene	2018/04/04	72	50 - 130	84	50 - 130	<0.0050	ug/g	3.2	40		
5469511	Chrysene	2018/04/04	83	50 - 130	87	50 - 130	<0.0050	ug/g	5.4	40		
5469511	Dibenz(a,h)anthracene	2018/04/04	79	50 - 130	80	50 - 130	<0.0050	ug/g	9.5	40		
5469511	Fluoranthene	2018/04/04	91	50 - 130	90	50 - 130	<0.0050	ug/g	14	40		
5469511	Fluorene	2018/04/04	94	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40		
5469511	Indeno(1,2,3-cd)pyrene	2018/04/04	79	50 - 130	85	50 - 130	<0.0050	ug/g	10	40		
5469511	Naphthalene	2018/04/04	86	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40		
5469511	Phenanthrene	2018/04/04	87	50 - 130	86	50 - 130	<0.0050	ug/g	15	40		
5469511	Pyrene	2018/04/04	94	50 - 130	96	50 - 130	<0.0050	ug/g	16	40		
5469666	Conductivity	2018/04/05			99	90 - 110	<0.002	mS/cm	2.7	10		
5469738	Leachable Fluoride (F-)	2018/04/05	96	80 - 120	105	80 - 120	<0.10	mg/L	3.8	25	<0.10	mg/L
5469739	Leachable Nitrate (N)	2018/04/05	100	80 - 120	103	80 - 120	<1.0	mg/L	NC	25	<1.0	mg/L
5469739	Leachable Nitrate + Nitrite (N)	2018/04/05	99	80 - 120	103	80 - 120	<1.0	mg/L	NC	25	<1.0	mg/L
5469739	Leachable Nitrite (N)	2018/04/05	99	80 - 120	102	80 - 120	<0.10	mg/L	NC	25	<0.10	mg/L
5469740	Leachable WAD Cyanide (Free)	2018/04/05	98	80 - 120	104	80 - 120	<0.0020	mg/L	NC	20	<0.010	mg/L
5470056	F2 (C10-C16 Hydrocarbons)	2018/04/05	106	50 - 130	102	80 - 120	<10	ug/g	NC	30		
5470056	F3 (C16-C34 Hydrocarbons)	2018/04/05	111	50 - 130	105	80 - 120	<50	ug/g	NC	30		
5470056	F4 (C34-C50 Hydrocarbons)	2018/04/05	109	50 - 130	105	80 - 120	<50	ug/g	NC	30		
5470066	1-Methylnaphthalene	2018/04/04	106	50 - 130	107	50 - 130	<0.0050	ug/g	NC	40		
5470066	2-Methylnaphthalene	2018/04/04	92	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40		
5470066	Acenaphthene	2018/04/04	94	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40		
5470066	Acenaphthylene	2018/04/04	90	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40		
5470066	Anthracene	2018/04/04	91	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40		
5470066	Benzo(a)anthracene	2018/04/04	100	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
5470066	Benzo(a)pyrene	2018/04/04	88	50 - 130	92	50 - 130	<0.0050	ug/g	NC	40		
5470066	Benzo(b/j)fluoranthene	2018/04/04	74	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40		
5470066	Benzo(g,h,i)perylene	2018/04/04	70	50 - 130	81	50 - 130	<0.0050	ug/g	NC	40		
5470066	Benzo(k)fluoranthene	2018/04/04	72	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40		
5470066	Chrysene	2018/04/04	98	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40		
5470066	Dibenz(a,h)anthracene	2018/04/04	77	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40		
5470066	Fluoranthene	2018/04/04	98	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40		
5470066	Fluorene	2018/04/04	94	50 - 130	92	50 - 130	<0.0050	ug/g	NC	40		
5470066	Indeno(1,2,3-cd)pyrene	2018/04/04	73	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40		
5470066	Naphthalene	2018/04/04	88	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40		
5470066	Phenanthrene	2018/04/04	95	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40		
5470066	Pyrene	2018/04/04	98	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40		
5470671	Acid Extractable Antimony (Sb)	2018/04/05	99	75 - 125	106	80 - 120	<0.20	ug/g	NC	30		
5470671	Acid Extractable Arsenic (As)	2018/04/05	102	75 - 125	104	80 - 120	<1.0	ug/g	6.1	30		
5470671	Acid Extractable Barium (Ba)	2018/04/05	NC	75 - 125	98	80 - 120	<0.50	ug/g	0.94	30		
5470671	Acid Extractable Beryllium (Be)	2018/04/05	100	75 - 125	97	80 - 120	<0.20	ug/g	1.6	30		
5470671	Acid Extractable Boron (B)	2018/04/05	95	75 - 125	94	80 - 120	<5.0	ug/g	NC	30		
5470671	Acid Extractable Cadmium (Cd)	2018/04/05	100	75 - 125	99	80 - 120	<0.10	ug/g	NC	30		
5470671	Acid Extractable Chromium (Cr)	2018/04/05	104	75 - 125	100	80 - 120	<1.0	ug/g	1.4	30		
5470671	Acid Extractable Cobalt (Co)	2018/04/05	96	75 - 125	99	80 - 120	<0.10	ug/g	5.2	30		
5470671	Acid Extractable Copper (Cu)	2018/04/05	100	75 - 125	100	80 - 120	<0.50	ug/g	2.8	30		
5470671	Acid Extractable Lead (Pb)	2018/04/05	105	75 - 125	102	80 - 120	<1.0	ug/g	2.0	30		
5470671	Acid Extractable Mercury (Hg)	2018/04/05	96	75 - 125	103	80 - 120	<0.050	ug/g	NC	30		
5470671	Acid Extractable Molybdenum (Mo)	2018/04/05	103	75 - 125	101	80 - 120	<0.50	ug/g	NC	30		
5470671	Acid Extractable Nickel (Ni)	2018/04/05	100	75 - 125	99	80 - 120	<0.50	ug/g	2.2	30		
5470671	Acid Extractable Selenium (Se)	2018/04/05	100	75 - 125	100	80 - 120	<0.50	ug/g	NC	30		
5470671	Acid Extractable Silver (Ag)	2018/04/05	98	75 - 125	99	80 - 120	<0.20	ug/g	NC	30		
5470671	Acid Extractable Thallium (Tl)	2018/04/05	101	75 - 125	102	80 - 120	<0.050	ug/g	2.5	30		
5470671	Acid Extractable Uranium (U)	2018/04/05	101	75 - 125	100	80 - 120	<0.050	ug/g	2.1	30		
5470671	Acid Extractable Vanadium (V)	2018/04/05	103	75 - 125	99	80 - 120	<5.0	ug/g	0.22	30		
5470671	Acid Extractable Zinc (Zn)	2018/04/05	NC	75 - 125	98	80 - 120	<5.0	ug/g	2.8	30		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
5471581	Hot Water Ext. Boron (B)	2018/04/06	87	75 - 125	99	75 - 125	<0.050	ug/g	14	40		
5472626	F4G-sg (Grav. Heavy Hydrocarbons)	2018/04/06	NC	65 - 135	100	65 - 135	<100	ug/g	1.3	50		

N/A = Not Applicable

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

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(2) The recovery in the matrix spike was not calculated (NC) due to background interference.

(3) The recovery was above the upper control limit. This may represent a high bias in some results for this specific analyte. For results that were not detected (ND), this potential bias has no impact.

(4) The matrix spike recovery was below the lower control limit. This may be due in part to the reducing environment of the sample. The sample was reanalyzed with the same results.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B872322
Report Date: 2018/04/06

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Service Specialist

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

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CHAIN OF CUSTODY RECORD

Page 1 of 3

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#1326 Golder Associates Ltd	Company Name:		Quotation #:	B80683	Maxxam Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Erti Mansaku	P.O. #:			655578
Address:	6925 Century Ave Suite 100	Address:		Project:	1784521	COC #:	Project Manager:
	Mississauga ON L5N 7K2			Project Name:		C#655578-01-01	Ema Gitej
Tel:	(905) 567-4444 x Fax: (905) 567-6561 x	Tel:	Fax:	Site #:			
Email:	AP_CustomerService@golder.com	Email:	Erti_Mansaku@golder.com	Sampled By:	T. Pave P. Hering		

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

Regulation 153 (2011)
☐ Table 1 ☐ Res/Park ☐ Medium/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ For RSC
☐ Table ___

Other Regulations
☐ CCME ☐ Sanitary Sewer Bylaw
☐ Reg 558 ☐ Storm Sewer Bylaw
☐ MISA Municipality ___
☐ PWQO
☐ Other ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: X
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	O.Reg 153 Petroleum Hydrocarbons, BTEX/F1-F4	O.Reg 153 Metals & Inorganics Pkg	O.Reg 153 PAHs	O.Reg 153 OC Pesticides	O.Reg 153 VOCs by HS	O.Reg 558 TCLP Inorganics Package	O.Reg 558 TCLP Benzene HS	O.Reg 558 TCLP PCBs	Petroleum Hydrocarbons F2-F4	# of Bottles	Comments
1		BH18-13	23/03/18	09:59	SOIL		X	X	X	X	X				X	5	
2		BH18-14	↓	13:30	SOIL		X	X	X	X	X				X	5	
3		BH18-19	26/03/18	09:30	SOIL			X	X	X	X					3	
4		BH18-12	|	11:05	SOIL		X	X	X	X	X				X	5	
5		BH18-20	↓	14:30	SOIL		X	X	X	X	X				X	5	
6		BH18-04	27/03/18	09:44	SOIL		X	X	X	X	X				X	5	
7		BH18-01	|	11:15	SOIL			X	X	X	X					3	
8		BH18-03	|	13:00	SOIL			X	X	X	X					3	
9		BH18-02	|	13:50	SOIL			X	X	X	X					3	
10		BH18-07	↓	14:45	SOIL			X	X	X	X					3	

02-Apr-18 15:40
Ema Gitej
B872322
FCN ENV-1334

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only				
Phil Hering	18/03/28	17:00	Tanvir Bir Tanvir Bir	2018/04/02	15:40		Time Sensitive	Temperature (°C) on Rece: 4.1,3 1.2.1	Custody Seal Present	Yes ✓	No
									Intact		

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

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

White: Maxxa Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

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CHAIN OF CUSTODY RECORD

Page 2 of 3

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#1326 Golder Associates Ltd	Company Name:		Quotation #:	B80683	Maxxam Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Erti Mansaku	P.O. #:			655578
Address:	6925 Century Ave Suite 100	Address:		Project:	1784521	COC #:	Project Manager:
	Mississauga ON L5N 7K2			Project Name:		C#655578-02-01	Ema Gitej
Tel:	(905) 567-4444 x Fax: (905) 567-6561 x	Tel:	Fax:	Site #:			
Email:	AP_CustomerService@golder.com	Email:	Erti_Mansaku@golder.com	Sampled By:	T. Pace P. Hering		

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

Regulation 153 (2011): ☐ Table 1 ☐ Res/Park ☐ Medium/Fine; ☐ Table 2 ☐ Ind/Comm ☐ Coarse; ☐ Table 3 ☐ Agri/Other ☐ For RSC; ☐ Table ___

