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Phase Two Environmental Site Assessment
4 Campbell Reid Court
Ottawa, Ontario

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Phase Two Environmental Site Assessment
4 Campbell Reid Court
Ottawa, Ontario

July 18, 2022
Project: 65103.01

GEMTEC Consulting Engineers and Scientists Limited
32 Steacie Drive
Ottawa, ON, Canada
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July 18, 2022 File: 65103.01 V01

Mr. Andrzej Olender
1405 Houston Crescent
Ottawa, Ontario
K2W 1B6

Attention: Dr. Andrzej Olender

Re: Phase Two Environmental Site Assessment
4 Campbell Reid Court
Ottawa, ON

Enclosed is GEMTEC Consulting Engineers and Scientists Limited's Phase Two Environmental Site Assessment (ESA) report for the above-noted project. The Phase Two ESA was completed in general accordance with Ontario Regulation (O.Reg.) 153/04 to investigate the areas of potential environmental concern (APECs) identified in the 2021 Phase One ESA report for this project. This Phase Two ESA was completed to document the environmental quality of soil and limited groundwater within the project limits. One groundwater sample was collected from the homeowner's domestic well. Additional groundwater investigation was conducted during the concurrent hydrogeological assessment, provided under a separate cover.

We trust this information is sufficient for your current needs. If you have any questions or require further information, please contact the undersigned.

Sincerely,

Ester Wilson, B.Sc., GIT
Junior Environmental Scientist

Brenda Thom, M.Sc.(Eng.), P.Eng, QP_{ESA}
Senior Environmental Engineer

EW/BT

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EXECUTIVE SUMMARY

GEMTEC Consulting Engineers and Scientist Limited (GEMTEC) was retained by Dr. Andrzej Olender to provide a limited Phase Two Environmental Site Assessment (ESA) for 4 Campbell Reid Court, the “Site”, in Ottawa, Ontario. The Phase One ESA investigation was completed prior and is summarized in GEMTEC’s Phase One ESA report dated September 30, 2021 (2021 Phase One ESA).

GEMTEC understands that the Phase Two ESA is required for a Site Plan Control Application (SPCA) with the City of Ottawa based on the recommendations provided in the 2021 Phase One ESA to address one area of potential environmental concern (APEC) identified across the Site. The APEC resulted from the importation of fill of unknown quality, identified as potentially contaminating activity (PCA) #30 in Ontario Regulation (O. Reg.) 153/04. This PCA was identified in the geotechnical investigation titled “Geotechnical Investigation Proposed Commercial Building 4 Campbell Reid Court Ottawa Ontario” dated July 12, 2021. The geotechnical investigation encountered a superficial layer of fill material of unknown quality across the Site.

Six boreholes were advanced as part of the environmental field investigation. A total of seven soil samples were submitted (including one duplicate sample) for the following contaminants of potential concern (COPCs) identified in the 2021 Phase One ESA: metals and inorganics (M&I), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs) and petroleum hydrocarbon four fractions (PHC F1 to F4). One composite soil sample was collected and submitted for toxicity characteristic leaching procedure (TCLP) analysis to inform disposal options. A groundwater sample was collected from the homeowner’s domestic well and was submitted for analysis of M&I, PHCs F1 to F4 and VOCs.

Soil analytical results were compared to the following Ministry of the Environment, Conservation and Parks (MECP) Site Condition Standards (SCS):

- MECP Table 1 RPI/ICC: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Background Site Condition Standards for Soil for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use.
- MECP Table 6 RPI SCS: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards for Shallow Soils in a Potable Groundwater Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.
- MECP Table 6 ICC SCS: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards for Shallow Soils in a Potable Groundwater Condition for Industrial/Commercial/Community Property Use with Coarse Textured Soils.

Groundwater analytical results were compared to:

- MECP Table 1 SCS: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Background Site Condition Standards for Ground Water for All Types of Property Use.
- MECP Table 6 SCS: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Generic Site Condition Standards for Shallow Soils in a Potable Ground Water Condition for All Types of Property Use.

Analytical results indicated that the Site does not currently meet the applicable MECP Table 1 RPI/ICC SCS and Table 6 RPI SCS for soil, and Table 1 SCS and Table 6 SCS for groundwater. The following is a summary of the exceedances by sampling location at the Site:

Soil

Sample ID	Depth (m bgs)	MECP Table 1 RPI/ICC SCS Exceedances	MECP Table 6 RPI SCS Exceedances	MECP Table 6ICC SCS Exceedances
BH22-03 SA1	0.00-0.91	EC, PHC F2	EC	--
BH22-04 SA1	0.00-0.52	Barium	--	--

Notes:

EC – Electrical conductivity

- The TCLP analytical results indicated that the soil is classified as non-hazardous waste. In accordance with O.Reg. 347/90 *General - Waste Management*; therefore, soil may be disposed at an MECP licensed landfill.

Groundwater

Sample ID	MECP Table 1 SCS Exceedances	MECP Table 6 SCS Exceedances
PW-4	Barium	Barium
PW-4-D	Barium	Barium

- The concentrations of M&I, PAHs, PHCs F1 to F4, and VOCs measured in the groundwater samples submitted were less than the applicable Table 1 SCS and Table 6 SCS for *except for* the following:
    - Barium concentrations in both the groundwater sample and duplicate sample were found in exceedance of the Table 1 SCS and Table 6 SCS.

However, due to the low solubility of barium in groundwater, the typical sparse vertical fracture patterns in the limestone and dolostone bedrock, and that the groundwater sample was collected from a deeper aquifer (approximately 25 meters below ground surface), it is unlikely that the barium impacts in the groundwater sampled originated from the fill material at surface.

Conclusions and Recommendations

The Phase Two ESA was completed to investigate the APEC identified in GEMTEC's 2021 Phase One ESA. Exceedances to the applicable MECP SCS Tables were identified in the soil and groundwater. In soil, EC was in exceedance of Table 1 RPI/ICC SCS and Table 6 RPI SCS, barium was in exceedance of Table 1 RPI/ICC SCS and PHC F2 was in exceedance of Table 1 RPI/ICC SCS. In groundwater, barium was in exceedance of Table 1 SCS and Table 6 SCS. GEMTEC concludes and recommends the following:

- No soils exceeded MECP Table 6 SCS for commercial use but soil from BH22-3 had electrical conductivity in exceedance of Table 6 SCS for residential use. However, this exceedance is located in an area of the Site that will be part of the commercial development, particularly, under the proposed access to the parking lot of the veterinary clinic. As such, the measure electrical conductivity does not exceed the commercial standards, which would be applicable to this portion of the property. However, the salt impacted soil must remain in the vicinity of the area where salt impacts to soil are anticipated, *i.e*., nearby the road and/or driveway.
- Excess soil is not expected during construction, but if excess soil is generated, a soil characterization plan will be required as per O.Reg. 4016/19. The applicable Excess Soil Quality Standards (ESQS) should be selected by a Qualified Person (QP) to determine suitability of re-use at the chosen receiving site. The MECP Table 1 SCS provided in this report is intended for general soil re-use information purposes and should be verified by the QP before any soil transfer or re-use is conducted. Depending on the volume of the excess soil, further sampling may be required in addition to the analytical results in this report.
- Based on the results of the TCLP analysis, the soil is classified as non-hazardous waste. In accordance with O.Reg. 347/90 *General - Waste Management*, excess soil generated during construction may be transported to an MECP licensed landfill.
- Although barium concentrations in the groundwater sample exceeded the Table 6 SCS, no barium exceedances to Table 6 SCS were detected in the soils. Based on measured concentration of barium in soil, the low solubility of barium in groundwater, the typical sparse vertical fracture patterns in the limestone and dolostone bedrock, and that the groundwater sample was collected from a deep aquifer (approximately 25 meters below ground surface), it is unlikely that the barium concentration in the groundwater sampled originated from the fill material at surface.

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientist Limited (GEMTEC) was retained by Mr. Andrzej Olender (the "client") to conduct a Phase Two Environmental Site Assessment (ESA) for 4 Campbell Reid Court in Ottawa, Ontario, herein referred to as the "Site". The Phase One ESA investigation is summarized in GEMTEC's Phase One ESA report dated September 30, 2022 (2021 Phase One ESA).

GEMTEC understands that this Phase Two ESA is required for a Site Plan Control Application (SPCA) with the City of Ottawa based on recommendations provided in the 2021 Phase One ESA report to address one area of potential environmental concern (APEC) identified across the Site. The APEC resulted from the importation of fill of unknown quality, identified as potentially contaminating activity (PCA) #30 in Ontario Regulation (O.Reg.) 153/04. Fill material was identified in the geotechnical investigation titled "Geotechnical Investigation Proposed Commercial Building 4 Campbell Reid Court Ottawa Ontario" dated July 12, 2021. The geotechnical investigation encountered the fill material of unknown quality across the Site.

1.1 Background

The Site currently consists of a land parcel with an approximate area of 7,900 square meters (1.95 acres) containing a two-storey residential dwelling located at the northeast corner of the Site. The Site is bound to the north by Campbell Reid Court followed by residential land; to the east by 6 Campbell Reid Court followed by residential land; to the west by Dunrobin Road followed by undeveloped land; and, to the south by March Road followed by undeveloped land. The Site Location Plan and Study Area Plan are presented in Figures A.1 and A.2, in Appendix A, respectively.

GEMTEC completed a Phase One ESA on the Site in general accordance with the CSA Group standard Z768-01 (R2016) and general industry standards including Ontario Regulation (O.Reg.) 153/04 as amended. An APEC resulting from fill of unknown quality was identified in the Phase One ESA, and is presented in Figure A.3, Appendix A. GEMTEC understands that the zoning of the Site will not be changing to a more sensitive land use and that the filing of a Record of Site Condition (RSC), as regulated by Ontario Regulation 153/04 under the Environmental Protection Act, will not be required.

Table 1.1 Phase One ESA Summary

APEC / PCA #	Location	Description	Contaminants of Potential Concern
1 / 1	Across the Site	• APEC resulting from PCA 30: • Importation of fill of unknown quality	M&I, PHCs/BTEX, PAHs, VOCs

M&I – Metals and Inorganics
PHCs – Petroleum Hydrocarbons
PAHs – Polyaromatic Hydrocarbons
VOCs – Volatile Organic Compounds

A Phase Two Environmental Site Assessment (ESA) was recommended to investigate soil and groundwater quality on the Site and to characterize soil that may affect soil management and disposal related to future construction within the project limits.

1.2 Physical Setting

1.2.1 Topography

A site topography map based on Ontario Basic Mapping is illustrated on the Figure A.1, Appendix A. The Site has a relatively flat topography and is at an elevation of approximately 95 metres above sea level. Surrounding topography is relatively flat but generally slopes north and east towards the provincially significant wetland (Shirley's Bay), which is located approximately 1.5 kilometres (km) to the northeast of the Site, and the Ottawa River, located approximately 5 km east of the site.

1.2.2 Surficial Geology

Surficial soil geology maps of the Ottawa area indicate that the subsurface conditions are primarily characterized by shallow and/ or at surface bedrock conditions. A soil type/description is not provided on the surficial soil maps.

1.2.3 Bedrock Geology

According to "*Paleozoic Geology of Southern Ontario*" (Armstrong et al., 2007), the project limits are within the following formation*: Limestone, dolostone, shale, arkose, sandstone Ottawa Group; Simcoe Group; Shadow Lake Formation.*

1.3 Scope of Work

The scope of work for the Phase Two ESA was presented in GEMTEC's proposal dated February 9th, 2022. The objective of the Phase Two ESA was to confirm the presence or absence of soil contamination in areas identified in the Phase One ESA dated September 30th, 2021, in support of the proposed development activities.

To meet the objectives, the following tasks were completed as part of Phase Two ESA:

- Preparation of a sample and analysis plan (SAP) to document the rationale for the investigation, including the number of sampling points, sample frequency, analytical parameters and media to be sampled;
- Co-ordination with drilling contractors, Strata Drilling Group, in addition to private and public locators to obtain utility locates near the proposed borehole locations;
- Advancement of 6 boreholes to a maximum depth of 1.82 metres below ground surface (m bgs);

- Collection of soil samples during drilling that are representative of the 'worst case' conditions observed during the investigation;
- Collection, screening, and classification of soil samples at each environmental borehole location for possible laboratory analysis. Soil sample headspace vapours were monitored using a combustible gas indicator (CGI) and a photoionization detector (PID), to assess the presence of combustible and total organic vapours;
- Collection of one groundwater sample and sample duplicate from the homeowner's domestic well;
- Selection of soil samples for submission to Paracel Laboratories (Paracel), an accredited laboratory, for chemical analysis of the contaminants of concern (COPCs), namely: metals and inorganics (M&I), polycyclic aromatic hydrocarbons (PAHs), and volatile organic compounds (VOCs) and petroleum hydrocarbons (PHCs F1-F4);
- Collection of quality assurance / quality control (QA/QC) duplicate soil samples at a frequency of 10% throughout the field program;
- Comparison of laboratory analytical results to the applicable regulatory criteria; and,
- Providing a Phase Two ESA report (this report).

2.0 INVESTIGATION METHOD

2.1 General

Boreholes were advanced across the Site at the locations shown on Figure A.4, in Appendix A to determine if the APEC identified in the Phase One ESA has impacted the Site. Investigation methods followed GEMTEC's Standard Operating Procedures (SOPs) and the *Protocol for Analytical Methods Used in the Assessment of properties* (MOE, 2011). The investigation methodology is described in the following sections.