Other Regulations: ☐ CCME ☐ Sanitary Sewer Bylaw; ☐ Reg 558 ☐ Storm Sewer Bylaw; ☐ MISA Municipality ___; ☐ PWQO; ☐ Other ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified).
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	ANALYSIS REQUESTED (PLEASE BE SPECIFIC): O.Reg 153 Petroleum Hydrocarbons BTEX/F1-F4	O.Reg 153 Metals & Inorganics Pkg	O.Reg 153 PAHs	O.Reg 153 OC Pesticides	O.Reg 153 VOCs by HS	O.Reg 558 TCLP Inorganics Package	O.Reg 558 TCLP Benzene HS	O.Reg 558 TCLP PCBs	# of Bottles	Comments
1		BH18-05	27/03/18	15:45	SOIL			X	X	X	X				3	
2		BH18-06	↓	16:15	SOIL			X	X	X	X				3	
3		BH18-10	28/03/18	09:11	SOIL			X	X	X	X				3	
4		BH18-09		10:00	SOIL			X	X	X	X				3	
5		BH18-08		10:40	SOIL			X	X	X	X				3	
6		BH18-11		12:20	SOIL			X	X	X	X				3	
7		BH18-15		14:00	SOIL			X	X	X	X				3	
8		BH18-18		14:15	SOIL			X	X	X	X				3	
9		BH18-16		14:30	SOIL			X	X	X	X				3	
10		BH18-17		15:15	SOIL			X	X	X	X				3	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Recei	Custody Seal Present	Yes	No
Phil Hering	18/03/28	17:00	See Page 1						Intact		

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

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

White: Maxxa Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam
A Bureau Veritas Group Company

Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel (905) 817-5700 Toll-free 800-563-6266 Fax (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 3 of 3

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#1326 Golder Associates Ltd	Company Name:		Quotation #:	B80683	Maxxam Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Erti Mansaku	P.O. #			655578
Address:	6925 Century Ave Suite 100	Address:		Project:	1784521	COC #:	Project Manager:
	Mississauga ON L5N 7K2			Project Name:		C#655578-03-01	Ema Gitej
Tel:	(905) 567-4444 x Fax: (905) 567-6561 x	Tel:	Fax:	Site #:			
Email:	AP_CustomerService@golder.com	Email:	Erti_Mansaku@golder.com	Sampled By:	P. Hering T. Pace		

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

Regulation 153 (2011)	Other Regulations	Special Instructions
☐ Table 1 ☐ Res/Park ☐ Medium/Fine	☐ CCME ☐ Sanitary Sewer Bylaw	
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ Reg 558 ☐ Storm Sewer Bylaw	
☐ Table 3 ☐ Agri/Other ☐ For RSC	☐ MISA Municipality ____	
☐ Table ____	☐ PWQO	
	☐ Other ____	

Include Criteria on Certificate of Analysis (Y/N)? ____

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	O.Reg 153 Petroleum Hydrocarbons: BTEX/F1-F4	O.Reg 153 Metals & Inorganics Pkg	O.Reg 153 PAHs	O.Reg 153 OC Pesticides	O.Reg 153 VOCs by HS	O.Reg 558 TCLP Inorganics Package	O.Reg 558 TCLP Benzene HS	O.Reg 558 TCLP PCBs	Petroleum hydrocarbons F2-F4		# of Bottles	Comments
1		BH18-912	26/03/18	11:05	SOIL		X	X	X	X	X				X		5	
2		BH18-910	28/03/18	09:11	SOIL			X	X	X	X						3	
3		TCRP	28/03/18	15:30	SOIL			X	X	X	-	X	X	X			2	
4					SOIL													
5					SOIL													
6					SOIL													
7					SOIL													
8					SOIL													
9					SOIL													
10																		

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ____ Time Required: ____ ☐
Rush Confirmation Number: ____ *(call lab for #)*

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
Phil Hering	18/03/28	17:00	Sel Pingol						Present		
									Intact		

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

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** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

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

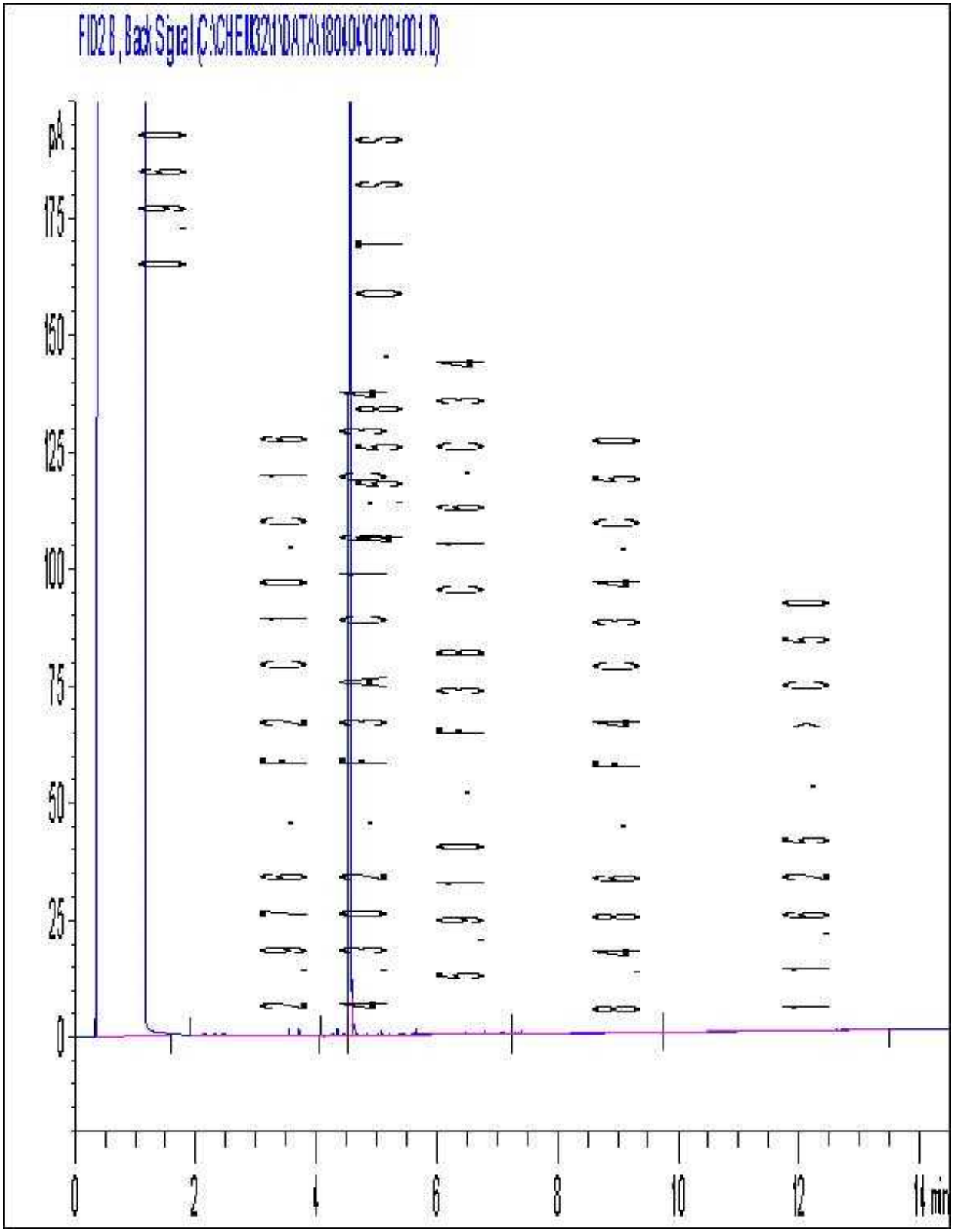
White: Maxxa Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam Job #: B872322
Report Date: 2018/04/06
Maxxam Sample: GJG937

Golder Associates Ltd
Client Project #: 1784521
Client ID: BH18-13

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

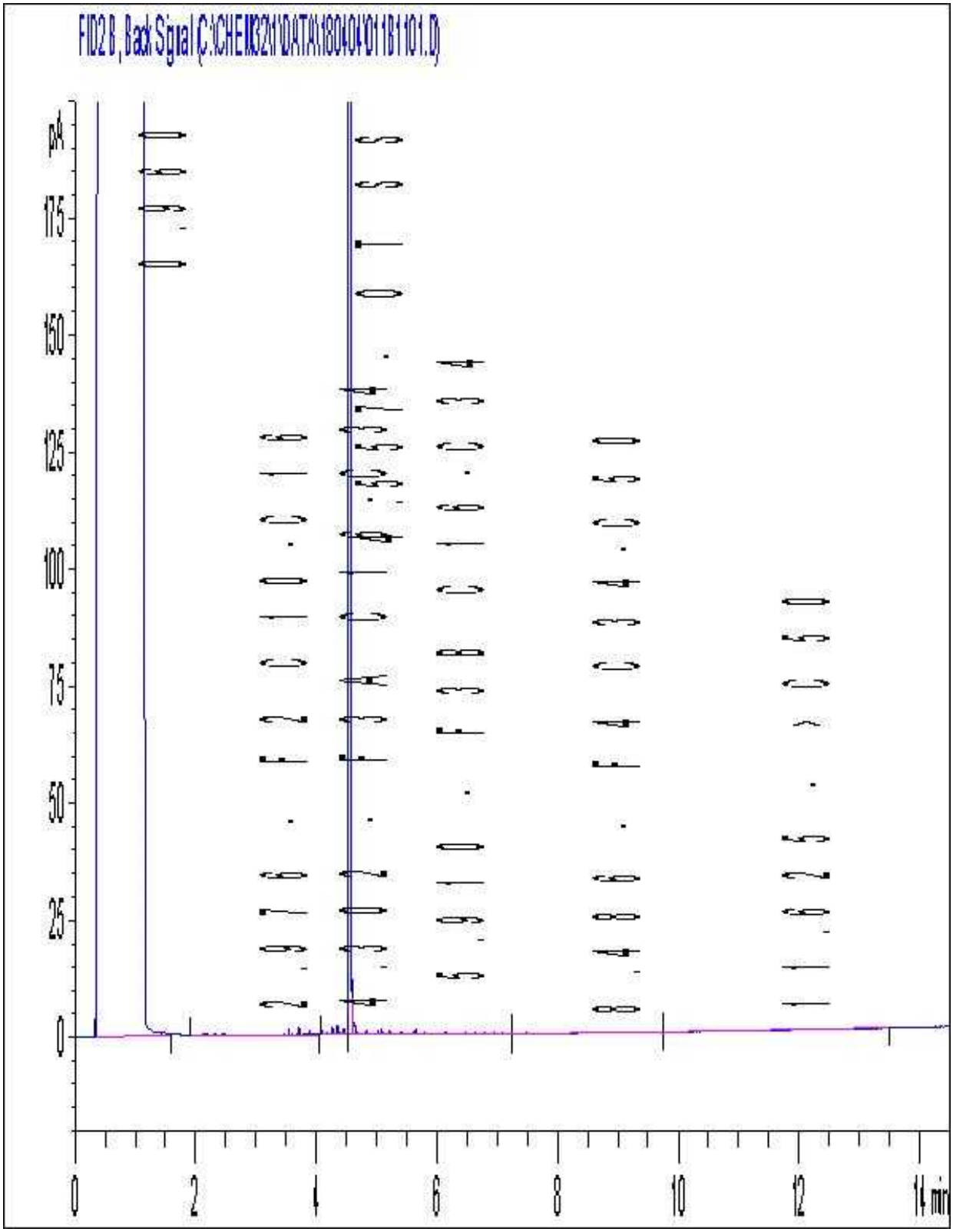


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B872322
Report Date: 2018/04/06
Maxxam Sample: GJG938