2.2 Drilling

GEMTEC retained Strata Drilling Group, a Ministry of the Environment, Conservation and Parks (MECP) licensed driller, to conduct the drilling activities at the Site. The drilling program was completed under the supervision of GEMTEC field staff in March 2022. Boreholes were advanced to evaluate subsurface conditions and collect soil samples. Borehole locations are presented in Figure A.4, Appendix A.

Boreholes were advanced to observe subsurface conditions and intervals, assess soil quality and to determine if there were any impacts to soil as a result of former / present operations at the Site. Soil samples were recovered from each borehole, visually inspected, and logged. Subsurface conditions observed during drilling are summarized in the borehole logs provided in Appendix B.

2.3 Soil Sampling

A geo-probe plastic geo-sleeve was used to continuously collect soil samples from boreholes during drilling.

Site geological conditions observed in the soil samples were logged in the field by a GEMTEC technician including observations of colour, odour, texture, soil type and moisture. Soil samples were collected with dedicated nitrile gloves to prevent cross-contamination between sampling locations.

Recovered soil samples were split into two portions: one portion was placed into labeled polyethylene bags for field screening of combustible vapours and the other portion was placed into the appropriate laboratory-supplied sample containers and stored in a cooler with ice for possible laboratory submission. Soil samples were screened for combustible vapours within 30 minutes of sampling. For screening purposes, a portion of each sample was maintained in an undisturbed condition and the balance of the sample was broken up to release soil vapours. The vapour readings were measured as described in Section 0.

A total of seven soil samples (including one field duplicate sample) and one composite Toxicity Characteristic Leaching Procedure (TCLP) sample were submitted to Paracel Laboratories of Ottawa, Ontario. The selected soil samples were submitted for laboratory analysis of metals and inorganics, PAHs, PHC F1 to F4 and VOCs. A summary of the soil samples submitted for chemical analysis is provided in Tables C.1 to C.3, Appendix C.

2.4 Field Screening Measurements

Soil samples were screened using an RKI Eagle 2, which operates as a PID and CGI, to measure total organic vapours and combustible vapours. Results of field screening and the soil samples submitted to the laboratory for chemical analysis are included on the borehole logs (Appendix B).

The PID was equipped with a 10.6 electron-volt (eV) lamp, which was calibrated with a known concertation of isobutylene. This instrument detects VOCs that emit below an ionization potential of 10.6 eV, which includes a wide range of chemicals such as solvents and fuels. The detection limit of the instrument ranges from 0 to 15,000 ppm, and accuracy is +/- 10% for VOCs in the range of 0 and 2,000 ppm and +/- 20% of the reading above 2,000 ppm. The resolution of this instrument is 0.1 ppm for VOCs in the range of 0 and 1,000 ppm and 1 ppm for readings above 1,000 ppm. The PID provides an indication of organic contamination in soil but does not measure concentrations of individual contaminants.

The CGI detects combustible vapours such as those associated with fuels. This instrument measures a concentration of total combustible gas, calibrated to a known concentration of hexane. The instrument operates in the methane elimination mode. The detection limit of the instrument ranges from 0 to 11,000 ppm (i.e., 100 % LEL of hexane). The CGI has an accuracy

of 25 ppm below 1,000 ppm and 5% of the lower explosive limit (LEL) between 1,000 ppm and 100% LEL. As with the PID, it provides an indication of contamination but not chemical specific concentrations.

There are no regulatory criteria for soil vapours; however, elevated vapour concentrations are generally indicative of the presence of volatile parameters. Concentrations vary with parameter type, concentration and age and the readings are only intended to be used as a field-screening tool to provide a qualitative measure of volatile chemical concentrations within the subsurface. The readings do not provide a quantitative measure of analytical results.

The RKI Eagle 2 was obtained by GEMTEC from Maxim Environmental & Safety Inc. (Maxim) for this project. Maxim calibrates instruments on a regular basis to maintain consistent results. GEMTEC field technicians completed site calibration of the field instrument each day according to the manufacturer's instructions.

2.5 Groundwater Sampling

As part of this Phase Two ESA. A groundwater quality sample was collected from the homeowner's domestic well.

- The total depth of the homeowner's domestic well is approximately 25.1 m bgs.
- Groundwater sampling was conducted via the by-pass valve to ensure an untreated groundwater sample was collected.

2.6 Analytical Testing

Soil samples were analyzed by Paracel Laboratories, an accredited CALA laboratory, in accordance with the requirements of O.Reg. 153/04.

Soil samples were submitted to Paracel Laboratories for analysis of M&I, PAHs, PHCs and VOCs. In addition, one composite TCLP sample was submitted to Paracel for analysis of M&I, VOCs, benzo[a]pyrene and flashpoint. Laboratory certificates of analysis are included in Appendix D.

2.7 Quality Assurance and Quality Control Measures

Quality assurance and quality control of the soil sampling program was maintained by adhering to the following:

- The field investigation was completed under GEMTEC SOPs for environmental intrusive investigations, including soil and groundwater sampling best practices and requirements;
- Samples were assigned unique identification numbers, as they were collected, identifying the project number, date, sample location, and depth. The sample numbers were recorded in field notes for each location;

- Sample containers provided by the analytical laboratory were used and laboratory requirements for sample size, container type, preservatives and filtering were maintained;
- Non-disposable sampling equipment was cleaned using Alconox© and distilled water following each use to avoid potential cross-contamination;
- A chain-of-custody (COC) form was filled out prior to submitting the selected samples to the laboratory. The COC documented sample movement from time of field collection to receipt at the laboratory and provided a record of sample identification, requested analysis and conditions of samples upon arrival at the laboratory (e.g. temperature, container status, etc.);
- Soil samples were selected by the GEMTEC field staff for field duplicate testing. The number of duplicate samples submitted is equivalent to a minimum of 10% of the total number of samples submitted, under accepted standard industry QA/QC practices;
- Field monitoring equipment was calibrated according to industry requirements prior to the site visit and during implementation of the field program as required (i.e., on-site calibration); and,
- Samples were randomly selected by the laboratory for Quality Assurance checks. Generally, one sample for every ten samples submitted is assessed by the laboratory internal QA/QC program. For each parameter, there is an acceptable upper and lower limit for measured concentrations. Measured concentrations of analyzed samples must fall within the upper and lower acceptable limits in order for the sample to be considered valid. If a result exceeds the upper or lower acceptable limits, the sample must be re-analyzed.

3.0 REVIEW AND RESULTS

3.1 Site Geology

The surficial geology information was observed within the project limits during the advancement of the boreholes. Detailed descriptions of the soil conditions encountered in each location during drilling are included in the borehole logs in Appendix B. A summary of the boreholes is as follows:

- Brown sand or sandy silt and sand with gravel was encountered directly beneath the ground surface to depths ranging between 0.52 and 1.52 m bgs at boreholes BH22-01, BH22-02, BH22-04, BH22-05 and BH22-06.
- Gravel and fill material consisting of grey sands and silt were encountered directly beneath the ground surface at BH22-03.
- Organic matter (peat) was encountered beneath the sand or silty sand at BH22-02 and BH22-06.
- Grey clay and silty clay were encountered beneath the sand at BH22-05.

- Bedrock auger refusal was encountered at depths ranging between 0.52 and 1.82 m bgs.

3.2 Groundwater: Elevations and Flow Direction

In order to determine groundwater flow direction, monitoring wells are required to be installed within a triangular pattern; however, due to the project limits specific to this Phase Two ESA, groundwater triangulation was not possible. As such, groundwater flow direction calculations are not included within the scope of this investigation.

Groundwater flow often reflects topographic features and typically flows toward nearby lakes, rivers, and wetland areas. Based on the topography of the area, it is expected that regionally local shallow groundwater flow may trend north/easterly towards the Shirley's Bay and the Ottawa River.

3.3 Regulatory Criteria

The Ontario MECP SCS are established under Part XV.1 of the Ontario Environmental Protection Act (EPA). Tabulated generic criteria are provided in the MECP document "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", dated March 9, 2004 and amended in April, 2011. The criteria are based on site sensitivity, groundwater use (potable or non-potable), property use (residential, parkland, institutional, commercial, industrial, community and agricultural/other), soil type (coarse or medium/fine textured) and restoration depth (full or stratified restoration).

The most applicable MECP SCS for the Site were selected after considering the following site and project specific information:

- The Site is considered to have a Residential/Parkland/Institutional (RPI) property use in accordance with O.Reg. 153/04;
- The future land use of the Site is proposed to include a two-storey commercial building with an Industrial/Commercial/Community (ICC) property use in addition to the currently existing residential land use of the Site. The current zoning of the site is defined as a rural countryside zone which recognizes and permits animal care establishment land use.
- A search of the MECP water well records returned 21 results within 250 meters of the Site (locations displayed on Figure A.2). Of the 21 well records, 16 were reported for domestic use, two for livestock, two as not in use (abandoned) and one as unknown. The well depths range from 11.6 to 103.6 meters below ground surface, with an average well depth of 26.8 metres. The Site and surrounding properties are serviced by groundwater wells and are not serviced by a municipal drinking water system. Therefore, the groundwater at the Site is considered potable;
- No waterbodies are present within 30 meters of the Site;
- Surrounding properties are primarily residential;

- Soil is consistent with the definition of coarse textured as per O. Reg. 153/04 and course textured soil is considered to be the most stringent criteria for analytical comparison purposes;
- pH values measured in soil samples collected from the Site are within the acceptable range of 5 to 9;
- Stratified soil conditions were not present at the Site;
- Bedrock was encountered at less than 2 metres depth at every borehole advanced on-site; therefore, the Site is considered a shallow soil property as per the definition in O.Reg. 153/04; and,

Based on the above information, GEMTEC selected the following MECP SCSs:

Soil:

- MECP Table 6: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards for Shallow Soils in a Potable Groundwater Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.
- MECP Table 6: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards for Shallow Soils in a Potable Groundwater Condition for Industrial/Commercial/Community Property Use with Coarse Textured Soils.

- To aid in selecting the potential soil disposal options, analytical results were also compared to:
    - MECP Table 1: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Background Site Condition Standards for Soil for Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use.

Groundwater:

- MECP Table 1: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Background Site Condition Standards for Ground Water for All Types of Property Use.
- MECP Table 6: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004,

amended July 1, 2011. Generic Site Condition Standards for Shallow Soils in a Potable Ground Water Condition for All Types of Property Use.

3.4 Soil Quality

The locations, depths, and contaminants of potential concern requested for laboratory analysis of selected soil samples collected by GEMTEC are provided on the borehole logs in Appendix B. Analytical soil results are presented in Appendix C within Tables C.1 to C.3. Exceedances to the applicable MECP standards are presented in Figure A.4, Appendix A. Leachate TCLP analytical results are presented in Table C.4, Appendix C. Laboratory certificates of analysis are presented in Appendix D.

A summary of the analytical results for soil samples greater than the Table 1 SCS and Table 6 SCS is provided below:

Sample ID	Depth (m bgs)	MECP Table 1 RPI/ICC SCS Exceedances	MECP Table 6 RPI SCS Exceedances	MECP Table 6ICC SCS Exceedances
BH22-03 SA1	0.00-0.91	EC, PHC F2	EC	None
BH22-04 SA1	0.00-0.52	Barium	None	None

Notes:
EC – Electrical conductivity

3.4.1 Soil Leachate

A composite soil sample was submitted for TCLP analysis of M&I, VOCs, benzo[a]pyrene and ignitability. The results of the TCLP analysis indicated that the soil is classified as non-hazardous waste and may be disposed off-site at an MECP licensed landfill site. The TCLP analytical results are presented in Table C.4 within Appendix C.

3.5 Groundwater Quality

The groundwater analytical results are presented in Tables C.5 and C.6 within Appendix C. Laboratory Certificates of Analysis are presented in Appendix D.

The analytical results for M&I, PAHs, PHCs F1 to F4 and VOCs concentrations in the submitted groundwater samples were less than the applicable MECP Table 1 and Table 6 SCS *except for* the following:

- Barium concentrations exceeding the MECP Table 1 SCS and Table 6 SCS were present in PW-4 and its blind duplicate, PW4-D.

3.6 Quality Assurance/Quality Control

3.6.1 Laboratory Internal QA/QC

Soil samples were submitted to Paracel during the Phase Two ESA field investigation. Paracel completed a variety of internal QA/QC measures on the soil samples submitted and is accredited

by the Standards Council of Canada (SCC) in cooperation with the Canadian Association of Laboratory Accreditation (CALA) for specific environmental tests listed in the scope of accreditation approved by the SCC and registered with the association. Paracel is accredited to the ISO/IEC 17025 standard and employ in-house quality assurance and quality control programs to govern sample analysis including the analysis of method blanks, spiked blanks, and the analysis of duplicates (10%) for each sample batch.

3.6.2 Field QA/QC Program

Blind duplicates are submitted for laboratory analysis to evaluate both laboratory precision and the implemented field sampling and handling procedures, in addition to the sample homogeneity. The relative percent difference (RPD) is defined as the absolute value of the variation between a sample and its duplicate, when compared to the average concentration of the original and the duplicate. It is used to assess the validity of the field and laboratory analytical procedures.