Golder Associates Ltd
Client Project #: 1784521
Client ID: BH18-14

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

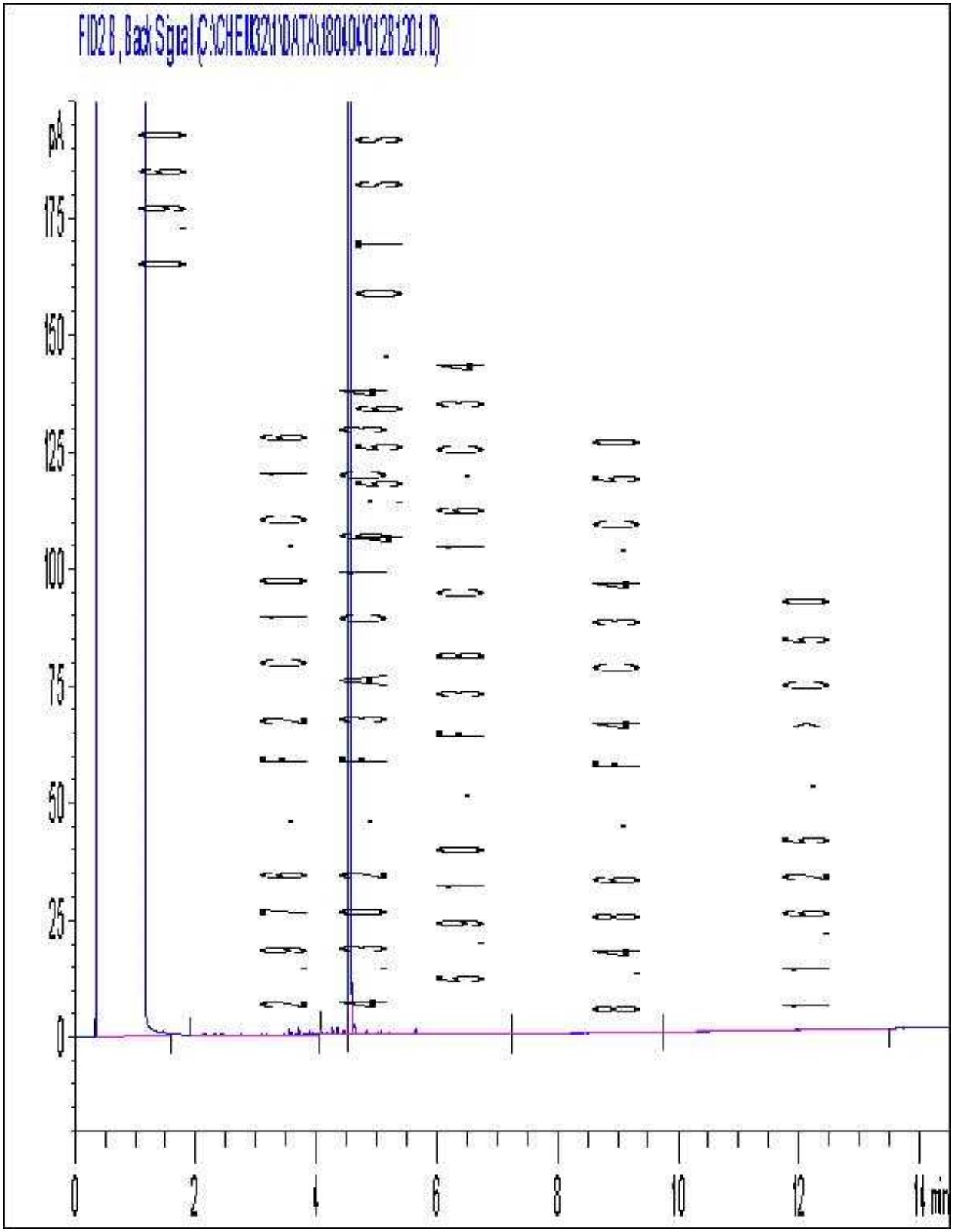


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B872322
Report Date: 2018/04/06
Maxxam Sample: GJG938 Lab-Dup

Golder Associates Ltd
Client Project #: 1784521
Client ID: BH18-14

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

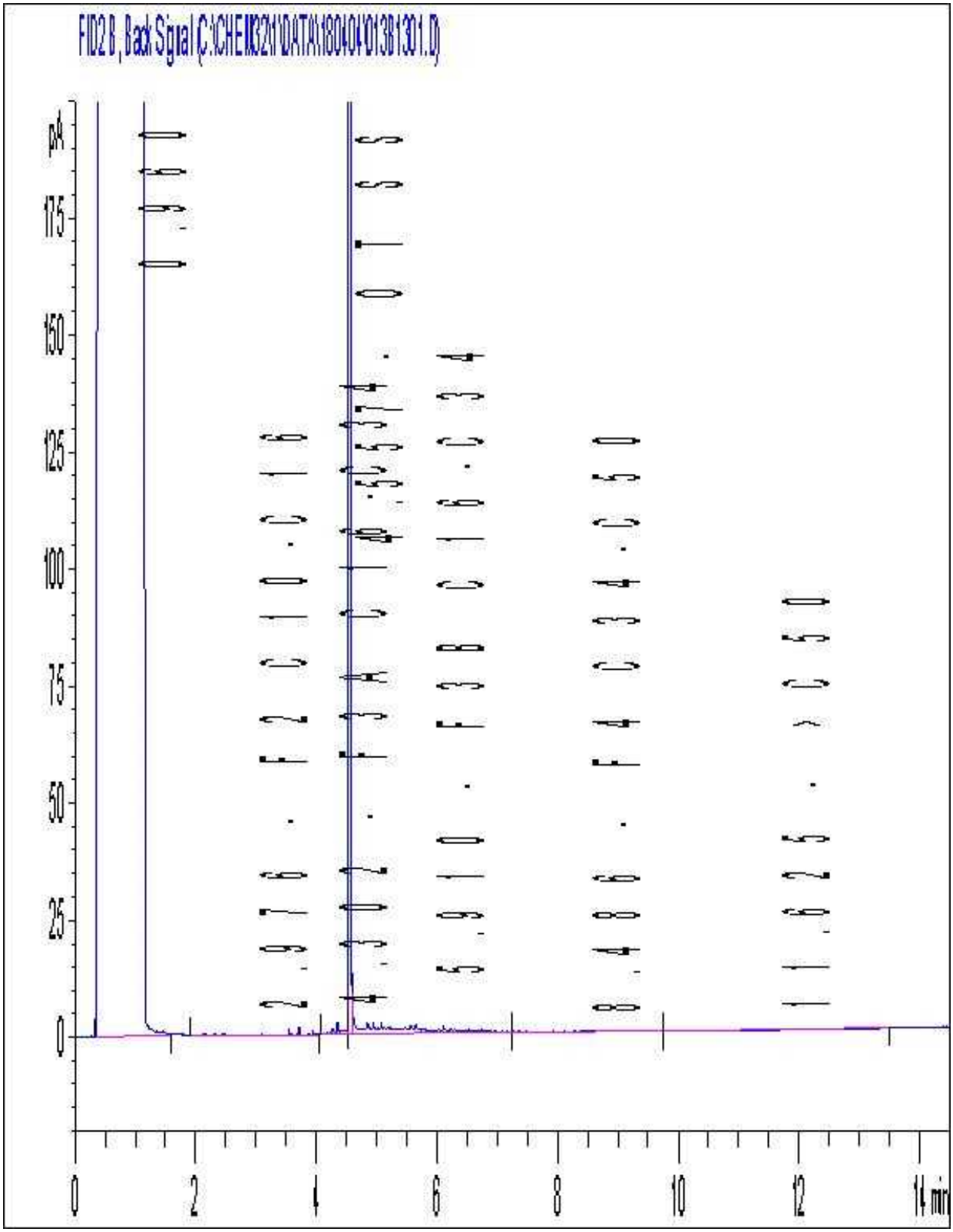


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B872322
Report Date: 2018/04/06
Maxxam Sample: GJG940

Golder Associates Ltd
Client Project #: 1784521
Client ID: BH18-12

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

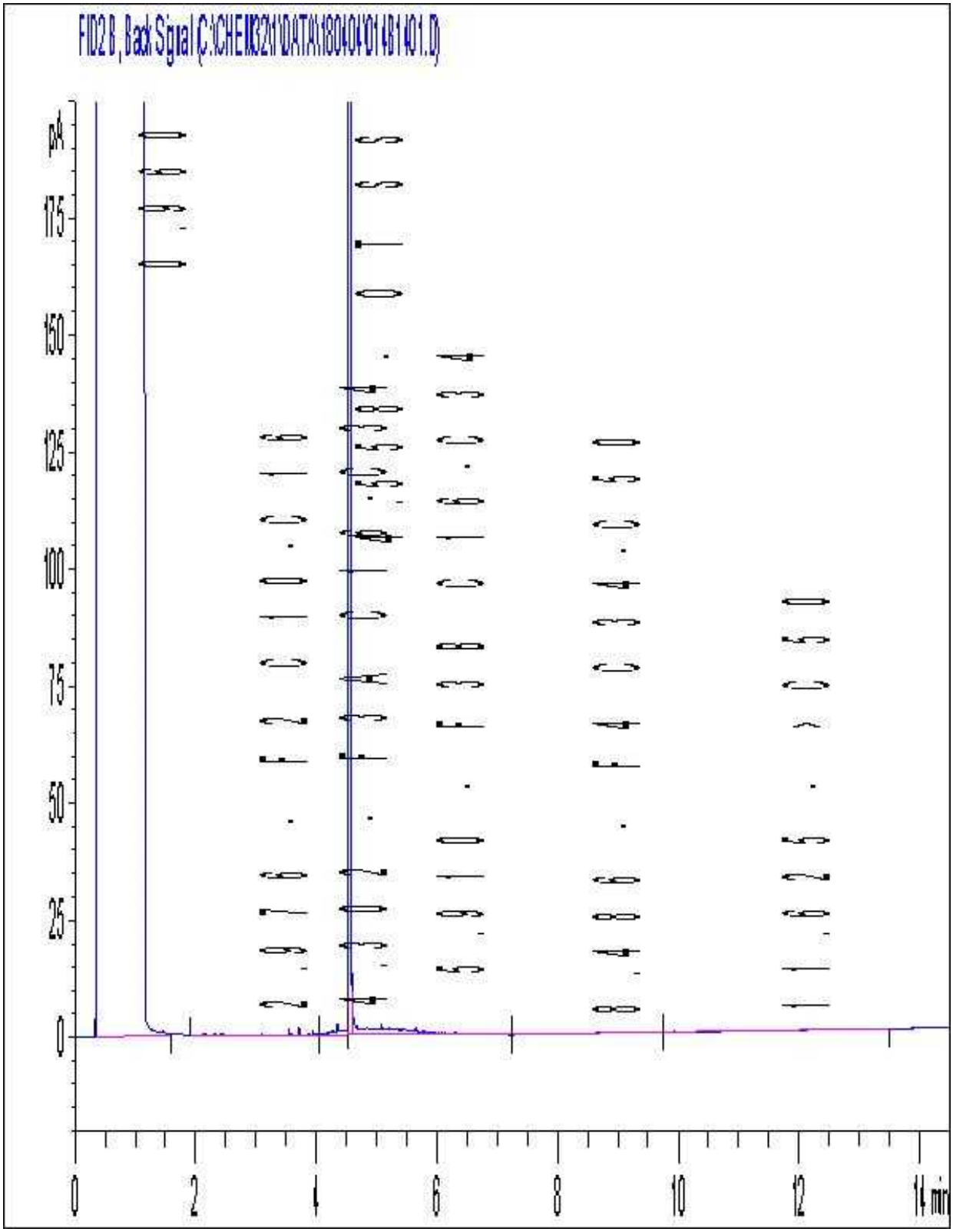


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B872322
Report Date: 2018/04/06
Maxxam Sample: GJG941

Golder Associates Ltd
Client Project #: 1784521
Client ID: BH18-20

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

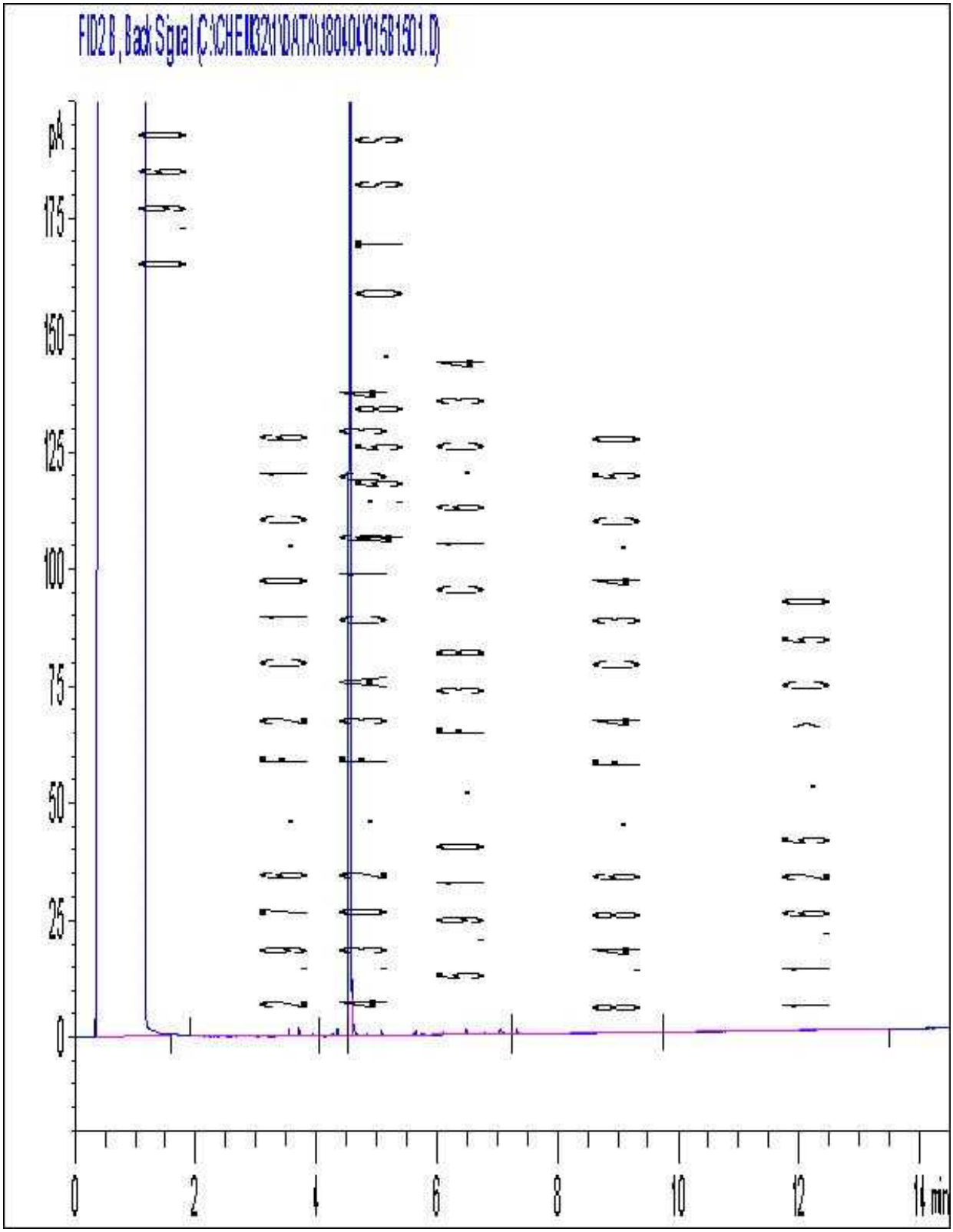


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B872322
Report Date: 2018/04/06
Maxxam Sample: GJG942

Golder Associates Ltd
Client Project #: 1784521
Client ID: BH18-04

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

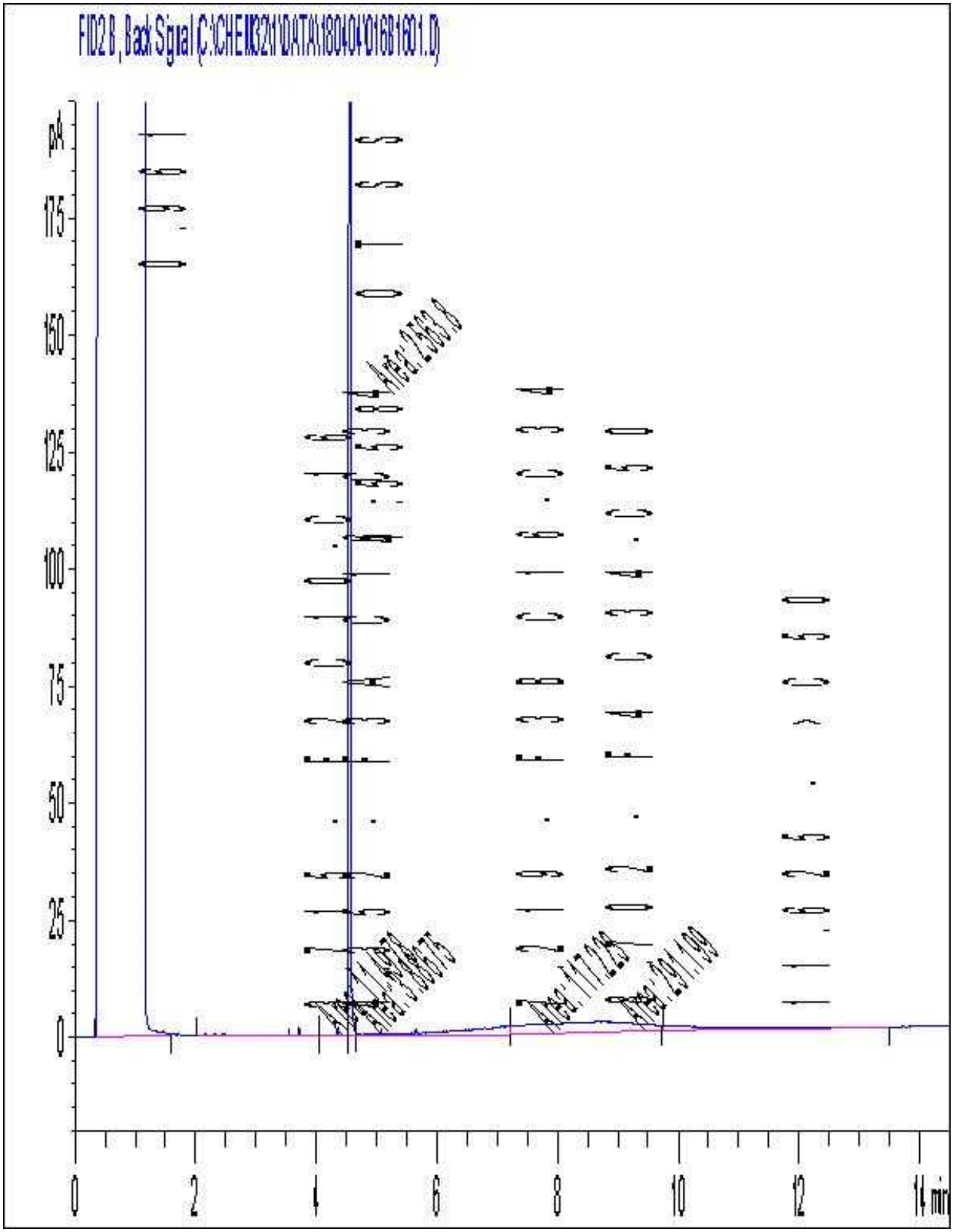


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B872322
Report Date: 2018/04/06
Maxxam Sample: GJG957

Golder Associates Ltd
Client Project #: 1784521
Client ID: BH18-912

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

Confirmation of Sample Receipt

Maxxam Job Number: B884378
Job Received: 2018/04/13 15:10
Final Report Due: 2018/04/19 18:00

Invoice Information

Attn: Accounts Payable
Golder Associates Ltd
6925 Century Ave
Suite 100
Mississauga, ON, L5N 7K2
Email to:
ap_customerservice@golder.com

Report Information

Attn: Erti Mansaku
Golder Associates Ltd
6925 Century Ave
Suite 100
Mississauga, ON, L5N 7K2
Email to:
erti_mansaku@golder.com

Project Information

Quote #: B80683
PO/AFE#:
Project #: 1784521
Site Location:
Sampled By: PH

Analytical Summary

A: Due On 2018/04/19 18:00

Lab ID	Client Sample ID	Sampling Date/Time	Matrix	O.Reg 153 Metals & Inorganics Pkg (Wtr)	O.Reg 153 PAHs (Water)	O.Reg 153 VOCs by HS & F1-F4 (Water)	O.Reg 153 VOCs by HS (Water)	Set Number
COC# 655632-01-01								
GLO186	MW18-14	2018/04/12 10:30	GW	A	A	A		1
GLO187	MW18-13	2018/04/12 11:45	GW	A	A	A		1
GLO188	MW18-12	2018/04/12 13:20	GW	A	A	A		1
GLO189	MW918-13	2018/04/12 11:45	GW	A	A	A		1
GLO190	TRIP BLANK	2018/04/12 15:00	GW				A	2
GLO191	TRIP SPIKE	2018/04/12 15:05	GW				A	3

Include Criteria on CofA: No

Sample Inspection Observations & Comments

# of Samples Received: 6

Details: Sample(s) received in good condition.

Average Temperature: Package 1: 3.0 °C

Additional Notes

- Unless special storage arrangements are made, all samples will be disposed 30 days after receipt. Additional fees may be applied for extended storage.
- Additional fees may be applied for the disposal of hazardous samples.

The contents of this report are subject to change. For up to date information, please refer to the Customer Portal.