The following soil and groundwater duplicate samples were collected as part of the Phase Two ESA field investigation:

- BH22-06 SA1 / BH22-106 SA1 (soil)
- PW4 / PW4-D (groundwater)

Calculations of the relative percent differences (RPD) between the parent and duplicate samples were performed and compared to the acceptance limits outlined in the '*Protocol for Analytical Methods Used in the Assessment of Properties'* under Part XV.1 of the Environmental Protection Act, April 2011. The RPD calculation is only applicable when both the sample and the field duplicate concentrations are greater than five times the laboratory reported detection limit.

The RPDs of the soil and groundwater analyzed met the MECP Alert criteria which is considered acceptable, *apart from* the following:

- The calculated RPD for electrical conductivity in soil was 22.8%, which exceeds the MECP alert criteria (10%).

Trip Blank

The concentrations of VOC parameters were less than the laboratory reportable detection limits in the trip blank sample, with laboratory detection limits below the applicable Table 6 and Table 1 SCS. These results indicate that the data quality is considered reliable, with no evidence of cross-contamination during sample transport to the laboratory.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Summary of Phase Two ESA Findings

Analytical results indicated that the Site does not currently meet the applicable MECP Table 1 RPI/ICC SCS and Table 6 RPI SCS for soil, and Table 1 SCS and Table 6 SCS for groundwater. The following is a summary of the exceedances by sampling location at the Site:

Soil

Sample ID	Depth (m bgs)	MECP Table 1 RPI/ICC SCS Exceedances	MECP Table 6 RPI SCS Exceedances	MECP Table 6ICC SCS Exceedances
BH22-03 SA1	0.00-0.91	EC, PHC F2	EC	--
BH22-04 SA1	0.00-0.52	Barium	--	--

Notes:

EC – Electrical conductivity

- The TCLP analytical results indicated that the soil is classified as non-hazardous waste. In accordance with O.Reg. 347/90 *General - Waste Management*; therefore, soil may be disposed at an MECP licensed landfill.

- Groundwater

Sample ID	MECP Table 1 SCS Exceedances	MECP Table 6 SCS Exceedances
PW-4	Barium	Barium
PW-4-D	Barium	Barium

- The concentrations of M&I, PAHs, PHCs F1 to F4, and VOCs measured in the groundwater samples submitted were less than the applicable Table 1 SCS and Table 6 SCS for *except for* the following:
    - Barium concentrations in both the groundwater sample and duplicate sample were found in exceedance of the Table 1 SCS and Table 6 SCS.
- However, due to the low solubility of barium in groundwater, the typical sparse vertical fracture patterns in the limestone and dolostone bedrock, and that the groundwater sample was collected from a deeper aquifer (approximately 25 meters below ground surface), it is unlikely that the barium impacts in the groundwater sampled originated from the fill material at surface.

Conclusions and Recommendations

The Phase Two ESA was completed to investigate the APEC identified in GEMTEC's 2021 Phase One ESA. Exceedances to the applicable MECP SCS Tables were identified in the soil and groundwater. In soil, EC was in exceedance of Table 1 RPI/ICC SCS and Table 6 RPI SCS,

barium was in exceedance of Table 1 RPI/ICC SCS and PHC F2 was in exceedance of Table 1 RPI/ICC SCS. In groundwater, barium was in exceedance of Table 1 SCS and Table 6 SCS.

GEMTEC concludes and recommends the following:

- No soils exceeded MECP Table 6 SCS for commercial use but soil from BH22-3 had electrical conductivity in exceedance of Table 6 SCS for residential use. However, this exceedance is located in an area of the Site that will be part of the commercial development, particularly, under the proposed access to the parking lot of the veterinary clinic. As such, the measure electrical conductivity does not exceed the commercial standards, which would be applicable to this portion of the property. However, the salt impacted soil must remain in the vicinity of the area where salt impacts to soil are anticipated, *i.e*., nearby the road and/or driveway.
- Excess soil is not expected during construction, but if excess soil is generated, a soil characterization plan will be required as per O.Reg. 4016/19. The applicable Excess Soil Quality Standards (ESQS) should be selected by a Qualified Person (QP) to determine suitability of re-use at the chosen receiving site. The MECP Table 1 SCS provided in this report is intended for general soil re-use information purposes and should be verified by the QP before any soil transfer or re-use is conducted. Depending on the volume of the excess soil, further sampling may be required in addition to the analytical results in this report.
- Based on the results of the TCLP analysis, the soil is classified as non-hazardous waste. In accordance with O.Reg. 347/90 *General - Waste Management*, excess soil generated during construction may be transported to an MECP licensed landfill.
- Although barium concentrations in the groundwater sample exceeded the Table 6 SCS, no barium exceedances to Table 6 SCS were detected in the soils. Based on measured concentration of barium in soil, the low solubility of barium in groundwater, the typical sparse vertical fracture patterns in the limestone and dolostone bedrock, and that the groundwater sample was collected from a deep aquifer (approximately 25 meters below ground surface), it is unlikely that the barium concentration in the groundwater sampled originated from the fill material at surface.

5.0 CLOSURE

We trust this report provides sufficient information for your present purposes. If you have any questions concerning this report, please do not hesitate to contact the undersigned.

Sincerely,

Ester Wilson

Ester Wilson, BSc., GIT
Junior Environmental Scientist

Brenda Thom

Brenda Thom, M.Sc.(Eng.), P.Eng, QP_{ESA}
Senior Environmental Engineer

6.0 LIMITATION OF LIABILITY

This report and the work referred to within it has been undertaken by GEMTEC Consulting Engineers and Scientists Limited for Dr. Andrzej Olender. It is intended for the exclusive use of Dr. Andrzej Olender. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC, Dr. Andrzej Olender. No part of this report is intended to provide a legal opinion.

The investigation undertaken by GEMTEC with respect to this report and any conclusions or recommendations made in this report reflect the best judgements of GEMTEC based on the site conditions observed during the investigations undertaken at the date(s) identified in the report and on the information available at the time the report was prepared. This report has been prepared for the application noted and it is based, in part, on visual observations made at the site, subsurface investigations at discrete locations and depths and laboratory analyses of specific chemical parameters and material during a specific time interval, all as described in the report. Unless otherwise stated, the findings contained in this report cannot be extrapolated or extended to previous or future site conditions, portions of the site that were unavailable for direct investigation, subsurface locations on the site that were not investigated directly, or chemical parameters, materials or analysis which were not addressed. Chemical parameters other than those addressed by the investigation described in this report may exist in soil and groundwater elsewhere on the site, the chemical parameters addressed in the report may exist in soil and groundwater at other locations at the site that were not investigated, and concentrations of the chemical parameters addressed which are different than those reported may exist at other locations on the site than those from where the samples were taken.

Should new information become available during future work, including excavations, borings or other studies, GEMTEC should be requested to review the information and, if necessary, re-assess the conclusions presented herein.

7.0 REFERENCES

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC), 2021. Phase One Environmental Site Assessment, 4 Campbell Reid Court, Ottawa, Ontario.

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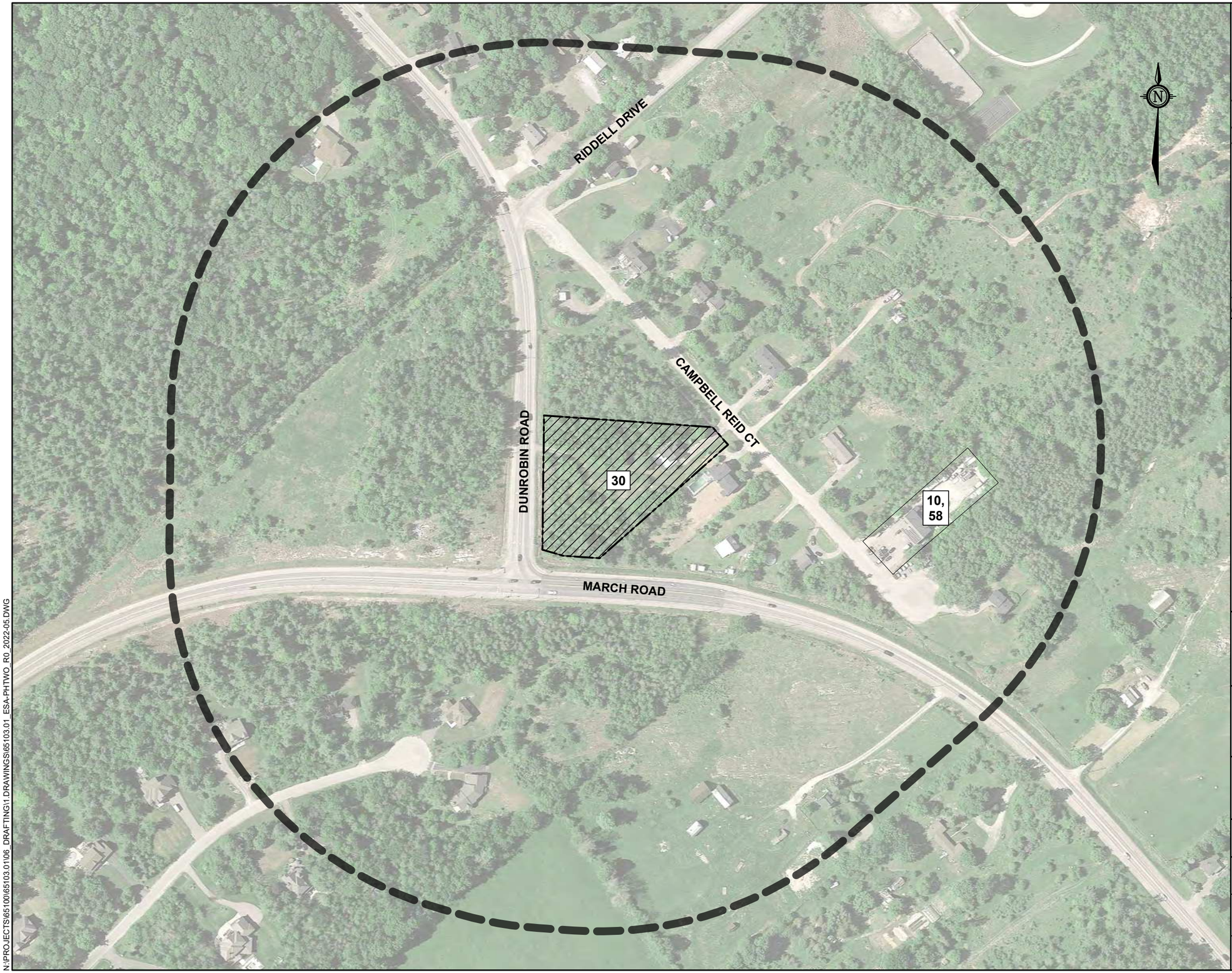
APPENDIX A

Figures



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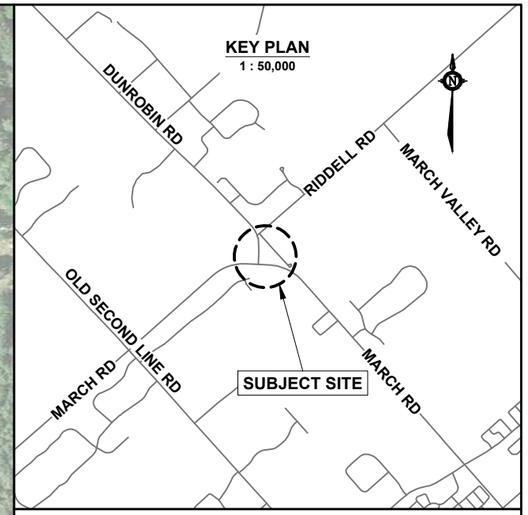
1 : 50,000



LEGEND

APPROXIMATE PROPERTY BOUNDARY

STUDY AREA
(250m RADIUS FROM THE PROPERTY BOUNDARY)

POTENTIALLY CONTAMINATING ACTIVITIES

10	COMMERCIAL AUTOBODY SHOPS
30	IMPORTATION OF FILL MATERIAL OF UNKNOWN QUALITY
58	WASTE DISPOSAL AND WASTE MANAGEMENT, INCLUDING THERMAL TREATMENT, LANDFILLING AND TRANSFER OF WASTE, OTHER THAN USE OF BIOSOILS AS SOIL CONDITIONERS

AREA OF POTENTIALLY CONTAMINATING ACTIVITIES

APEC 1
IMPORTATION OF FILL MATERIAL OF UNKNOWN QUALITY

Scale
1:2500

0 50 100 150m

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Consulting Engineers and Scientists
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Ottawa, ON K2K 2A9
Tel: (613) 836-1422
www.gemtec.ca
ottawa@gemtec.ca

Drawing
STUDY AREA PLAN AND
AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

Client
DR. ANDRZEJ OLENDER

Project
65103.01

PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
4 CAMPBELL REID COURT
KANATA, OTTAWA, ONTARIO

Drwn by
S.L.

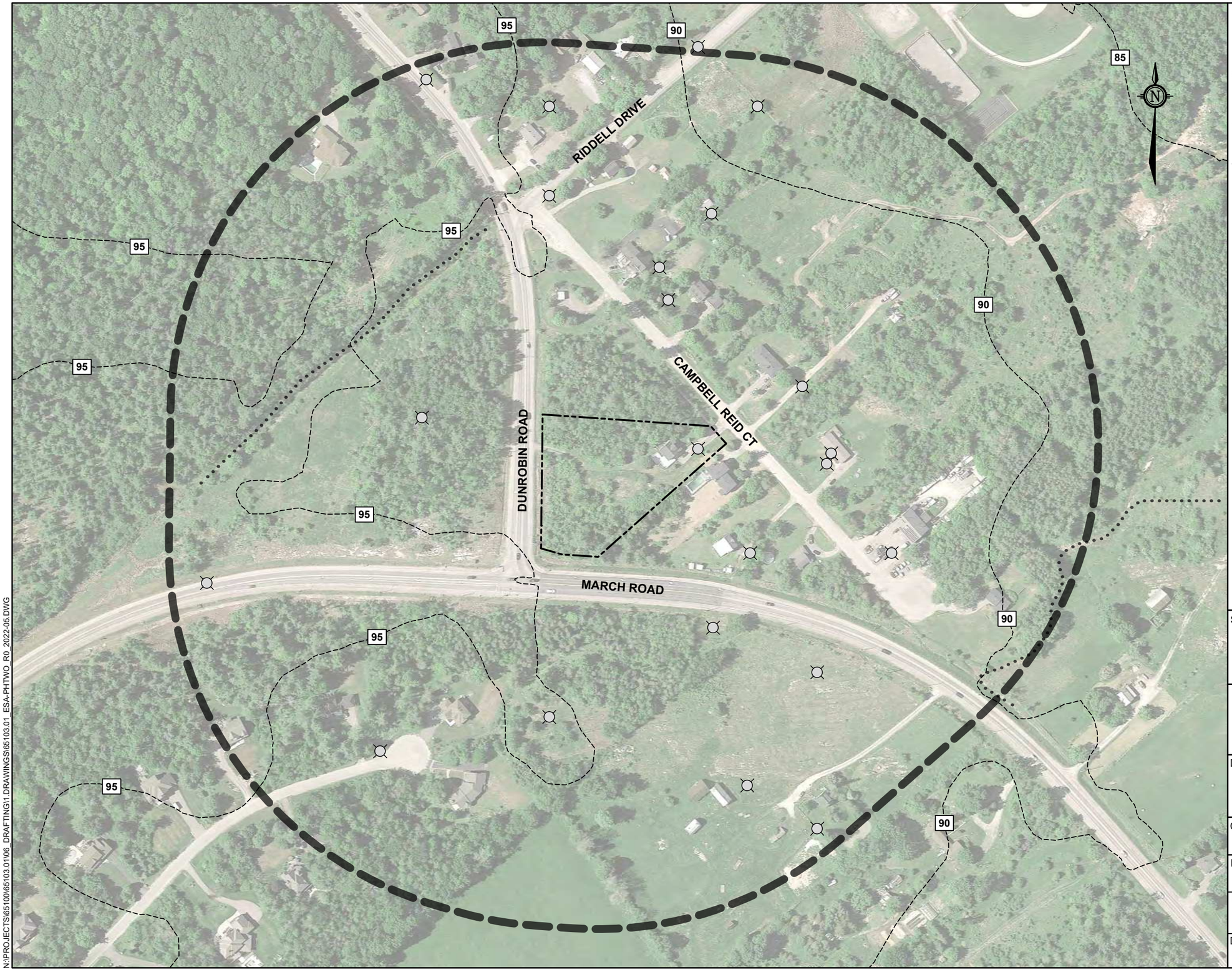
Chkd by
B.T.

Date
JUNE, 2022

Rev.
0

FIGURE A.1

N:\PROJECTS\65100\65103.01\06_DRAFTING\1.DRAWINGS\65103.01_ESA-PHTWO_R0_2022-05.DWG



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- STUDY AREA (250m RADIUS FROM THE PROPERTY BOUNDARY)
- CONTOUR INTERVAL, IN METRES
- SURFACE WATER
- MECP WELL LOCATION

Scale 1:2500

0 50 100 150m

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Drawing: TOPOGRAPHY MAP

Client: DR. ANDRZEJ OLENDER

Project: 65103.01

PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
4 CAMPBELL REID COURT
KANATA, OTTAWA, ONTARIO

Drwn by: S.L.

Chkd by: B.T.

Date: JUNE, 2022

Rev.: 0

FIGURE A.2

N:\PROJECTS\65100\65103.01\06_DRAFTING\1.DRAWINGS\65103.01_ESA-PHTWO_R0_2022-05.DWG

LEGEND

BH # — BOREHOLE ID

XX.XX — GROUND SURFACE ELEVATION, IN METRES GEODETIC DATUM

SAMPLING LOCATION
(current investigation by GEMTEC)

APPROXIMATE PROPERTY BOUNDARY

Scale
1:1000
0 20 40 60m

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32 Steacie Drive
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Drawing
SITE PLAN WITH SAMPLING LOCATIONS

Client
DR. ANDRZEJ OLENDER

Project
65103.01

PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
4 CAMPBELL REID COURT
KANATA, OTTAWA, ONTARIO

Drwn by
S.L.

Chkd by
B.T.

Date
JUNE, 2022

Rev.
0

FIGURE A.3

N:\PROJECTS\65100\65103.01\06_DRAFTING\1.DRAWINGS\65103.01_ESA-PHTWO_R0_2022-05.DWG

LEGEND

BH # — BOREHOLE ID

XX.XX — GROUND SURFACE ELEVATION, IN METRES GEODETIC DATUM

SAMPLING LOCATION (current investigation by GEMTEC)

APPROXIMATE PROPERTY BOUNDARY

Soil Parameters	MECP Table 1 RPI/ICC	MECP Table 6 RPI
Metals and Inorganics		
Barium	220 ug/g	390 ug/g
Electrical Conductivity	470 uS/cm	700 uS/cm
Petroleum Hydrocarbon Compounds		
F2 (C10-C16)	10 ug/g	98 ug/g

Notes:

'NV ' : No Standard established

MECP Table 1 RPI/ICC SCS: Full Depth Background Site Condition Standards for Soil for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use. July, 2011.

MECP Table 6 RPI SCS: MECP Table 6: Full Depth Generic Site Condition Standards for Shallow Soils in a Potable Groundwater Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils. July 2011.

100 Exceeds MECP Table 6 RPI SCS

100 Exceeds MECP Table 1 RPI/ICC SCS

Scale 1:1000

0 20 40 60m

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Drawing: SITE PLAN WITH EXCEEDANCES

Client: DR. ANDRZEJ OLENDER

Project: 65103.01

PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
4 CAMPBELL REID COURT
KANATA, OTTAWA, ONTARIO

Drwn by: S.L. | Chkd by: B.T.

Date: JUNE, 2022 | Rev.: 0

FIGURE A.4

N:\PROJECTS\65100\65103.01\06_DRAFTING\1.DRAWINGS\65103.01_ESA-PHTWO_R0_2022-05.DWG

Sample ID: / Parameters	PW-4	PW-4-D
Barium	4420	4510

LEGEND

BH # — BOREHOLE ID

XX.XX — GROUND SURFACE ELEVATION, IN METRES GEODETIC DATUM

SAMPLING LOCATION (current investigation by GEMTEC)

APPROXIMATE PROPERTY BOUNDARY

Groundwater Parameters	MECP Table 1 RPI/ICC	MECP Table 6 RPI/ICC
Metals and Inorganics		
Barium	610	1000

Notes:

MECP Table 1 SCS: Full Depth Background Site Condition Standards for Ground Water for All Types of Property Use. July 1, 2011.

MECP Table 6 SCS: Generic Site Condition Standards for Shallow Soils in a Potable Ground Water Condition for All Types of Property Use. July 1, 2011.

100	Exceeds MECP Table 1: Standards
100	Exceeds MECP Table 6: Standards

Scale 1:1000

0 20 40 60m

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Tel: (613) 836-1422
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Drawing: SITE PLAN WITH GROUNDWATER EXCEEDANCES

Client: DR. ANDRZEJ OLENDER

Project: 65103.01

PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
4 CAMPBELL REID COURT
KANATA, OTTAWA, ONTARIO

Drwn by: S.L. | Chkd by: B.T.

Date: JUNE, 2022 | Rev.: 0

FIGURE A.5

N:\PROJECTS\65100\65103.01\06_DRAFTING\1.DRAWINGS\65103.01_ESA-PHTWO_R0_2022-05.DWG

APPENDIX B

Borehole Logs

RECORD OF BOREHOLE 22-01

CLIENT: Dr. Andrzej Olender
PROJECT: Phase Two ESA, 4 Campbell Reid Court, Kanata ON
JOB#: 65103.01
LOCATION: See Figure A.1, Attachment A

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Mar 28 2022

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	SAMPLE DATA: TYPE	SAMPLE DATA: RECOVERY (mm)	SAMPLE DATA: BLOWS/0.3m	SAMPLE DATA: LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		93.18									
0	Direct Push	Brown sandy silt with gravel (FILL)			1		381		TP22-01 SA1: M&I, PAHs, PHC F1-F4, VOCs	HEX: 5; IBL: 3			Native backfill
1				91.97									
		End of borehole - auger refusal		1.21									

GEMTEC
Consulting Engineers and Scientists

LOGGED: EW
CHECKED: MB

ENV - BOREHOLE LOG CAMPBELL COURT GINT.GPJ GEMTEC 2018.GDT 6/27/22

RECORD OF BOREHOLE 22-02

CLIENT: Dr. Andrzej Olender
PROJECT: Phase Two ESA, 4 Campbell Reid Court, Kanata ON
JOB#: 65103.01
LOCATION: See Figure A.1, Attachment A

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Mar 28 2022

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	TYPE	RECOVERY (mm)	BLOWS/0.3m	LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		93.27									
0	Direct Push	Brown sand (FILL)			1		559		TP22-02 SA1: M&I, PAHs, PHC F1-F4, VOCs	HEX: 0; IBL: 1			Native backfill
1		Dark organic matter (PEAT)		92.18 1.09									
		End of borehole - auger refusal		92.05 1.22									

GEMTEC
Consulting Engineers and Scientists

LOGGED: EW
CHECKED: MB

ENV - BOREHOLE LOG CAMPBELL COURT GINT.GPJ GEMTEC 2018.GDT 6/27/22

RECORD OF BOREHOLE 22-03

CLIENT: Dr. Andrzej Olender
PROJECT: Phase Two ESA, 4 Campbell Reid Court, Kanata ON
JOB#: 65103.01
LOCATION: See Figure A.1, Attachment A

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Mar 28 2022

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	TYPE	RECOVERY (mm)	BLOWS/0.3m	LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		93.27									
0	Direct Push	Gravel, grey sand and silt (FILL)		92.36	1		584		TP22-03 SA1:M&I, PAHs, PHC F1-F4, VOCs	HEX: 0; IBL: 0			Naitve backfill
		End of borehole - auger refusal		0.91									

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Consulting Engineers and Scientists

LOGGED: EW
CHECKED: MB

ENV - BOREHOLE LOG CAMPBELL COURT GINT.GPJ GEMTEC 2018.GDT 6/27/22

RECORD OF BOREHOLE 22-04

CLIENT: Dr. Andrzej Olender
PROJECT: Phase Two ESA, 4 Campbell Reid Court, Kanata ON
JOB#: 65103.01
LOCATION: See Figure A.1, Attachment A

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Mar 28 2022

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	SAMPLE DATA: TYPE	SAMPLE DATA: RECOVERY (mm)	SAMPLE DATA: BLOWS/0.3m	SAMPLE DATA: LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		93.25									
0	Direct Push	Dark grey brown sand with some gravel (FILL)			1	CA	445		TP22-04 SA1: M&I, PAHs, PHC F1-F4, VOCs	HEX:10 ; IBL: 1			Native backfill
1				91.72									
		End of borehole - auger refusal		1.52									

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Consulting Engineers and Scientists

LOGGED: EW
CHECKED: MB

ENV - BOREHOLE LOG CAMPBELL COURT GINT.GPJ GEMTEC 2018.GDT 6/27/22

RECORD OF BOREHOLE 22-05

CLIENT: Dr. Andrzej Olender
PROJECT: Phase Two ESA, 4 Campbell Reid Court, Kanata ON
JOB#: 65103.01
LOCATION: See Figure A.1, Attachment A

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Mar 28 2022

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	RECOVERY (mm)	BLOWS/0.3m	LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		93.64									
0	Direct Push	Brown coarse sand with gravel (FILL)		93.13	1	CA	1092		TP22-05 SA1: M&I, PAHs, PHC F1-F4, VOCs	HEX: 0; IBL: 0			Native backfill
1		Grey clay and silty clay with organics		0.51 92.11	2	CA				HEX: 5; IBL: 0			
		End of borehole - auger refusal		1.52									

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LOGGED: EW
CHECKED: MB

ENV - BOREHOLE LOG CAMPBELL COURT GINT.GPJ GEMTEC 2018.GDT 6/27/22

RECORD OF BOREHOLE 22-06

CLIENT: Dr. Andrzej Olender
PROJECT: Phase Two ESA, 4 Campbell Reid Court, Kanata ON
JOB#: 65103.01
LOCATION: See Figure A.1, Attachment A

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Mar 28 2022

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	SAMPLE DATA: TYPE	SAMPLE DATA: RECOVERY (mm)	SAMPLE DATA: BLOWS/0.3m	SAMPLE DATA: LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		93.57									
0	Direct Push	Brown sandy silt, some gravel (FILL)			1		610		TP22-06 SA1/SA101: M&I, PAHs, PHC F1-F4, VOCs	HEX: 5; IBL: 0			Native backfill
1				92.05									
		Brown silt to peat (wet)		1.52 91.75	2		305			HEX: 0; IBL: 0			
		End of borehole - auger refusal		1.82									