Maxxam PM: Ema Gitej (EGitej@maxxam.ca or 905-817-5829)

Confirmation of Sample Receipt

Maxxam Job Number: B884378
Job Received: 2018/04/13 15:10
Final Report Due: 2018/04/19 18:00

Sample Set Listing

Set 1 (4 Samples)	Set 2 (1 Sample)	Set 3 (1 Sample)
MW18-14 MW18-13 MW18-12 MW918-13	TRIP BLANK	TRIP SPIKE

Parameter Summary

Package/Test	Parameter	RDL	Unit	Set 1	Set 2	Set 3
O.Reg 153 Metals & Inorganics Pkg (Wtr)	Dissolved Chloride (Cl)	1	mg/L	X		
	Chromium (VI)	0.5	ug/L	X		
	Dissolved Antimony (Sb)	0.5	ug/L	X		
	Dissolved Arsenic (As)	1	ug/L	X		
	Dissolved Barium (Ba)	2	ug/L	X		
	Dissolved Beryllium (Be)	0.5	ug/L	X		
	Dissolved Boron (B)	10	ug/L	X		
	Dissolved Cadmium (Cd)	0.1	ug/L	X		
	Dissolved Chromium (Cr)	5	ug/L	X		
	Dissolved Cobalt (Co)	0.5	ug/L	X		
	Dissolved Copper (Cu)	1	ug/L	X		
	Dissolved Lead (Pb)	0.5	ug/L	X		
	Dissolved Molybdenum (Mo)	0.5	ug/L	X		
	Dissolved Nickel (Ni)	1	ug/L	X		
	Dissolved Selenium (Se)	2	ug/L	X		
	Dissolved Silver (Ag)	0.1	ug/L	X		
	Dissolved Sodium (Na)	100	ug/L	X		
	Dissolved Thallium (Tl)	0.05	ug/L	X		
	Dissolved Uranium (U)	0.1	ug/L	X		
	Dissolved Vanadium (V)	0.5	ug/L	X		
	Dissolved Zinc (Zn)	5	ug/L	X		
	WAD Cyanide (Free)	1	ug/L	X		
	Mercury (Hg)	0.1	ug/L	X		
O.Reg 153 PAHs (Water)	Methylnaphthalene, 2-(1-)	0.071	ug/L	X		
	Acenaphthene	0.05	ug/L	X		
	Acenaphthylene	0.05	ug/L	X		
	Anthracene	0.05	ug/L	X		
	Benzo(a)anthracene	0.05	ug/L	X		
	Benzo(a)pyrene	0.01	ug/L	X		
	Benzo(b/j)fluoranthene	0.05	ug/L	X		
	Benzo(g,h,i)perylene	0.05	ug/L	X		
	Benzo(k)fluoranthene	0.05	ug/L	X		
	Chrysene	0.05	ug/L	X		

Maxxam PM: Ema Gitej (EGitej@maxxam.ca or 905-817-5829)

Confirmation of Sample Receipt

Parameter Summary

Package/Test	Parameter	RDL	Unit	Set 1	Set 2	Set 3
O.Reg 153 PAHs (Water)	Dibenz(a,h)anthracene	0.05	ug/L	X		
	Fluoranthene	0.05	ug/L	X		
	Fluorene	0.05	ug/L	X		
	Indeno(1,2,3-cd)pyrene	0.05	ug/L	X		
	1-Methylnaphthalene	0.05	ug/L	X		
	2-Methylnaphthalene	0.05	ug/L	X		
	Naphthalene	0.05	ug/L	X		
	Phenanthrene	0.03	ug/L	X		
	Pyrene	0.05	ug/L	X		
O.Reg 153 VOCs by HS & F1-F4 (Water)	1,3-Dichloropropene (cis+trans)	0.28	ug/L	X		
	F2 (C10-C16 Hydrocarbons)	100	ug/L	X		
	F3 (C16-C34 Hydrocarbons)	200	ug/L	X		
	F4 (C34-C50 Hydrocarbons)	200	ug/L	X		
	Reached Baseline at C50	N/A	ug/L	X		
	Acetone (2-Propanone)	10	ug/L	X		
	Benzene	0.2	ug/L	X		
	Bromodichloromethane	0.5	ug/L	X		
	Bromoform	1	ug/L	X		
	Bromomethane	0.5	ug/L	X		
	Carbon Tetrachloride	0.2	ug/L	X		
	Chlorobenzene	0.2	ug/L	X		
	Chloroform	0.2	ug/L	X		
	Dibromochloromethane	0.5	ug/L	X		
	1,2-Dichlorobenzene	0.5	ug/L	X		
	1,3-Dichlorobenzene	0.5	ug/L	X		
	1,4-Dichlorobenzene	0.5	ug/L	X		
	Dichlorodifluoromethane (FREON 12)	1	ug/L	X		
	1,1-Dichloroethane	0.2	ug/L	X		
	1,2-Dichloroethane	0.5	ug/L	X		
	1,1-Dichloroethylene	0.2	ug/L	X		
	cis-1,2-Dichloroethylene	0.5	ug/L	X		
	trans-1,2-Dichloroethylene	0.5	ug/L	X		
	1,2-Dichloropropane	0.2	ug/L	X		
	cis-1,3-Dichloropropene	0.3	ug/L	X		
	trans-1,3-Dichloropropene	0.4	ug/L	X		
	Ethylbenzene	0.2	ug/L	X		
	Ethylene Dibromide	0.2	ug/L	X		
	Hexane	1	ug/L	X		
	Methylene Chloride(Dichloromethane)	2	ug/L	X		

Maxxam PM: Ema Gitej (EGitej@maxxam.ca or 905-817-5829)

Parameter Summary

Package/Test	Parameter	RDL	Unit	Set 1	Set 2	Set 3
O.Reg 153 VOCs by HS & F1-F4 (Water)	Methyl Ethyl Ketone (2-Butanone)	10	ug/L	X		
	Methyl Isobutyl Ketone	5	ug/L	X		
	Methyl t-butyl ether (MTBE)	0.5	ug/L	X		
	Styrene	0.5	ug/L	X		
	1,1,1,2-Tetrachloroethane	0.5	ug/L	X		
	1,1,2,2-Tetrachloroethane	0.5	ug/L	X		
	Tetrachloroethylene	0.2	ug/L	X		
	Toluene	0.2	ug/L	X		
	1,1,1-Trichloroethane	0.2	ug/L	X		
	1,1,2-Trichloroethane	0.5	ug/L	X		
	Trichloroethylene	0.2	ug/L	X		
	Trichlorofluoromethane (FREON 11)	0.5	ug/L	X		
	Vinyl Chloride	0.2	ug/L	X		
	p+m-Xylene	0.2	ug/L	X		
	o-Xylene	0.2	ug/L	X		
	Total Xylenes	0.2	ug/L	X		
	F1 (C6-C10)	25	ug/L	X		
	F1 (C6-C10) - BTEX	25	ug/L	X		
O.Reg 153 VOCs by HS (Water)	1,3-Dichloropropene (cis+trans)	0.28	ug/L		X	
	Acetone (2-Propanone)	10	ug/L		X	X
	Benzene	0.2	ug/L		X	X
	Bromodichloromethane	0.5	ug/L		X	X
	Bromoform	1	ug/L		X	X
	Bromomethane	0.5	ug/L		X	X
	Carbon Tetrachloride	0.2	ug/L		X	X
	Chlorobenzene	0.2	ug/L		X	X
	Chloroform	0.2	ug/L		X	X
	Dibromochloromethane	0.5	ug/L		X	X
	1,2-Dichlorobenzene	0.5	ug/L		X	X
	1,3-Dichlorobenzene	0.5	ug/L		X	X
	1,4-Dichlorobenzene	0.5	ug/L		X	X
	Dichlorodifluoromethane (FREON 12)	1	ug/L		X	X
	1,1-Dichloroethane	0.2	ug/L		X	X
	1,2-Dichloroethane	0.5	ug/L		X	X
	1,1-Dichloroethylene	0.2	ug/L		X	X
	cis-1,2-Dichloroethylene	0.5	ug/L		X	X
	trans-1,2-Dichloroethylene	0.5	ug/L		X	X
	1,2-Dichloropropane	0.2	ug/L		X	X
	cis-1,3-Dichloropropene	0.3	ug/L		X	X

Maxxam PM: Ema Gitej (EGitej@maxxam.ca or 905-817-5829)

Parameter Summary

Package/Test	Parameter	RDL	Unit	Set 1	Set 2	Set 3
	trans-1,3-Dichloropropene	0.4	ug/L		X	X
	Ethylbenzene	0.2	ug/L		X	X
	Ethylene Dibromide	0.2	ug/L		X	X
	Hexane	1	ug/L		X	X
	Methylene Chloride(Dichloromethane)	2	ug/L		X	X
	Methyl Ethyl Ketone (2-Butanone)	10	ug/L		X	X
	Methyl Isobutyl Ketone	5	ug/L		X	X
	Methyl t-butyl ether (MTBE)	0.5	ug/L		X	X
	Styrene	0.5	ug/L		X	X
	1,1,1,2-Tetrachloroethane	0.5	ug/L		X	X
O.Reg 153 VOCs by HS (Water)	1,1,2,2-Tetrachloroethane	0.5	ug/L		X	X
	Tetrachloroethylene	0.2	ug/L		X	X
	Toluene	0.2	ug/L		X	X
	1,1,1-Trichloroethane	0.2	ug/L		X	X
	1,1,2-Trichloroethane	0.5	ug/L		X	X
	Trichloroethylene	0.2	ug/L		X	X
	Trichlorofluoromethane (FREON 11)	0.5	ug/L		X	X
	Vinyl Chloride	0.2	ug/L		X	X
	p+m-Xylene	0.2	ug/L		X	X
	o-Xylene	0.2	ug/L		X	X
	Total Xylenes	0.2	ug/L		X	X

**RDLs are subject to change based on interferences present at the time of analysis.*

Maxxam PM: Ema Gitej (EGitej@maxxam.ca or 905-817-5829)

13-Apr-18 15:10

Ema Gitej

B884378

GK1 ENV-1407

Presence of Visible Particulate/Sediment

Maxxam Analytics
CAM FCD-01013/5

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

			Bottle Types																														
			Inorganics					Organics												Hydrocarbons							Volatiles				Other				
	Sample ID	All	CrVI	CN	General	Hg	Metals (Diss.)	Organic 1 of 2	Organic 2 of 2	PCB 1 of 2	PCB 2 of 2	Pest/ Herb 1 of 2	Pest/ Herb 2 of 2	SVOC/ ABN 1 of 2	SVOC/ ABN 2 of 2	PAH 1 of 2	PAH 2 of 2	Dioxin /Furan	F1 Vial 1	F1 Vial 2	F1 Vial 3	F1 Vial 4	F2-F4 1 of 2	F2-F4 2 of 2	F4G	VOC Vial 1	VOC Vial 2	VOC Vial 3	VOC Vial 4					
1	MW18-14	TS																															
2	MW18-13	TS																															
3	MW18-12	TS																															
4	MW918-13	TS																															
5																																	
6																																	
7																																	
8																																	
9																																	
10																																	

Comments: Except DISM, MGHG. CRIV

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

Recorded By: (signature/print)

IMMEDIATE TEST

Maxxam
A Bureau Veritas Group Company

Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel (905) 817-5700 Toll-free 800-563-6266 Fax (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#1326 Golder Associates Ltd	Company Name:		Quotation #:	B80683	Maxxam Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Erti Mansaku	P.O. #:			655632
Address:	6925 Century Ave Suite 100 Mississauga ON L5N 7K2	Address:		Project:	1784521	COC #:	Project Manager:
Tel:	(905) 567-4444 x Fax: (905) 567-6561 x	Tel:	Fax:	Project Name:		C#655632-01-01	Ema Gitej
Email:	AP_CustomerService@golder.com	Email:	Erti_Mansaku@golder.com	Site #:			
				Sampled By:	PH		

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

Regulation 153 (2011)	Other Regulations	Special Instructions
☐ Table 1 ☐ Res/Park ☐ Medium/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ For RSC ☐ Table ___	☐ CCME ☐ Sanitary Sewer Bylaw ☐ Reg 558 ☐ Storm Sewer Bylaw ☐ MISA Municipality ___ ☐ PWQO ☐ Other ___	