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LOGGED: EW
CHECKED: MB

ENV - BOREHOLE LOG CAMPBELL COURT GINT.GPJ GEMTEC 2018.GDT 6/27/22

APPENDIX C

Soil and Groundwater Analytical Summary Tables

Table C1: Summary of Analytical Results in Soil
Metals and Inorganics
Phase Two Environmental Site Assessment
4 Campbell Reid Court
Kanata, Ontario

Sample ID Depth (m bgs) Lab Job # Sampling Date	MECP TABLE 6 ICC SCS	MECP TABLE 6 RPI SCS	MECP TABLE 1 RPI/ICC SCS	REPORTING LIMIT	UNITS	BH22-01 SA1 0.00-1.21 2214286-01 3/28/2022	BH22-02 SA1 0.00-1.21 2214286-02 3/28/2022	BH22-03 SA1 0.00-0.91 2214286-03 3/28/2022	BH22-04 SA1 0.00-0.52 2214286-04 3/28/2022	BH22-05 SA1 0.00-0.51 2214286-05 3/28/2022	BH22-06 SA1 0.00-1.52 2214286-06 3/28/2022	BH22-106 SA1 0.00-1.52 2214286-07 3/28/2022
Metals												
Antimony	40	7.5	1.3	1	µg/g	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Arsenic	18	18	18	1	µg/g	2.8	1.6	2	3.1	3.3	1.9	1.8
Barium	670	390	220	1	µg/g	194	37.3	219	*266*	143	72.6	53.7
Beryllium	8	4	2.5	0.5	µg/g	0.6	ND (0.5)	0.5	0.7	0.6	ND (0.5)	ND (0.5)
Boron (Hot Water Soluble)	2	1.5	NV	0.5	µg/g	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Boron (Total)	120	120	36	5	µg/g	6.5	ND (5.0)	12.1	6.3	5.7	ND (5.0)	ND (5.0)
Cadmium	1.9	1.2	1.2	0.5	µg/g	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chromium VI	8	8	0.66	0.2	µg/g	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Chromium	160	160	70	5	µg/g	25.6	12.1	37.6	26.8	29.9	16.6	15.9
Cobalt	80	22	21	1	µg/g	19.5	3.4	8.3	11.8	8.2	5.1	4.6
Copper	230	140	92	5	µg/g	28.4	8.5	11.7	14.4	15.2	18.4	13.9
Lead	120	120	120	1	µg/g	5.5	2.3	11	8.2	14.7	6.5	5.1
Mercury	3.9	0.27	0.27	0.1	µg/g	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Molybdenum	40	6.9	2	1	µg/g	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Nickel	270	100	82	5	µg/g	16.4	6.2	20.3	16	15.9	10.3	10.2
Selenium	5.5	2.4	1.5	1	µg/g	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Silver	40	20	0.5	0.3	µg/g	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)
Thallium	3.3	1	1	1	µg/g	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Uranium	33	23	2.5	1	µg/g	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Vanadium	86	86	86	10	µg/g	64.5	19	29.7	39.7	40.1	26.5	24.6
Zinc	340	340	290	20	µg/g	59.6	ND (20.0)	26.9	24.2	56.4	36.7	28.7
Inorganics												
SAR	12	5	2.4	1	N/A	0.1	0.11	0.1	1.74	1.13	0.13	0.1
Electrical Conductivity	1400	700	470	1	uS/cm	117	90	***1020***	222	264	93	74
Cyanide	0.051	0.051	0.051	10	ug/g dry	ND (0.03)	ND (0.03)	ND (0.03)	ND (0.03)	ND (0.03)	ND (0.03)	ND (0.03)
pH	5 to 9	5 to 9	5 to 9	20	pH Units	7.1	7.49	7.5	6.82	7.45	7.45	7.53

Notes:

'NV ' : No Standard established

'ND': Non Detect

m bgs: meters below ground surface

MECP Table 6 RPI SCS: MECP Table 6: Full Depth Generic Site Condition Standards for Shallow Soils in a Potable Groundwater Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils. July 2011.

MECP Table 6 ICC SCS: Full Depth Generic Site Condition Standards for Shallow Soils in a Potable Groundwater Condition for Industrial/Commercial/Community Property Use with Coarse Textured Soils. July, 2011.

MECP Table 1 RPI/ICC SCS: Full Depth Background Site Condition Standards for Soil for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use. July, 2011.

100	Exceeds MECP Table 6 ICC SCS
100	Exceeds MECP Table 6 RPI SCS
100	Exceeds MECP Table 1 RPI/ICC SCS

GEMTEC
Consulting Engineers and Scientists

Table C2: Summary of Analytical Results in Soil
Polycyclic Aromatic Hydrocarbons (PAHs)
Phase Two Environmental Site Assessment
4 Campbell Reid Court
Kanata, Ontario

Sample ID Depth (m bgs) Lab Job # Sampling Date	MECP TABLE 6 ICC SCS	MECP TABLE 6 RPI SCS	MECP TABLE 1 RPI/ICC SCS	REPORTING LIMIT	UNITS	BH22-01 SA1 0.00-1.21 2214286-01 3/28/2022	BH22-02 SA1 0.00-1.21 2214286-02 3/28/2022	BH22-03 SA1 0.00-0.91 2214286-03 3/28/2022	BH22-04 SA1 0.00-0.52 2214286-04 3/28/2022	BH22-05 SA1 0.00-0.51 2214286-05 3/28/2022	BH22-06 SA1 0.00-1.52 2214286-06 3/28/2022	BH22-106 SA1 0.00-1.52 2214286-07 3/28/2022
Polycyclic Aromatic Hydrocarbons (PAHs)												
Acenaphthene	21	7.9	0.072	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Acenaphthylene	0.15	0.15	0.093	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Anthracene	0.67	0.67	0.16	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Benzo[a]anthracene	0.96	0.5	0.36	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Benzo[a]pyrene	0.3	0.3	0.3	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Benzo[b]fluoranthene	0.96	0.78	0.47	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Benzo[g,h,i]perylene	9.6	6.6	0.68	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Benzo[k]fluoranthene	0.96	0.78	0.48	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Chrysene	9.6	7	2.8	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Dibenzo[a,h]anthracene	0.1	0.1	0.1	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Fluoranthene	9.6	0.69	0.56	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Fluorene	62	62	0.12	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Indeno [1,2,3-cd] pyrene	0.76	0.38	0.23	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
1-Methylnaphthalene	30	0.99	0.59	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
2-Methylnaphthalene	30	0.99	0.59	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Methylnaphthalene (1&2)	30	0.99	0.59	0.04	µg/g	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)
Naphthalene	9.6	0.6	0.09	0.01	µg/g	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Phenanthrene	12	6.2	0.69	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Pyrene	96	78	1	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)

Notes:

'NV ' : No Standard established

'ND': Non Detect

m bgs: meters below ground surface

The methyl naphthalene standards are appliable to both 1-methyl naphthallene and 2-methyl naphthalene , with the provision that if both are detected the sum of the two must not exceed the standard

MECP Table 6 RPI SCS: MECP Table 6: Full Depth Generic Site Condition Standards for Shallow Soils in a Potable Groundwater Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils. July 2011.

MECP Table 6 ICC SCS: Full Depth Generic Site Condition Standards for Shallow Soils in a Potable Groundwater Condition for Industrial/Commercial/Community Property Use with Coarse Textured Soils. July, 2011.

MECP Table 1 RPI/ICC SCS: Full Depth Background Site Condition Standards for Soil for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use. July, 2011.

100	Exceeds MECP Table 6 ICC SCS
100	Exceeds MECP Table 6 RPI SCS
100	Exceeds MECP Table 1 RPI/ICC SCS

Table C3: Summary of Analytical Results in Soil
Petroleum Hydrocarbons and Volatile Organic Compounds
Phase Two Environmental Site Assessment
4 Campbell Reid Court
Kanata, Ontario

Sample ID Depth (m bgs) Lab Job # Sampling Date	MECP TABLE 6 ICC SCS	MECP TABLE 6 RPI SCS	MECP TABLE 1 RPI/ICC SCS	REPORTING LIMIT	UNITS	BH22-01 SA1 0.00-1.21 2214286-01 3/28/2022	BH22-02 SA1 0.00-1.21 2214286-02 3/28/2022	BH22-03 SA1 0.00-0.91 2214286-03 3/28/2022	BH22-04 SA1 0.00-0.52 2214286-04 3/28/2022	BH22-05 SA1 0.00-0.51 2214286-05 3/28/2022	BH22-06 SA1 0.00-1.52 2214286-06 3/28/2022	BH22-106 SA1 0.00-1.52 2214286-07 3/28/2022
Petroleum Hydrocarbon (PHCs)												
F1 (C6-C10)	55	55	25	7	µg/g	ND (7)	ND (7)	21	ND (7)	ND (7)	ND (7)	ND (7)
F2 (C10-C16)	230	98	10	4	µg/g	ND (4)	ND (4)	*14*	ND (4)	ND (4)	ND (4)	ND (4)
F3 (C16-C34)	1700	300	240	8	µg/g	14	ND (8)	29	16	38	ND (8)	ND (8)
F4 (C34-C50)	3300	2800	120	6	µg/g	10	ND (6)	25	15	30	ND (6)	ND (6)
Volatile Organic Compounds (VOCs)												
Acetone	16	16	0.5	0.50	µg/g	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Benzene	0.32	0.21	0.02	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Bromodichloromethane	1.5	1.5	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Bromoform	0.61	0.27	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Bromomethane	0.05	0.05	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Carbon Tetrachloride	0.21	0.05	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Chlorobenzene	2.4	2.4	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Chloroform	0.47	0.05	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Dibromochloromethane	2.3	2.3	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Dichlorodifluoromethane	16	16	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,2-Dichlorobenzene	1.2	1.2	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,3-Dichlorobenzene	9.6	4.8	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,4-Dichlorobenzene	0.2	0.083	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,1-Dichloroethane	0.47	0.47	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,2-Dichloroethane	0.05	0.05	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,1-Dichloroethylene	0.064	0.05	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
cis-1,2-Dichloroethylene	1.9	1.9	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
trans-1,2-Dichloroethylene	1.3	0.084	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,2-Dichloropropane	0.16	0.05	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
cis-1,3-Dichloropropylene	NV	NV	NV	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
trans-1,3-Dichloropropylene	NV	NV	NV	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,3-Dichloropropene, total	0.059	0.05	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Ethylbenzene	1.1	1.1	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Ethylene dibromide (dibromoethane, 1,2-)	0.05	0.05	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Hexane	46	2.8	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Methyl Ethyl Ketone (2-Butanone)	70	16	0.5	0.50	µg/g	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Methyl Isobutyl Ketone	31	1.7	0.5	0.50	µg/g	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Methyl tert-butyl ether	1.6	0.75	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Methylene Chloride	1.6	0.1	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Styrene	34	0.7	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,1,1,2-Tetrachloroethane	0.087	0.058	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,1,2,2-Tetrachloroethane	0.05	0.05	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Tetrachloroethylene	1.9	0.28	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Toluene	6.4	2.3	0.2	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,1,1-Trichloroethane	6.1	0.38	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,1,2-Trichloroethane	0.05	0.05	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Trichloroethylene	0.55	0.061	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Trichlorofluoromethane	4	4	0.25	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Vinyl Chloride	0.032	0.02	0.02	0.02	µg/g	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
m-Xylene & p-Xylene	NV	NV	NV	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
o-Xylene	NV	NV	NV	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Total Xylenes	26	3.1	0.05	0.05	µg/g	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)

Notes:

'NV ' : No Standard established

'ND': Non Detect

m bgs: meters below ground surface

MECP Table 6 RPI SCS: Full Depth Generic Site Condition Standards for Shallow Soils in a Potable Groundwater Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils. July 2011.

MECP Table 6 ICC SCS: Full Depth Generic Site Condition Standards for Shallow Soils in a Potable Groundwater Condition for Industrial/Commercial/Community Property Use with Coarse Textured Soils. July, 2011.

MECP Table 1 RPI/ICC SCS: Full Depth Background Site Condition Standards for Soil for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use. July, 2011.