Include Criteria on Certificate of Analysis (Y/N)? ___

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission) ☐
Date Required: ___ Time Required: ___
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals, Hg, Cr VI	O. Reg 153 VOCs by HS & F1-F4	O. Reg 153 PAHs	O. Reg 153 Metals & Inorganics Pkg	Volatile Organic Compounds and F1 PHCs	O. Reg 153 VOCs by HS					# of Bottles	Comments
1		MW18-14	12-Apr-18	10:30	GW	Y	X	X	X	X	X					10	
2		MW18-13		11:45	GW	Y	X	X	X	X	X					10	
3		MW18-12		13:20	GW	Y	X	X	X	X	X					10	
4		MW918-13		11:45	GW	Y	X	X	X	X	X					10	
5		Trip Blank		15:00	GW						X					2	
6		Trip Spike		15:05	GW						X					2	
7																	
8																	
9																	
10																	

13-Apr-18 15:10
Ema Gitej
B884378
GK1 ENV-1407

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
[illegible]	18/04/12	16:00		18/04/13	15:15	

Laboratory Use Only				
Time Sensitive	Temperature (°C) on Recei	Custody Seal Present	Yes	No
	8.1 5.2	Intact		

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

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

White: Maxxa Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

Confirmation of Sample Receipt

Maxxam Job Number: B886669
Job Received: 2018/04/17 16:00
Final Report Due: 2018/04/23 18:00

Invoice Information

Attn: Accounts Payable
Golder Associates Ltd
6925 Century Ave
Suite 100
Mississauga, ON, L5N 7K2
Email to:
ap_customerservice@golder.com

Report Information

Attn: Erti Mansaku
Golder Associates Ltd
6925 Century Ave
Suite 100
Mississauga, ON, L5N 7K2
Email to:
erti_mansaku@golder.com

Project Information

Quote #: B80683
PO/AFE#:
Project #: 1784521
Site Location:
Sampled By: PH

Analytical Summary

A: Due On 2018/04/23 18:00

Lab ID	Client Sample ID	Sampling Date/Time	Matrix	O.Reg 153 Metals & Inorganics Pkg (Wtr)	O.Reg 153 PAHs (Water)	O.Reg 153 VOCs by HS & F1-F4 (Water)
COC# 659490-01-01						
GMA678	MW18-04	2018/04/16 11:40	GW	A	A	A

Include Criteria on CofA: No

Sample Inspection Observations & Comments

# of Samples Received: 1

Details: Sample(s) received in good condition.

Average Temperature: Package 1: 1.0 °C

Additional Notes

- Unless special storage arrangements are made, all samples will be disposed 30 days after receipt. Additional fees may be applied for extended storage.
- Additional fees may be applied for the disposal of hazardous samples.

The contents of this report are subject to change. For up to date information, please refer to the Customer Portal.

Maxxam PM: Ema Gitej (EGitej@maxxam.ca or 905-817-5829)

Confirmation of Sample Receipt

Maxxam Job Number: B886669
Job Received: 2018/04/17 16:00
Final Report Due: 2018/04/23 18:00

Parameter Summary

Package/Test	Parameter	RDL *	Unit	Samples
O.Reg 153 Metals & Inorganics Pkg (Wtr)	Dissolved Chloride (Cl)	1	mg/L	All
	Chromium (VI)	0.5	ug/L	All
	Dissolved Antimony (Sb)	0.5	ug/L	All
	Dissolved Arsenic (As)	1	ug/L	All
	Dissolved Barium (Ba)	2	ug/L	All
	Dissolved Beryllium (Be)	0.5	ug/L	All
	Dissolved Boron (B)	10	ug/L	All
	Dissolved Cadmium (Cd)	0.1	ug/L	All
	Dissolved Chromium (Cr)	5	ug/L	All
	Dissolved Cobalt (Co)	0.5	ug/L	All
	Dissolved Copper (Cu)	1	ug/L	All
	Dissolved Lead (Pb)	0.5	ug/L	All
	Dissolved Molybdenum (Mo)	0.5	ug/L	All
	Dissolved Nickel (Ni)	1	ug/L	All
	Dissolved Selenium (Se)	2	ug/L	All
	Dissolved Silver (Ag)	0.1	ug/L	All
	Dissolved Sodium (Na)	100	ug/L	All
	Dissolved Thallium (Tl)	0.05	ug/L	All
	Dissolved Uranium (U)	0.1	ug/L	All
	Dissolved Vanadium (V)	0.5	ug/L	All
	Dissolved Zinc (Zn)	5	ug/L	All
	WAD Cyanide (Free)	1	ug/L	All
	Mercury (Hg)	0.1	ug/L	All
O.Reg 153 PAHs (Water)	Methylnaphthalene, 2-(1-)	0.071	ug/L	All
	Acenaphthene	0.05	ug/L	All
	Acenaphthylene	0.05	ug/L	All
	Anthracene	0.05	ug/L	All
	Benzo(a)anthracene	0.05	ug/L	All
	Benzo(a)pyrene	0.01	ug/L	All
	Benzo(b/j)fluoranthene	0.05	ug/L	All
	Benzo(g,h,i)perylene	0.05	ug/L	All
	Benzo(k)fluoranthene	0.05	ug/L	All
	Chrysene	0.05	ug/L	All
	Dibenz(a,h)anthracene	0.05	ug/L	All
	Fluoranthene	0.05	ug/L	All
	Fluorene	0.05	ug/L	All
	Indeno(1,2,3-cd)pyrene	0.05	ug/L	All
	1-Methylnaphthalene	0.05	ug/L	All
	2-Methylnaphthalene	0.05	ug/L	All
	Naphthalene	0.05	ug/L	All
	Phenanthrene	0.03	ug/L	All
	Pyrene	0.05	ug/L	All
O.Reg 153 VOCs by HS & F1-F4 (Water)	1,3-Dichloropropene (cis+trans)	0.28	ug/L	All

Maxxam PM: Ema Gitej (EGitej@maxxam.ca or 905-817-5829)

Confirmation of Sample Receipt

Parameter Summary

Package/Test	Parameter	RDL *	Unit	Samples
O.Reg 153 VOCs by HS & F1-F4 (Water)	F2 (C10-C16 Hydrocarbons)	100	ug/L	All
	F3 (C16-C34 Hydrocarbons)	200	ug/L	All
	F4 (C34-C50 Hydrocarbons)	200	ug/L	All
	Reached Baseline at C50	N/A	ug/L	All
	Acetone (2-Propanone)	10	ug/L	All
	Benzene	0.2	ug/L	All
	Bromodichloromethane	0.5	ug/L	All
	Bromoform	1	ug/L	All
	Bromomethane	0.5	ug/L	All
	Carbon Tetrachloride	0.2	ug/L	All
	Chlorobenzene	0.2	ug/L	All
	Chloroform	0.2	ug/L	All
	Dibromochloromethane	0.5	ug/L	All
	1,2-Dichlorobenzene	0.5	ug/L	All
	1,3-Dichlorobenzene	0.5	ug/L	All
	1,4-Dichlorobenzene	0.5	ug/L	All
	Dichlorodifluoromethane (FREON 12)	1	ug/L	All
	1,1-Dichloroethane	0.2	ug/L	All
	1,2-Dichloroethane	0.5	ug/L	All
	1,1-Dichloroethylene	0.2	ug/L	All
	cis-1,2-Dichloroethylene	0.5	ug/L	All
	trans-1,2-Dichloroethylene	0.5	ug/L	All
	1,2-Dichloropropane	0.2	ug/L	All
	cis-1,3-Dichloropropene	0.3	ug/L	All
	trans-1,3-Dichloropropene	0.4	ug/L	All
	Ethylbenzene	0.2	ug/L	All
	Ethylene Dibromide	0.2	ug/L	All
	Hexane	1	ug/L	All
	Methylene Chloride(Dichloromethane)	2	ug/L	All
	Methyl Ethyl Ketone (2-Butanone)	10	ug/L	All
	Methyl Isobutyl Ketone	5	ug/L	All
	Methyl t-butyl ether (MTBE)	0.5	ug/L	All
	Styrene	0.5	ug/L	All
	1,1,1,2-Tetrachloroethane	0.5	ug/L	All
	1,1,2,2-Tetrachloroethane	0.5	ug/L	All
	Tetrachloroethylene	0.2	ug/L	All
	Toluene	0.2	ug/L	All
	1,1,1-Trichloroethane	0.2	ug/L	All
	1,1,2-Trichloroethane	0.5	ug/L	All
	Trichloroethylene	0.2	ug/L	All
	Trichlorofluoromethane (FREON 11)	0.5	ug/L	All
	Vinyl Chloride	0.2	ug/L	All
	p+m-Xylene	0.2	ug/L	All

Maxxam PM: Ema Gitej (EGitej@maxxam.ca or 905-817-5829)

Confirmation of Sample Receipt

Parameter Summary

Package/Test	Parameter	RDL *	Unit	Samples
O.Reg 153 VOCs by HS & F1-F4 (Water)	o-Xylene	0.2	ug/L	All
	Total Xylenes	0.2	ug/L	All
	F1 (C6-C10)	25	ug/L	All
	F1 (C6-C10) - BTEX	25	ug/L	All

**RDLs are subject to change based on interferences present at the time of analysis.*

Maxxam PM: Ema Gitej (EGitej@maxxam.ca or 905-817-5829)

Maxxam
A Bureau Veritas Group Company

Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Phone (905) 817-5700 Toll-free 800-563-6266 Fax (905) 817-5777 www.maxxam.ca

IMMEDIATE

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#1326 Golder Associates Ltd	Company Name:		Quotation #:	B80683	Maxxam Job #:	Bottle Order #: 659490
Attention:	Accounts Payable	Attention:	Erti Mansaku	P.O. #:			
Address:	6925 Century Ave Suite 100 Mississauga ON L5N 7K2	Address:		Project:	1784521	COC #: C#659490-01-01	Project Manager: Ema Gitej
Tel:	(905) 567-4444 x Fax: (905) 567-6561 x	Tel:	Fax:	Project Name:			
Email:	AP_CustomerService@golder.com	Email:	Erti_Mansaku@golder.com	Site #:			
				Sampled By:			

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

Regulation 153 (2011)	Other Regulations	Special Instructions
☐ Table 1 ☐ Res/Park ☐ Medium/Fine	☐ CCME ☐ Sanitary Sewer Bylaw	
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ Reg 558 ☐ Storm Sewer Bylaw	
☐ Table 3 ☐ Agri/Other ☐ For RSC	☐ MISA Municipality ____	
☐ Table ____	☐ PWQO	
	☐ Other ____	

Include Criteria on Certificate of Analysis (Y/N)? ____

ANALYSIS REQUESTED (PLEASE BE SPECIFIC):

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	O.Reg 153 VOCs by HS & F1-F4	O.Reg 153 PAHs	O.Reg 153 Metals & Inorganics Pkg	# of Bottles	Comments
1		MW18-04	16-Apr-18	11:40	GW	Y	X	X	X	10	
2					GW						
3											
4											
5											
6											
7											
8											
9											
10											

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ____ Time Required: ____ ☐
Rush Confirmation Number: ____ *(call lab for #)*

17-Apr-18 16:00
Ema Gitej
B886669
GK1 ENV-1387

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Phil Hering	18/04/16	14:00		18/04/17	16:00	

Laboratory Use Only				
Time Sensitive	Temperature (°C) on Rece: 2 | 1 | 5	Custody Seal Present	Yes	No
		Intact		

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

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

White: Maxxa Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam
A Bureau Veritas Group Company

Your Project #: 1784521
Your C.O.C. #: 659490-01-01

Attention: Erti Mansaku

Golder Associates Ltd
6925 Century Ave
Suite 100
Mississauga, ON
CANADA L5N 7K2

Report Date: 2018/04/23
Report #: R5087912
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B886669
Received: 2018/04/17, 16:00

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum	1	N/A	2018/04/20	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum	1	N/A	2018/04/20		EPA 8260C m
Chloride by Automated Colourimetry	1	N/A	2018/04/20	CAM SOP-00463	EPA 325.2 m
Chromium (VI) in Water	1	N/A	2018/04/19	CAM SOP-00436	EPA 7199 m
Free (WAD) Cyanide	1	N/A	2018/04/20	CAM SOP-00457	OMOE E3015 m
Petroleum Hydrocarbons F2-F4 in Water (1)	1	2018/04/19	2018/04/20	CAM SOP-00316	CCME PHC-CWS m
Mercury	1	2018/04/19	2018/04/19	CAM SOP-00453	EPA 7470A m
Dissolved Metals by ICPMS	1	N/A	2018/04/19	CAM SOP-00447	EPA 6020B m
PAH Compounds in Water by GC/MS (SIM)	1	2018/04/19	2018/04/20	CAM SOP-00318	EPA 8270D m
Volatile Organic Compounds and F1 PHCs	1	N/A	2018/04/19	CAM SOP-00230	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: 1784521
Your C.O.C. #: 659490-01-01

Attention: Erti Mansaku

Golder Associates Ltd
6925 Century Ave
Suite 100
Mississauga, ON
CANADA L5N 7K2

Report Date: 2018/04/23
Report #: R5087912
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B886669
Received: 2018/04/17, 16:00

(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ema Gitej, Senior Project Manager
Email: EGitej@maxxam.ca
Phone# (905)817-5829

==========

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

Maxxam Job #: B886669
Report Date: 2018/04/23

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 METALS & INORGANICS PKG (WTR)

Maxxam ID		GMA678			GMA678		
Sampling Date		2018/04/16 11:40			2018/04/16 11:40		
COC Number		659490-01-01			659490-01-01		
	UNITS	MW18-04	RDL	QC Batch	MW18-04 Lab-Dup	RDL	QC Batch
Inorganics							
WAD Cyanide (Free)	ug/L	<1	1	5491483	<1	1	5491483
Dissolved Chloride (Cl)	mg/L	49	1.0	5492086			
Metals							
Chromium (VI)	ug/L	0.61	0.50	5486752			
Mercury (Hg)	ug/L	<0.1	0.1	5491578			
Dissolved Antimony (Sb)	ug/L	<0.50	0.50	5489348			
Dissolved Arsenic (As)	ug/L	<1.0	1.0	5489348			
Dissolved Barium (Ba)	ug/L	40	2.0	5489348			
Dissolved Beryllium (Be)	ug/L	<0.50	0.50	5489348			
Dissolved Boron (B)	ug/L	260	10	5489348			
Dissolved Cadmium (Cd)	ug/L	<0.10	0.10	5489348			
Dissolved Chromium (Cr)	ug/L	<5.0	5.0	5489348			
Dissolved Cobalt (Co)	ug/L	0.62	0.50	5489348			
Dissolved Copper (Cu)	ug/L	3.2	1.0	5489348			
Dissolved Lead (Pb)	ug/L	<0.50	0.50	5489348			
Dissolved Molybdenum (Mo)	ug/L	5.2	0.50	5489348			
Dissolved Nickel (Ni)	ug/L	2.7	1.0	5489348			
Dissolved Selenium (Se)	ug/L	<2.0	2.0	5489348			
Dissolved Silver (Ag)	ug/L	<0.10	0.10	5489348			
Dissolved Sodium (Na)	ug/L	94000	100	5489348			
Dissolved Thallium (Tl)	ug/L	<0.050	0.050	5489348			
Dissolved Uranium (U)	ug/L	30	0.10	5489348			
Dissolved Vanadium (V)	ug/L	1.9	0.50	5489348			
Dissolved Zinc (Zn)	ug/L	6.5	5.0	5489348			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B886669
Report Date: 2018/04/23

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

O.REG 153 PAHS (WATER)

Maxxam ID		GMA678		
Sampling Date		2018/04/16 11:40		
COC Number		659490-01-01		
	UNITS	MW18-04	RDL	QC Batch
Calculated Parameters				
Methylnaphthalene, 2-(1-)	ug/L	<0.071	0.071	5487601
Polyaromatic Hydrocarbons				
Acenaphthene	ug/L	<0.050	0.050	5492045
Acenaphthylene	ug/L	<0.050	0.050	5492045
Anthracene	ug/L	<0.050	0.050	5492045
Benzo(a)anthracene	ug/L	<0.050	0.050	5492045
Benzo(a)pyrene	ug/L	<0.010	0.010	5492045
Benzo(b/j)fluoranthene	ug/L	<0.050	0.050	5492045
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	5492045
Benzo(k)fluoranthene	ug/L	<0.050	0.050	5492045
Chrysene	ug/L	<0.050	0.050	5492045
Dibenz(a,h)anthracene	ug/L	<0.050	0.050	5492045
Fluoranthene	ug/L	<0.050	0.050	5492045
Fluorene	ug/L	<0.050	0.050	5492045
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	5492045
1-Methylnaphthalene	ug/L	<0.050	0.050	5492045
2-Methylnaphthalene	ug/L	<0.050	0.050	5492045
Naphthalene	ug/L	<0.050	0.050	5492045
Phenanthrene	ug/L	<0.030	0.030	5492045
Pyrene	ug/L	<0.050	0.050	5492045
Surrogate Recovery (%)				
D10-Anthracene	%	94		5492045
D14-Terphenyl (FS)	%	80		5492045
D8-Acenaphthylene	%	88		5492045

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B886669
Report Date: 2018/04/23

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

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

Maxxam ID		GMA678		
Sampling Date		2018/04/16 11:40		
COC Number		659490-01-01		
	UNITS	MW18-04	RDL	QC Batch
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	5487436
Volatile Organics				
Acetone (2-Propanone)	ug/L	<10	10	5487207
Benzene	ug/L	<0.20	0.20	5487207
Bromodichloromethane	ug/L	<0.50	0.50	5487207
Bromoform	ug/L	<1.0	1.0	5487207
Bromomethane	ug/L	<0.50	0.50	5487207
Carbon Tetrachloride	ug/L	<0.20	0.20	5487207
Chlorobenzene	ug/L	<0.20	0.20	5487207
Chloroform	ug/L	<0.20	0.20	5487207
Dibromochloromethane	ug/L	<0.50	0.50	5487207
1,2-Dichlorobenzene	ug/L	<0.50	0.50	5487207
1,3-Dichlorobenzene	ug/L	<0.50	0.50	5487207
1,4-Dichlorobenzene	ug/L	<0.50	0.50	5487207
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	5487207
1,1-Dichloroethane	ug/L	<0.20	0.20	5487207
1,2-Dichloroethane	ug/L	<0.50	0.50	5487207
1,1-Dichloroethylene	ug/L	<0.20	0.20	5487207
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	5487207
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	5487207
1,2-Dichloropropane	ug/L	<0.20	0.20	5487207
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	5487207
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	5487207
Ethylbenzene	ug/L	<0.20	0.20	5487207
Ethylene Dibromide	ug/L	<0.20	0.20	5487207
Hexane	ug/L	<1.0	1.0	5487207
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	5487207
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	5487207
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	5487207
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	5487207
Styrene	ug/L	<0.50	0.50	5487207
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	5487207
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	5487207
Tetrachloroethylene	ug/L	<0.20	0.20	5487207
Toluene	ug/L	<0.20	0.20	5487207

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B886669
Report Date: 2018/04/23

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

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

Maxxam ID		GMA678		
Sampling Date		2018/04/16 11:40		
COC Number		659490-01-01		
	UNITS	MW18-04	RDL	QC Batch
1,1,1-Trichloroethane	ug/L	<0.20	0.20	5487207
1,1,2-Trichloroethane	ug/L	<0.50	0.50	5487207
Trichloroethylene	ug/L	<0.20	0.20	5487207
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	5487207
Vinyl Chloride	ug/L	<0.20	0.20	5487207
p+m-Xylene	ug/L	<0.20	0.20	5487207
o-Xylene	ug/L	<0.20	0.20	5487207
Total Xylenes	ug/L	<0.20	0.20	5487207
F1 (C6-C10)	ug/L	<25	25	5487207
F1 (C6-C10) - BTEX	ug/L	<25	25	5487207
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	5492054
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	5492054
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	5492054
Reached Baseline at C50	ug/L	Yes		5492054
Surrogate Recovery (%)				
o-Terphenyl	%	103		5492054
4-Bromofluorobenzene	%	94		5487207
D4-1,2-Dichloroethane	%	101		5487207
D8-Toluene	%	102		5487207

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B886669
Report Date: 2018/04/23

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

TEST SUMMARY

Maxxam ID: GMA678
Sample ID: MW18-04
Matrix: Water

Collected: 2018/04/16
Shipped:
Received: 2018/04/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5487601	N/A	2018/04/20	Automated Statchk
1,3-Dichloropropene Sum	CALC	5487436	N/A	2018/04/20	Automated Statchk
Chloride by Automated Colourimetry	KONE	5492086	N/A	2018/04/20	Deonarine Ramnarine
Chromium (VI) in Water	IC	5486752	N/A	2018/04/19	Lang Le
Free (WAD) Cyanide	SKAL/CN	5491483	N/A	2018/04/20	Xuanhong Qiu
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5492054	2018/04/19	2018/04/20	Zhiyue (Frank) Zhu
Mercury	CV/AA	5491578	2018/04/19	2018/04/19	Ron Morrison
Dissolved Metals by ICPMS	ICP/MS	5489348	N/A	2018/04/19	Thao Nguyen
PAH Compounds in Water by GC/MS (SIM)	GC/MS	5492045	2018/04/19	2018/04/20	Mitesh Raj
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5487207	N/A	2018/04/19	Anna Gabrielyan

Maxxam ID: GMA678 Dup
Sample ID: MW18-04
Matrix: Water

Collected: 2018/04/16
Shipped:
Received: 2018/04/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	SKAL/CN	5491483	N/A	2018/04/20	Xuanhong Qiu

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Maxxam Job #: B886669
Report Date: 2018/04/23

Golder Associates Ltd
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GENERAL COMMENTS

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

Package 1	1.0°C

Results relate only to the items tested.