100	Exceeds MECP Table 6 ICC SCS
100	Exceeds MECP Table 6 RPI SCS
100	Exceeds MECP Table 1 RPI/ICC SCS

Table C4: Summary of TCLP Results
Phase Two Environmental Site Assessment
4 Campbell Reid Court
Kanata, Ontario

Parameter	Units	MDL	Sample ID: Laboratory Sample ID: Date Sampled: O.Reg 347/558 Schedule 4[1]	TCLP-COMP 2214287-01 28/03/2022
Physical Characteristics				
Flashpoint	°C	-	NV	>70
% Solids	% by Wt.	0.1	NV	84.0
EPA 1311 - TCLP Leachate Inorganics				
Fluoride	mg/L	0.05	150	0.12
Nitrate as N	mg/L	1	1000	ND (1)
Nitrite as N	mg/L	1	1000	ND (1)
Cyanide, free	mg/L	0.02	20	ND (0.02)
EPA 1311 - TCLP Leachate Metals				
Arsenic	mg/L	0.05	2.5	ND (0.05)
Barium	mg/L	0.05	100	0.99
Boron	mg/L	0.05	500	0.18
Cadmium	mg/L	0.01	0.5	ND (0.01)
Chromium	mg/L	0.05	5	ND (0.05)
Lead	mg/L	0.05	5	ND (0.05)
Mercury	mg/L	0.005	0.1	ND (0.005)
Selenium	mg/L	0.05	1	ND (0.05)
Silver	mg/L	0.05	5	ND (0.05)
Uranium	mg/L	0.05	10	ND (0.05)
EPA 1311 - TCLP Leachate Volatiles				
Benzene	mg/L	0.005	0.5	ND (0.005)
Carbon Tetrachloride	mg/L	0.005	0.5	ND (0.005)
Chlorobenzene	mg/L	0.004	8	ND (0.004)
Chloroform	mg/L	0.006	10	ND (0.006)
1,2-Dichlorobenzene	mg/L	0.004	20	ND (0.004)
1,4-Dichlorobenzene	mg/L	0.004	0.5	ND (0.004)
1,2-Dichloroethane	mg/L	0.005	0.5	ND (0.005)
1,1-Dichloroethylene	mg/L	0.006	1.4	ND (0.006)
Methyl Ethyl Ketone (2-Butanone)	mg/L	0.3	200	ND (0.30)
Methylene Chloride	mg/L	0.04	5	ND (0.04)
Tetrachloroethylene	mg/L	0.005	3	ND (0.005)
Trichloroethylene	mg/L	0.004	5	ND (0.004)
Vinyl Chloride	mg/L	0.005	0.2	ND (0.005)
EPA 1311 - TCLP Leachate Organics				
Benzo[a]pyrene	mg/L	0.0001	0.001	ND (0.0001)

Notes:
'MDL': Method Detection Limit
'NV' : No Standard established
'ND' : Non Detect
1 - O.Reg. 347/558 Schedule 4: O.Reg. 347 and O. Reg. 558/00: General – Waste Management. Schedule 4: Leachate Quality Criteria. (MECP, 2011)

Bolded Exceeds O.Reg. 347/558 Schedule 4

Table C5: Summary of Analytical Results in Groundwater
Metals and Inorganics and Polycyclic Aromatic Hydrocarbons
Phase Two Environmental Site Assessment
4 Campbell Reid Court
Kanata, Ontario

Sample ID Screen Interval (mbgs) Lab Job # Sampling Date	MECP TABLE 1 SCS	MECP TABLE 6 SCS	REPORTING LIMIT	UNITS	PW-4 2216364-01 13-Apr-2022	PW-4-D 2216364-02 13-Apr-2022	Trip Blank 2216364-03 13-Apr-2022
Metals and Inorganics							
Cyanide, Free	5	52	2	ug/L	ND (2)	ND (2)	N/A
pH	5 to 9	5 to 9	0.1	pH Units	7.2	7.2	N/A
Chloride	790,000	790,000	1	ug/L	756	768	N/A
Mercury	0.1	0.1	0.1	ug/L	ND (0.1)	ND (0.1)	N/A
Antimony	1.5	6	0.5	ug/L	ND (0.5)	ND (0.5)	N/A
Arsenic	13	25	1	ug/L	ND (1)	ND (1)	N/A
Barium	610	1000	1	ug/L	***4420***	***4510***	N/A
Beryllium	0.5	4	0.5	ug/L	ND (0.5)	ND (0.5)	N/A
Boron	1700	5000	10	ug/L	15	15	N/A
Cadmium	0.5	2.1	0.1	ug/L	ND (0.1)	ND (0.1)	N/A
Chromium	11	50	1	ug/L	ND (1)	ND (1)	N/A
Chromium VI	25	25	10	ug/L	ND (10)	ND (10)	N/A
Cobalt	3.8	3.8	0.5	ug/L	ND (0.5)	ND (0.5)	N/A
Copper	5	69	0.5	ug/L	ND (0.5)	ND (0.5)	N/A
Lead	1.9	10	0.1	ug/L	ND (0.1)	ND (0.1)	N/A
Molybdenum	23	70	0.5	ug/L	0.6	0.6	N/A
Nickel	14	100	1	ug/L	ND (1)	ND (1)	N/A
Selenium	5	10	1	ug/L	ND (1)	ND (1)	N/A
Silver	0.3	1.2	0.1	ug/L	ND (0.1)	ND (0.1)	N/A
Sodium	490,000	490,000	200	ug/L	423000	422000	N/A
Thallium	0.5	2	0.1	ug/L	ND (0.1)	ND (0.1)	N/A
Uranium	8.9	20	0.1	ug/L	0.4	0.4	N/A
Vanadium	3.9	6.2	0.5	ug/L	1.9	1.9	N/A
Zinc	160	890	5	ug/L	20	23	N/A
Polycyclic Aromatic Hydrocarbons (PAHs)							
Acenaphthene	4.1	4.1	0.05	ug/L	ND (0.05)	ND (0.05)	N/A
Acenaphthylene	1	1	0.05	ug/L	ND (0.05)	ND (0.05)	N/A
Anthracene	0.1	1	0.01	ug/L	ND (0.01)	ND (0.01)	N/A
Benzo(a)anthracene	0.2	1	0.01	ug/L	ND (0.01)	ND (0.01)	N/A
Benzo(a)pyrene	0.01	0.01	0.01	ug/L	ND (0.01)	ND (0.01)	N/A
Benzo(b/j)fluoranthene	0.1	0.1	0.05	ug/L	ND (0.05)	ND (0.05)	N/A
Benzo(ghi)perylene	0.2	0.2	0.05	ug/L	ND (0.05)	ND (0.05)	N/A
Benzo(k)fluoranthene	0.1	0.1	0.05	ug/L	ND (0.05)	ND (0.05)	N/A
Chrysene	0.1	0.1	0.05	ug/L	ND (0.05)	ND (0.05)	N/A
Dibenzo(a,h)anthracene	0.2	0.2	0.05	ug/L	ND (0.05)	ND (0.05)	N/A
Fluoranthene	0.4	0.41	0.01	ug/L	ND (0.01)	ND (0.01)	N/A
Fluorene	120	120	0.05	ug/L	ND (0.05)	ND (0.05)	N/A
Indeno(1,2,3-cd)pyrene	0.2	0.2	0.05	ug/L	ND (0.05)	ND (0.05)	N/A
1-Methylnaphthalene	NV	NV	0.05	ug/L	ND (0.05)	ND (0.05)	N/A
2-Methylnaphthalene	NV	NV	0.05	ug/L	ND (0.05)	ND (0.05)	N/A
1,2-Methylnaphthalene	2	3.2	0.10	ug/L	ND (0.10)	ND (0.10)	N/A
Naphthalene	7	7	0.05	ug/L	ND (0.05)	ND (0.05)	N/A
Phenanthrene	0.1	1	0.05	ug/L	ND (0.05)	ND (0.05)	N/A
Pyrene	0.2	4.1	0.01	ug/L	ND (0.01)	ND (0.01)	N/A

Notes:

NV: No Standard established

NA: Parameter not analyzed

The methyl naphthalene standards are appliable to both 1-methyl naphthalene and 2-methyl naphthalene, with the provision that if both are detected the sum of the two must not exceed the standard

MECP Table 1: Full Depth Background Site Condition Standards for Ground Water for All Types of Property Use. July, 2011.

MECP Table 6: Generic Site Condition Standards for Shallow Soils in a Potable Ground Water Condition for All

100	Exceeds MECP Table 6 SCS
100	Exceeds MECP Table 1 SCS

Table C6: Summary of Analytical Results in Groundwater
Petroleum Hydrocarbon Compounds and Volatile Organic Compounds
Phase Two Environmental Site Assessment
4 Campbell Reid Court
Kanata, Ontario

Sample ID Screen Interval (mbgs) Lab Job # Sampling Date	MECP TABLE 1 STANDARD	MECP TABLE 6 STANDARD	REPORTING LIMIT	UNITS	PW-4 2216364-01 13-Apr-2022	PW-4-D 2216364-02 13-Apr-2022	Trip Blank 2216364-03 13-Apr-2022
Petroleum Hydrocarbon Compounds (PHCs)							
F1 (C6-C10)	420	420	25	ug/L	ND (25)	ND (25)	ND (25)
F2 (C10-C16)	150	150	25	ug/L	ND (100)	ND (100)	N/A
F3 (C16-C34)	500	500	100	ug/L	ND (100)	ND (100)	N/A
F3 (C16-C34)	500	500	100	ug/L	ND (100)	ND (100)	N/A
Volatile Organic Compounds (VOCs)							
Acetone	2700	2700	5.0	ug/L	ND (5.0)	ND (5.0)	ND (5.0)
Benzene	0.5	0.5	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Bromodichloromethane	2	16	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Bromoform	5	5	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Bromomethane	0.89	0.89	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Carbon Tetrachloride	0.2	0.2	0.2	ug/L	ND (0.2)	ND (0.2)	ND (0.2)
Chlorobenzene	0.5	30	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Chloroform	2	2	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Dibromochloromethane	2	25	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Dichlorodifluoromethane	590	590	1.0	µg/L	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dichlorobenzene	0.5	3	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
1,3-Dichlorobenzene	0.5	59	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
1,4-Dichlorobenzene	0.5	0.5	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloroethane	0.5	5	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
1,2-Dichloroethane	0.5	0.5	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloroethylene	0.5	0.5	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Cis-1,2-Dichloroethylene	1.6	1.6	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Trans-1,2-Dichloroethylene	1.6	1.6	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
1,2-Dichloropropane	0.5	0.58	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Cis-1,3-Dichloropropylene	NV	NV	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Trans-1,3-Dichloropropylene	NV	NV	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
1,3-Dichloropropylene	0.5	0.5	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Ethylbenzene	0.5	2.4	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Ethylene Dibromide (1,2-Dibromoethane	0.2	0.2	0.2	ug/L	ND (0.2)	ND (0.2)	ND (0.2)
Hexane	5	5	1.0	µg/L	ND (1.0)	ND (1.0)	ND (1.0)
Methyl Ethyl Ketone (2-Butanone)	400	470,000	5.0	µg/L	ND (5.0)	ND (5.0)	ND (5.0)
Methyl Isobutyl Ketone	640	640	5.0	ug/L	ND (5.0)	ND (5.0)	ND (5.0)
Methyl-t-Butyl Ether	15	15	2.0	ug/L	ND (2.0)	ND (2.0)	ND (2.0)
Methylene Chloride	5	26	5.0	ug/L	ND (5.0)	ND (5.0)	ND (5.0)
Styrene	0.5	5.4	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
1,1,1,2-Tetrachloroethane	1.1	1.1	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
1,1,2,2-Tetrachloroethane	0.5	0.5	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Tetrachloroethylene	0.5	0.5	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Toluene	0.8	24	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
1,1,1-Trichloroethane	0.5	23	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
1,1,2-Trichloroethane	0.5	0.5	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Trichloroethylene	0.5	0.5	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Trichlorofluoromethane	150	150	1.0	ug/L	ND (1.0)	ND (1.0)	ND (1.0)
Vinyl Chloride	0.5	0.5	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
m-Xylene & p-Xylene	NV	NV	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
o-Xylene	NV	NV	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)
Total Xylenes	72	72	0.5	ug/L	ND (0.5)	ND (0.5)	ND (0.5)

Notes:

NV: No Standard established

NA': Parameter not analyzed

MECP Table 1: Full Depth Background Site Condition Standards for Ground Water for All Types of Property Use. July, 2011.

MECP Table 6: Generic Site Condition Standards for Shallow Soils in a Potable Ground Water Condition for All Types of Property Use. July, 2011.

100	Exceeds MECP Table 6 SCS
100	Exceeds MECP Table 1 SCS

APPENDIX D

Certificates of Analysis

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Certificate of Analysis

GEMTEC Consulting Engineers and Scientists Limited

32 Steacie Drive
Kanata, ON K2K 2A9
Attn: Mohit Bhargav

Client PO: 65103.01
Project: 65103.01 4 Campbell Reid Court
Custody:

Report Date: 6-Apr-2022
Order Date: 30-Mar-2022

Order #: 2214287

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

Paracel ID	Client ID
2214287-01	TCLP-COMP

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 06-Apr-2022

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 30-Mar-2022

Client PO: 65103.01

Project Description: 65103.01 4 Campbell Reid Court

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Flashpoint	ASTM D93 - Pensky-Martens Closed Cup	31-Mar-22	31-Mar-22
Metals, ICP-MS	TCLP EPA 6020 - Digestion - ICP-MS	1-Apr-22	1-Apr-22
REG 558 - Cyanide	TCLP MOE E3015- Auto Colour	4-Apr-22	4-Apr-22
REG 558 - Fluoride	TCLP EPA 340.2 - ISE	1-Apr-22	1-Apr-22
REG 558 - Mercury by CVAA	TCLP EPA 7470A, CVAA	4-Apr-22	5-Apr-22
REG 558 - NO3/NO2	TCLP EPA 300.1 - IC	1-Apr-22	1-Apr-22
REG 558 - PAHs	TCLP EPA 625 - GC-MS	5-Apr-22	5-Apr-22
REG 558 - VOCs	TCLP ZHE EPA 624 - P&T GC-MS	1-Apr-22	1-Apr-22
Solids, %	Gravimetric, calculation	31-Mar-22	1-Apr-22