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Maxxam Job #: B886669
Report Date: 2018/04/23

QUALITY ASSURANCE REPORT

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5487207	4-Bromofluorobenzene	2018/04/19	101	70 - 130	101	70 - 130	94	%		
5487207	D4-1,2-Dichloroethane	2018/04/19	102	70 - 130	99	70 - 130	96	%		
5487207	D8-Toluene	2018/04/19	99	70 - 130	101	70 - 130	104	%		
5492045	D10-Anthracene	2018/04/19	93	50 - 130	98	50 - 130	101	%		
5492045	D14-Terphenyl (FS)	2018/04/19	82	50 - 130	90	50 - 130	88	%		
5492045	D8-Acenaphthylene	2018/04/19	90	50 - 130	95	50 - 130	95	%		
5492054	o-Terphenyl	2018/04/20	103	60 - 130	106	60 - 130	103	%		
5486752	Chromium (VI)	2018/04/19	101	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
5487207	1,1,1,2-Tetrachloroethane	2018/04/19	103	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5487207	1,1,1-Trichloroethane	2018/04/19	101	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5487207	1,1,2,2-Tetrachloroethane	2018/04/19	106	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5487207	1,1,2-Trichloroethane	2018/04/19	105	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5487207	1,1-Dichloroethane	2018/04/19	104	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5487207	1,1-Dichloroethylene	2018/04/19	103	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5487207	1,2-Dichlorobenzene	2018/04/19	105	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5487207	1,2-Dichloroethane	2018/04/19	105	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5487207	1,2-Dichloropropane	2018/04/19	102	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5487207	1,3-Dichlorobenzene	2018/04/19	111	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
5487207	1,4-Dichlorobenzene	2018/04/19	118	70 - 130	107	70 - 130	<0.50	ug/L	NC	30
5487207	Acetone (2-Propanone)	2018/04/19	109	60 - 140	96	60 - 140	<10	ug/L	NC	30
5487207	Benzene	2018/04/19	104	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5487207	Bromodichloromethane	2018/04/19	103	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5487207	Bromoform	2018/04/19	103	70 - 130	95	70 - 130	<1.0	ug/L	NC	30
5487207	Bromomethane	2018/04/19	99	60 - 140	91	60 - 140	<0.50	ug/L	NC	30
5487207	Carbon Tetrachloride	2018/04/19	103	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5487207	Chlorobenzene	2018/04/19	101	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5487207	Chloroform	2018/04/19	101	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5487207	cis-1,2-Dichloroethylene	2018/04/19	106	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5487207	cis-1,3-Dichloropropene	2018/04/19	104	70 - 130	93	70 - 130	<0.30	ug/L	NC	30
5487207	Dibromochloromethane	2018/04/19	104	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5487207	Dichlorodifluoromethane (FREON 12)	2018/04/19	103	60 - 140	99	60 - 140	<1.0	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5487207	Ethylbenzene	2018/04/19	102	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5487207	Ethylene Dibromide	2018/04/19	105	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5487207	F1 (C6-C10) - BTEX	2018/04/19					<25	ug/L	NC	30
5487207	F1 (C6-C10)	2018/04/19	107	60 - 140	104	60 - 140	<25	ug/L	NC	30
5487207	Hexane	2018/04/19	101	70 - 130	95	70 - 130	<1.0	ug/L	NC	30
5487207	Methyl Ethyl Ketone (2-Butanone)	2018/04/19	111	60 - 140	99	60 - 140	<10	ug/L	NC	30
5487207	Methyl Isobutyl Ketone	2018/04/19	100	70 - 130	90	70 - 130	<5.0	ug/L	NC	30
5487207	Methyl t-butyl ether (MTBE)	2018/04/19	104	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5487207	Methylene Chloride(Dichloromethane)	2018/04/19	107	70 - 130	97	70 - 130	<2.0	ug/L	NC	30
5487207	o-Xylene	2018/04/19	104	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5487207	p+m-Xylene	2018/04/19	103	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5487207	Styrene	2018/04/19	106	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5487207	Tetrachloroethylene	2018/04/19	103	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5487207	Toluene	2018/04/19	99	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
5487207	Total Xylenes	2018/04/19					<0.20	ug/L	NC	30
5487207	trans-1,2-Dichloroethylene	2018/04/19	101	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
5487207	trans-1,3-Dichloropropene	2018/04/19	102	70 - 130	92	70 - 130	<0.40	ug/L	NC	30
5487207	Trichloroethylene	2018/04/19	105	70 - 130	96	70 - 130	<0.20	ug/L	0.98	30
5487207	Trichlorofluoromethane (FREON 11)	2018/04/19	103	70 - 130	96	70 - 130	<0.50	ug/L	1.6	30
5487207	Vinyl Chloride	2018/04/19	102	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5489348	Dissolved Antimony (Sb)	2018/04/19	104	80 - 120	102	80 - 120	<0.50	ug/L		
5489348	Dissolved Arsenic (As)	2018/04/19	102	80 - 120	99	80 - 120	<1.0	ug/L		
5489348	Dissolved Barium (Ba)	2018/04/19	101	80 - 120	101	80 - 120	<2.0	ug/L		
5489348	Dissolved Beryllium (Be)	2018/04/19	101	80 - 120	99	80 - 120	<0.50	ug/L		
5489348	Dissolved Boron (B)	2018/04/19	101	80 - 120	98	80 - 120	<10	ug/L		
5489348	Dissolved Cadmium (Cd)	2018/04/19	101	80 - 120	100	80 - 120	<0.10	ug/L		
5489348	Dissolved Chromium (Cr)	2018/04/19	98	80 - 120	96	80 - 120	<5.0	ug/L		
5489348	Dissolved Cobalt (Co)	2018/04/19	99	80 - 120	97	80 - 120	<0.50	ug/L		
5489348	Dissolved Copper (Cu)	2018/04/19	101	80 - 120	100	80 - 120	<1.0	ug/L		
5489348	Dissolved Lead (Pb)	2018/04/19	97	80 - 120	96	80 - 120	<0.50	ug/L	NC	20
5489348	Dissolved Molybdenum (Mo)	2018/04/19	104	80 - 120	101	80 - 120	<0.50	ug/L		

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Maxxam Job #: B886669
Report Date: 2018/04/23

QUALITY ASSURANCE REPORT(CONT'D)

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5489348	Dissolved Nickel (Ni)	2018/04/19	98	80 - 120	96	80 - 120	<1.0	ug/L		
5489348	Dissolved Selenium (Se)	2018/04/19	100	80 - 120	98	80 - 120	<2.0	ug/L		
5489348	Dissolved Silver (Ag)	2018/04/19	101	80 - 120	98	80 - 120	<0.10	ug/L		
5489348	Dissolved Sodium (Na)	2018/04/19	NC	80 - 120	100	80 - 120	<100	ug/L		
5489348	Dissolved Thallium (Tl)	2018/04/19	96	80 - 120	95	80 - 120	<0.050	ug/L		
5489348	Dissolved Uranium (U)	2018/04/19	102	80 - 120	99	80 - 120	<0.10	ug/L		
5489348	Dissolved Vanadium (V)	2018/04/19	101	80 - 120	99	80 - 120	<0.50	ug/L		
5489348	Dissolved Zinc (Zn)	2018/04/19	101	80 - 120	98	80 - 120	<5.0	ug/L		
5491483	WAD Cyanide (Free)	2018/04/20	83	80 - 120	103	80 - 120	<1	ug/L	NC	20
5491578	Mercury (Hg)	2018/04/19	98	75 - 125	101	80 - 120	<0.1	ug/L	NC	20
5492045	1-Methylnaphthalene	2018/04/19	121	50 - 130	121	50 - 130	<0.050	ug/L	4.2	30
5492045	2-Methylnaphthalene	2018/04/19	103	50 - 130	102	50 - 130	<0.050	ug/L	3.8	30
5492045	Acenaphthene	2018/04/19	102	50 - 130	100	50 - 130	<0.050	ug/L	4.8	30
5492045	Acenaphthylene	2018/04/19	98	50 - 130	97	50 - 130	<0.050	ug/L	NC	30
5492045	Anthracene	2018/04/19	97	50 - 130	98	50 - 130	<0.050	ug/L	9.9	30
5492045	Benzo(a)anthracene	2018/04/19	98	50 - 130	97	50 - 130	<0.050	ug/L		
5492045	Benzo(a)pyrene	2018/04/19	100	50 - 130	108	50 - 130	<0.010	ug/L		
5492045	Benzo(b/j)fluoranthene	2018/04/19	106	50 - 130	114	50 - 130	<0.050	ug/L		
5492045	Benzo(g,h,i)perylene	2018/04/19	97	50 - 130	104	50 - 130	<0.050	ug/L		
5492045	Benzo(k)fluoranthene	2018/04/19	102	50 - 130	108	50 - 130	<0.050	ug/L		
5492045	Chrysene	2018/04/19	96	50 - 130	96	50 - 130	<0.050	ug/L		
5492045	Dibenz(a,h)anthracene	2018/04/19	96	50 - 130	94	50 - 130	<0.050	ug/L		
5492045	Fluoranthene	2018/04/19	104	50 - 130	101	50 - 130	<0.050	ug/L	25	30
5492045	Fluorene	2018/04/19	98	50 - 130	96	50 - 130	<0.050	ug/L	3.8	30
5492045	Indeno(1,2,3-cd)pyrene	2018/04/19	104	50 - 130	111	50 - 130	<0.050	ug/L		
5492045	Naphthalene	2018/04/19	103	50 - 130	104	50 - 130	<0.050	ug/L	6.1	30
5492045	Phenanthrene	2018/04/19	103	50 - 130	104	50 - 130	<0.030	ug/L	2.3	30
5492045	Pyrene	2018/04/19	104	50 - 130	104	50 - 130	<0.050	ug/L		
5492054	F2 (C10-C16 Hydrocarbons)	2018/04/20	107	50 - 130	109	60 - 130	<100	ug/L	2.4	30
5492054	F3 (C16-C34 Hydrocarbons)	2018/04/20	104	50 - 130	114	60 - 130	<200	ug/L	NC	30
5492054	F4 (C34-C50 Hydrocarbons)	2018/04/20	106	50 - 130	113	60 - 130	<200	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5492086	Dissolved Chloride (Cl)	2018/04/20	NC	80 - 120	105	80 - 120	<1.0	mg/L	1.3	20

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B886669
Report Date: 2018/04/23

Golder Associates Ltd
Client Project #: 1784521
Sampler Initials: PH

VALIDATION SIGNATURE PAGE

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

Brad Newman, Scientific Service Specialist

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

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IMMEDIATE

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CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#1326 Golder Associates Ltd	Company Name:		Quotation #:	B80683	Maxxam Job #:	Bottle Order #: 659490
Attention:	Accounts Payable	Attention:	Erti Mansaku	P.O. #:			
Address:	6925 Century Ave Suite 100 Mississauga ON L5N 7K2	Address:		Project:	1784521	COC #: C#659490-01-01	Project Manager: Ema Gitej
Tel:	(905) 567-4444 x Fax: (905) 567-6561 x	Tel:	Fax:	Project Name:			
Email:	AP_CustomerService@golder.com	Email:	Erti_Mansaku@golder.com	Site #:			
				Sampled By:			

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

Regulation 153 (2011)	Other Regulations	Special Instructions
☐ Table 1 ☐ Res/Park ☐ Medium/Fine	☐ CCME ☐ Sanitary Sewer Bylaw	
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ Reg 558 ☐ Storm Sewer Bylaw	
☐ Table 3 ☐ Agri/Other ☐ For RSC	☐ MISA Municipality ____	
☐ Table ____	☐ PWQO	
	☐ Other ____	

Include Criteria on Certificate of Analysis (Y/N)? ____

ANALYSIS REQUESTED (PLEASE BE SPECIFIC):

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ____ Time Required: ____ ☐
Rush Confirmation Number: ____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	O Reg 153 VOCs by HS & F1-F4	O Reg 153 PAHs	O Reg 153 Metals & Inorganics Pkg	# of Bottles	Comments
1		MW18-04	16-Apr-18	11:40	GW	Y	X	X	X	10	
2					GW						
3											
4											
5											
6											
7											
8											
9											
10											

17-Apr-18 16:00
Ema Gitej
B886669
GK1 ENV-1387

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Phil Hering	18/04/16	14:00		18/04/17	16:00	

Laboratory Use Only				
Time Sensitive	Temperature (°C) on Rece: 2 / 1 / 5	Custody Seal Present / Intact	Yes	No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

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

White: Maxxa Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

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