Certificate of Analysis

Report Date: 06-Apr-2022

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 30-Mar-2022

Client PO: 65103.01

Project Description: 65103.01 4 Campbell Reid Court

	Client ID:	TCLP-COMP	-	-	-
	Sample Date:	28-Mar-22 09:00	-	-	-
	Sample ID:	2214287-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	84.0	-	-	-
Flashpoint	°C	>70	-	-	-
EPA 1311 - TCLP Leachate Inorganics					
Fluoride	0.05 mg/L	0.12	-	-	-
Nitrate as N	1 mg/L	<1	-	-	-
Nitrite as N	1 mg/L	<1	-	-	-
Cyanide, free	0.02 mg/L	<0.02	-	-	-
EPA 1311 - TCLP Leachate Metals					
Arsenic	0.05 mg/L	<0.05	-	-	-
Barium	0.05 mg/L	0.99	-	-	-
Boron	0.05 mg/L	0.18	-	-	-
Cadmium	0.01 mg/L	<0.01	-	-	-
Chromium	0.05 mg/L	<0.05	-	-	-
Lead	0.05 mg/L	<0.05	-	-	-
Mercury	0.005 mg/L	<0.005	-	-	-
Selenium	0.05 mg/L	<0.05	-	-	-
Silver	0.05 mg/L	<0.05	-	-	-
Uranium	0.05 mg/L	<0.05	-	-	-
EPA 1311 - TCLP Leachate Volatiles					
Benzene	0.005 mg/L	<0.005	-	-	-
Carbon Tetrachloride	0.005 mg/L	<0.005	-	-	-
Chlorobenzene	0.004 mg/L	<0.004	-	-	-
Chloroform	0.006 mg/L	<0.006	-	-	-
1,2-Dichlorobenzene	0.004 mg/L	<0.004	-	-	-
1,4-Dichlorobenzene	0.004 mg/L	<0.004	-	-	-
1,2-Dichloroethane	0.005 mg/L	<0.005	-	-	-
1,1-Dichloroethylene	0.006 mg/L	<0.006	-	-	-
Methyl Ethyl Ketone (2-Butanone)	0.30 mg/L	<0.30	-	-	-
Methylene Chloride	0.04 mg/L	<0.04	-	-	-
Tetrachloroethylene	0.005 mg/L	<0.005	-	-	-
Trichloroethylene	0.004 mg/L	<0.004	-	-	-
Vinyl chloride	0.005 mg/L	<0.005	-	-	-
4-Bromofluorobenzene	Surrogate	107%	-	-	-
Dibromofluoromethane	Surrogate	101%	-	-	-
Toluene-d8	Surrogate	110%	-	-	-
EPA 1311 - TCLP Leachate Organics					

	Client ID:	TCLP-COMP	-	-	-
	Sample Date:	28-Mar-22 09:00	-	-	-
	Sample ID:	2214287-01	-	-	-
	MDL/Units	Soil	-	-	-
Benzo [a] pyrene	0.0001 mg/L	<0.0001	-	-	-
Terphenyl-d14	Surrogate	115%	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Fluoride	ND	0.05	mg/L						
Nitrate as N	ND	1	mg/L						
Nitrite as N	ND	1	mg/L						
Cyanide, free	ND	0.02	mg/L						
EPA 1311 - TCLP Leachate Metals									
Arsenic	ND	0.05	mg/L						
Barium	ND	0.05	mg/L						
Boron	ND	0.05	mg/L						
Cadmium	ND	0.01	mg/L						
Chromium	ND	0.05	mg/L						
Lead	ND	0.05	mg/L						
Mercury	ND	0.005	mg/L						
Selenium	ND	0.05	mg/L						
Silver	ND	0.05	mg/L						
Uranium	ND	0.05	mg/L						
EPA 1311 - TCLP Leachate Organics									
Benzo [a] pyrene	ND	0.0001	mg/L						
Surrogate: Terphenyl-d14	*0.21*		*mg/L*		*107*	*37.1-155.6*			
EPA 1311 - TCLP Leachate Volatiles									
Benzene	ND	0.005	mg/L						
Carbon Tetrachloride	ND	0.005	mg/L						
Chlorobenzene	ND	0.004	mg/L						
Chloroform	ND	0.006	mg/L						
1,2-Dichlorobenzene	ND	0.004	mg/L						
1,4-Dichlorobenzene	ND	0.004	mg/L						
1,2-Dichloroethane	ND	0.005	mg/L						
1,1-Dichloroethylene	ND	0.006	mg/L						
Methyl Ethyl Ketone (2-Butanone)	ND	0.30	mg/L						
Methylene Chloride	ND	0.04	mg/L						
Tetrachloroethylene	ND	0.005	mg/L						
Trichloroethylene	ND	0.004	mg/L						
Vinyl chloride	ND	0.005	mg/L						
Surrogate: 4-Bromofluorobenzene	*0.0889*		*mg/L*		*111*	*83-134*			
Surrogate: Dibromofluoromethane	*0.0822*		*mg/L*		*103*	*78-124*			
Surrogate: Toluene-d8	*0.0878*		*mg/L*		*110*	*76-118*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Fluoride	0.12	0.05	mg/L	0.12			0.9	20	
Nitrate as N	ND	1	mg/L	ND			NC	20	
Nitrite as N	ND	1	mg/L	ND			NC	20	
Cyanide, free	ND	0.02	mg/L	ND			NC	20	
EPA 1311 - TCLP Leachate Metals									
Arsenic	ND	0.05	mg/L	ND			NC	29	
Barium	1.02	0.05	mg/L	0.985			3.4	34	
Boron	0.188	0.05	mg/L	0.178			5.9	33	
Cadmium	ND	0.01	mg/L	ND			NC	33	
Chromium	ND	0.05	mg/L	ND			NC	32	
Lead	ND	0.05	mg/L	ND			NC	32	
Mercury	ND	0.005	mg/L	ND			NC	30	
Selenium	ND	0.05	mg/L	ND			NC	28	
Silver	ND	0.05	mg/L	ND			NC	28	
Uranium	ND	0.05	mg/L	ND			NC	27	
EPA 1311 - TCLP Leachate Organics									
Benzo [a] pyrene	ND	0.0001	mg/L	ND			NC	50	
Surrogate: Terphenyl-d14	*0.24*		*mg/L*		*119*	*37.1-155.6*			
EPA 1311 - TCLP Leachate Volatiles									
Benzene	ND	0.005	mg/L	ND			NC	25	
Carbon Tetrachloride	ND	0.005	mg/L	ND			NC	25	
Chlorobenzene	ND	0.004	mg/L	ND			NC	25	
Chloroform	ND	0.006	mg/L	ND			NC	25	
1,2-Dichlorobenzene	ND	0.004	mg/L	ND			NC	25	
1,4-Dichlorobenzene	ND	0.004	mg/L	ND			NC	25	
1,2-Dichloroethane	ND	0.005	mg/L	ND			NC	25	
1,1-Dichloroethylene	ND	0.006	mg/L	ND			NC	25	
Methyl Ethyl Ketone (2-Butanone)	ND	0.30	mg/L	ND			NC	25	
Methylene Chloride	ND	0.04	mg/L	ND			NC	25	
Tetrachloroethylene	ND	0.005	mg/L	ND			NC	25	
Trichloroethylene	ND	0.004	mg/L	ND			NC	25	
Vinyl chloride	ND	0.005	mg/L	ND			NC	25	
Surrogate: 4-Bromofluorobenzene	*0.0872*		*mg/L*		*109*	*83-134*			
Surrogate: Dibromofluoromethane	*0.0807*		*mg/L*		*101*	*78-124*			
Surrogate: Toluene-d8	*0.0876*		*mg/L*		*110*	*76-118*			
Physical Characteristics									
% Solids	76.7	0.1	% by Wt.	79.7			3.8	25	

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Fluoride	0.72	0.05	mg/L	0.12	119	70-130			
Nitrate as N	9	1	mg/L	ND	91.2	81-112			
Nitrite as N	10	1	mg/L	ND	95.5	76-107			
Cyanide, free	0.048	0.02	mg/L	ND	95.9	52-148			
EPA 1311 - TCLP Leachate Metals									
Arsenic	49.5	0.05	mg/L	0.167	98.7	83-119			
Barium	144	0.05	mg/L	98.5	90.0	80-120			
Boron	64.4	0.05	mg/L	17.8	93.4	71-128			
Cadmium	46.1	0.01	mg/L	0.037	92.2	78-119			
Chromium	51.1	0.05	mg/L	1.01	100	80-124			
Lead	44.5	0.05	mg/L	0.131	88.6	77-126			
Mercury	0.0333	0.005	mg/L	ND	111	70-130			
Selenium	41.8	0.05	mg/L	0.171	83.2	75-125			
Silver	48.6	0.05	mg/L	ND	97.2	70-128			
Uranium	47.5	0.05	mg/L	0.062	94.9	70-131			
EPA 1311 - TCLP Leachate Organics									
Benzo [a] pyrene	0.0551	0.0001	mg/L	ND	110	39-123			
Surrogate: Terphenyl-d14	*0.23*		*mg/L*		*114*	*37.1-155.6*			
EPA 1311 - TCLP Leachate Volatiles									
Benzene	0.032	0.005	mg/L	ND	80.8	55-141			
Carbon Tetrachloride	0.032	0.005	mg/L	ND	79.1	49-149			
Chlorobenzene	0.038	0.004	mg/L	ND	95.1	64-137			
Chloroform	0.031	0.006	mg/L	ND	77.9	58-138			
1,2-Dichlorobenzene	0.034	0.004	mg/L	ND	83.9	60-150			
1,4-Dichlorobenzene	0.034	0.004	mg/L	ND	85.6	63-132			
1,2-Dichloroethane	0.032	0.005	mg/L	ND	78.8	50-140			
1,1-Dichloroethylene	0.034	0.006	mg/L	ND	84.3	43-153			
Methyl Ethyl Ketone (2-Butanone)	0.062	0.30	mg/L	ND	62.0	26-153			
Methylene Chloride	0.031	0.04	mg/L	ND	78.2	58-149			
Tetrachloroethylene	0.037	0.005	mg/L	ND	93.0	51-145			
Trichloroethylene	0.040	0.004	mg/L	ND	99.0	52-135			
Vinyl chloride	0.033	0.005	mg/L	ND	83.0	31-159			
Surrogate: 4-Bromofluorobenzene	*0.0844*		*mg/L*		*106*	*83-134*			
Surrogate: Dibromofluoromethane	*0.0910*		*mg/L*		*114*	*78-124*			
Surrogate: Toluene-d8	*0.0794*		*mg/L*		*99.3*	*76-118*			

Qualifer No tes:

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)

Client Name: GEMTEC	Project Ref: 65103.01 4 Campbell Reid Court	Page 2 of 2
Contact Name: Mohit Bhargav	Quote #:	**Turnaround Time**
Address: 32 Steacie Drive	PO #: 65103.01	☐ 1 day ☐ 3 day
	E-mail: mohit.bhargav@gemtec.ca	☐ 2 day ☒ Regular
Telephone: 5068970427	brenda.thom@gemtec.ca	Date Required:

Regulation 153/04	Other Regulation	Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)
☒ Table 1 ☒ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO	
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA	
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm	
☐ Table ___	Mun:	
For RSC: ☐ Yes ☒ No	☒ Other: 406/19 (Leachate)	

Required Analysis

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	TCLP - VOCs	TCLP - Flashpoint	TCLP - M&I	TCLP - PAHs								
1	TCLP - COMP	S		2	March 28, 2022	AM	✓	✓	✓	✓								
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign): Mohit Bhargav	Received By Driver/Depot: [signature]	Received at Lab: Suneeporn Dhmai	Verified By: [signature]
Relinquished By (Print): Mohit Bhargav	Date/Time: 30/03/22 1:02	Date/Time: Mar 30, 2022 02:52	Date/Time: Mar 30 2022 1455
Date/Time: 30 March 2022	Temperature: °C PH	Temperature: 7.6 C	pH Verified: ☐ By:

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Certificate of Analysis

GEMTEC Consulting Engineers and Scientists Limited

32 Steacie Drive
Kanata, ON K2K 2A9
Attn: Ester Wilson

Client PO: 65103.01 4 Campbell Reid Ct
Project: 65103.01
Custody: 135704

Report Date: 21-Apr-2022
Order Date: 13-Apr-2022

Order #: 2216364

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

Paracel ID	Client ID
2216364-01	PW-4
2216364-02	PW-4-D
2216364-03	Trip Blank

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 21-Apr-2022

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 13-Apr-2022

Client PO: 65103.01 4 Campbell Reid Ct

Project Description: 65103.01

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC	14-Apr-22	14-Apr-22
Chromium, hexavalent - water	MOE E3056 - colourimetric	18-Apr-22	18-Apr-22
Cyanide, free	MOE E3015 - Auto Colour	14-Apr-22	14-Apr-22
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	14-Apr-22	14-Apr-22
Metals, ICP-MS	EPA 200.8 - ICP-MS	14-Apr-22	14-Apr-22
pH	EPA 150.1 - pH probe @25 °C	14-Apr-22	14-Apr-22
PHC F1	CWS Tier 1 - P&T GC-FID	14-Apr-22	15-Apr-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	19-Apr-22	20-Apr-22
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	20-Apr-22	20-Apr-22
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	14-Apr-22	15-Apr-22

Certificate of Analysis

Report Date: 21-Apr-2022

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 13-Apr-2022

Client PO: 65103.01 4 Campbell Reid Ct

Project Description: 65103.01

	Client ID:	PW-4	PW-4-D	Trip Blank	-
	Sample Date:	13-Apr-22 09:30	13-Apr-22 09:30	11-Apr-22 09:00	-
	Sample ID:	2216364-01	2216364-02	2216364-03	-
	MDL/Units	Water	Water	Water	-
General Inorganics					
Cyanide, free	2 ug/L	<2	<2	-	-
pH	0.1 pH Units	7.2	7.2	-	-
Anions					
Chloride	1 mg/L	756	768	-	-
Metals					
Mercury	0.1 ug/L	<0.1	<0.1	-	-
Antimony	0.5 ug/L	<0.5	<0.5	-	-
Arsenic	1 ug/L	<1	<1	-	-
Barium	1 ug/L	4420	4510	-	-
Beryllium	0.5 ug/L	<0.5	<0.5	-	-
Boron	10 ug/L	15	15	-	-
Cadmium	0.1 ug/L	<0.1	<0.1	-	-
Chromium	1 ug/L	<1	<1	-	-
Chromium (VI)	10 ug/L	<10	<10	-	-
Cobalt	0.5 ug/L	<0.5	<0.5	-	-
Copper	0.5 ug/L	<0.5	<0.5	-	-
Lead	0.1 ug/L	<0.1	<0.1	-	-
Molybdenum	0.5 ug/L	0.6	0.6	-	-
Nickel	1 ug/L	<1	<1	-	-
Selenium	1 ug/L	<1	<1	-	-
Silver	0.1 ug/L	<0.1	<0.1	-	-
Sodium	200 ug/L	423000	422000	-	-
Thallium	0.1 ug/L	<0.1	<0.1	-	-
Uranium	0.1 ug/L	0.4	0.4	-	-
Vanadium	0.5 ug/L	1.9	1.9	-	-
Zinc	5 ug/L	20	23	-	-
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	-
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	-

Certificate of Analysis

Report Date: 21-Apr-2022

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 13-Apr-2022

Client PO: 65103.01 4 Campbell Reid Ct

Project Description: 65103.01

	Client ID:	PW-4	PW-4-D	Trip Blank	-
	Sample Date:	13-Apr-22 09:30	13-Apr-22 09:30	11-Apr-22 09:00	-
	Sample ID:	2216364-01	2216364-02	2216364-03	-
	MDL/Units	Water	Water	Water	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	<0.5	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	<0.2	<0.2	-
Hexane	1.0 ug/L	<1.0	<1.0	<1.0	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	<5.0	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	<5.0	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	<2.0	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	<5.0	-
Styrene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	-
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	-
4-Bromofluorobenzene	Surrogate	120%	120%	123%	-
Dibromofluoromethane	Surrogate	101%	101%	112%	-

Certificate of Analysis

Report Date: 21-Apr-2022

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 13-Apr-2022

Client PO: 65103.01 4 Campbell Reid Ct

Project Description: 65103.01

	Client ID:	PW-4	PW-4-D	Trip Blank	-
	Sample Date:	13-Apr-22 09:30	13-Apr-22 09:30	11-Apr-22 09:00	-
	Sample ID:	2216364-01	2216364-02	2216364-03	-
	MDL/Units	Water	Water	Water	-
Toluene-d8	Surrogate	110%	109%	109%	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	-
Semi-Volatiles					
Acenaphthene	0.05 ug/L	<0.05	<0.05	-	-
Acenaphthylene	0.05 ug/L	<0.05	<0.05	-	-
Anthracene	0.01 ug/L	<0.01	<0.01	-	-
Benzo [a] anthracene	0.01 ug/L	<0.01	<0.01	-	-
Benzo [a] pyrene	0.01 ug/L	<0.01	<0.01	-	-
Benzo [b] fluoranthene	0.05 ug/L	<0.05	<0.05	-	-
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	<0.05	-	-
Benzo [k] fluoranthene	0.05 ug/L	<0.05	<0.05	-	-
Chrysene	0.05 ug/L	<0.05	<0.05	-	-
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	<0.05	-	-
Fluoranthene	0.01 ug/L	<0.01	<0.01	-	-
Fluorene	0.05 ug/L	<0.05	<0.05	-	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	<0.05	-	-
1-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	-	-
2-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	-	-
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	<0.10	-	-
Naphthalene	0.05 ug/L	<0.05	<0.05	-	-
Phenanthrene	0.05 ug/L	<0.05	<0.05	-	-
Pyrene	0.01 ug/L	<0.01	<0.01	-	-
2-Fluorobiphenyl	Surrogate	106%	106%	-	-
Terphenyl-d14	Surrogate	113%	110%	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
General Inorganics									
Cyanide, free	ND	2	ug/L						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L						
F2 PHCs (C10-C16)	ND	100	ug/L						
F3 PHCs (C16-C34)	ND	100	ug/L						
F4 PHCs (C34-C50)	ND	100	ug/L						
Metals									
Mercury	ND	0.1	ug/L						
Antimony	ND	0.5	ug/L						
Arsenic	ND	1	ug/L						
Barium	ND	1	ug/L						
Beryllium	ND	0.5	ug/L						
Boron	ND	10	ug/L						
Cadmium	ND	0.1	ug/L						
Chromium (VI)	ND	10	ug/L						
Chromium	ND	1	ug/L						
Cobalt	ND	0.5	ug/L						
Copper	ND	0.5	ug/L						
Lead	ND	0.1	ug/L						
Molybdenum	ND	0.5	ug/L						
Nickel	ND	1	ug/L						
Selenium	ND	1	ug/L						
Silver	ND	0.1	ug/L						
Sodium	ND	200	ug/L						
Thallium	ND	0.1	ug/L						
Uranium	ND	0.1	ug/L						
Vanadium	ND	0.5	ug/L						
Zinc	ND	5	ug/L						
Semi-Volatiles									
Acenaphthene	ND	0.05	ug/L						
Acenaphthylene	ND	0.05	ug/L						
Anthracene	ND	0.01	ug/L						
Benzo [a] anthracene	ND	0.01	ug/L						
Benzo [a] pyrene	ND	0.01	ug/L						
Benzo [b] fluoranthene	ND	0.05	ug/L						
Benzo [g,h,i] perylene	ND	0.05	ug/L						
Benzo [k] fluoranthene	ND	0.05	ug/L						
Chrysene	ND	0.05	ug/L						
Dibenzo [a,h] anthracene	ND	0.05	ug/L						
Fluoranthene	ND	0.01	ug/L						
Fluorene	ND	0.05	ug/L						
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L						
1-Methylnaphthalene	ND	0.05	ug/L						
2-Methylnaphthalene	ND	0.05	ug/L						
Methylnaphthalene (1&2)	ND	0.10	ug/L						
Naphthalene	ND	0.05	ug/L						
Phenanthrene	ND	0.05	ug/L						
Pyrene	ND	0.01	ug/L						
Surrogate: 2-Fluorobiphenyl	*23.8*		*ug/L*		*119*	*50-140*			
Surrogate: Terphenyl-d14	*25.1*		*ug/L*		*126*	*50-140*			
Volatiles									
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						
Chlorobenzene	ND	0.5	ug/L						
Chloroform	ND	0.5	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane, 1,2	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*101*		*ug/L*		*127*	*50-140*			
Surrogate: Dibromofluoromethane	*83.1*		*ug/L*		*104*	*50-140*			
Surrogate: Toluene-d8	*88.0*		*ug/L*		*110*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	13.4	1	mg/L	13.2			1.7	10	
General Inorganics									
Cyanide, free	8.9	2	ug/L	9.1			2.2	20	
pH	7.6	0.1	pH Units	7.7			0.5	3.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Metals									
Mercury	ND	0.1	ug/L	ND			NC	20	
Antimony	1.25	0.5	ug/L	ND			NC	20	
Arsenic	1.5	1	ug/L	1.4			3.0	20	
Barium	80.0	1	ug/L	81.5			1.8	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	85	10	ug/L	85			0.5	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium (VI)	ND	10	ug/L	ND			NC	20	
Chromium	ND	1	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	3.51	0.5	ug/L	3.59			2.2	20	
Lead	0.18	0.1	ug/L	0.17			3.8	20	
Molybdenum	6.99	0.5	ug/L	7.04			0.8	20	
Nickel	1.5	1	ug/L	1.6			4.8	20	
Selenium	2.3	1	ug/L	2.2			3.2	20	
Silver	ND	0.1	ug/L	ND			NC	20	
Sodium	351000	531	ug/L	352000			0.2	20	
Thallium	ND	0.1	ug/L	ND			NC	20	
Uranium	1.6	0.1	ug/L	1.6			5.1	20	
Vanadium	2.02	0.5	ug/L	2.00			0.8	20	
Zinc	ND	5	ug/L	8			NC	20	
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	4.18	0.5	ug/L	4.36			4.2	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	5.32	0.5	ug/L	5.59			5.0	30	
Dibromochloromethane	2.84	0.5	ug/L	2.27			22.3	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	*96.3*		*ug/L*		*120*	*50-140*			
Surrogate: Dibromofluoromethane	*87.3*		*ug/L*		*109*	*50-140*			
Surrogate: Toluene-d8	*87.0*		*ug/L*		*109*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	25.4	1	mg/L	13.2	122	77-123			
General Inorganics									
Cyanide, free	60.0	2	ug/L	9.1	102	61-139			
Hydrocarbons									
F1 PHCs (C6-C10)	1610	25	ug/L	ND	80.3	68-117			
F2 PHCs (C10-C16)	1520	100	ug/L	ND	95.0	60-140			
F3 PHCs (C16-C34)	4090	100	ug/L	ND	104	60-140			
F4 PHCs (C34-C50)	3240	100	ug/L	ND	131	60-140			
Metals									
Mercury	3.40	0.1	ug/L	ND	113	70-130			
Arsenic	50.6	1	ug/L	1.4	98.2	80-120			
Barium	125	1	ug/L	81.5	86.3	80-120			
Beryllium	42.6	0.5	ug/L	ND	85.2	80-120			
Boron	44	10	ug/L	ND	88.3	80-120			
Cadmium	41.9	0.1	ug/L	ND	83.7	80-120			
Chromium (VI)	196	10	ug/L	ND	98.0	70-130			
Chromium	57.1	1	ug/L	ND	114	80-120			
Cobalt	51.1	0.5	ug/L	ND	102	80-120			
Copper	48.9	0.5	ug/L	3.59	90.6	80-120			
Molybdenum	54.3	0.5	ug/L	7.04	94.5	80-120			
Nickel	49.4	1	ug/L	1.6	95.6	80-120			
Selenium	45.3	1	ug/L	2.2	86.0	80-120			
Silver	40.9	0.1	ug/L	ND	81.8	80-120			
Sodium	8480	200	ug/L	ND	84.8	80-120			
Thallium	45.9	0.1	ug/L	ND	91.7	80-120			
Uranium	44.3	0.1	ug/L	1.6	85.5	80-120			
Vanadium	60.9	0.5	ug/L	2.00	118	80-120			
Zinc	46	5	ug/L	ND	92.3	80-120			
Semi-Volatiles									
Acenaphthene	4.77	0.05	ug/L	ND	95.5	50-140			
Acenaphthylene	4.32	0.05	ug/L	ND	86.5	50-140			
Anthracene	4.35	0.01	ug/L	ND	86.9	50-140			
Benzo [a] anthracene	4.43	0.01	ug/L	ND	88.7	50-140			
Benzo [a] pyrene	4.67	0.01	ug/L	ND	93.5	50-140			
Benzo [b] fluoranthene	6.05	0.05	ug/L	ND	121	50-140			
Benzo [g,h,i] perylene	4.71	0.05	ug/L	ND	94.2	50-140			
Benzo [k] fluoranthene	5.84	0.05	ug/L	ND	117	50-140			
Chrysene	4.74	0.05	ug/L	ND	94.7	50-140			
Dibenzo [a,h] anthracene	5.24	0.05	ug/L	ND	105	50-140			
Fluoranthene	4.50	0.01	ug/L	ND	90.0	50-140			
Fluorene	4.62	0.05	ug/L	ND	92.5	50-140			
Indeno [1,2,3-cd] pyrene	5.29	0.05	ug/L	ND	106	50-140			
1-Methylnaphthalene	5.66	0.05	ug/L	ND	113	50-140			
2-Methylnaphthalene	6.02	0.05	ug/L	ND	120	50-140			
Naphthalene	5.06	0.05	ug/L	ND	101	50-140			
Phenanthrene	4.30	0.05	ug/L	ND	86.0	50-140			
Pyrene	4.53	0.01	ug/L	ND	90.5	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: 2-Fluorobiphenyl	*23.6*		*ug/L*		*118*	*50-140*			
Surrogate: Terphenyl-d14	*24.0*		*ug/L*		*120*	*50-140*			
Volatiles									
Acetone	71.6	5.0	ug/L	ND	71.6	50-140			
Benzene	30.3	0.5	ug/L	ND	75.6	60-130			
Bromodichloromethane	33.0	0.5	ug/L	ND	82.5	60-130			
Bromoform	31.0	0.5	ug/L	ND	77.4	60-130			
Bromomethane	29.0	0.5	ug/L	ND	72.6	50-140			
Carbon Tetrachloride	29.4	0.2	ug/L	ND	73.4	60-130			
Chlorobenzene	32.4	0.5	ug/L	ND	80.9	60-130			
Chloroform	35.5	0.5	ug/L	ND	88.8	60-130			
Dibromochloromethane	35.8	0.5	ug/L	ND	89.6	60-130			
Dichlorodifluoromethane	41.4	1.0	ug/L	ND	103	50-140			
1,2-Dichlorobenzene	40.9	0.5	ug/L	ND	102	60-130			
1,3-Dichlorobenzene	30.1	0.5	ug/L	ND	75.2	60-130			
1,4-Dichlorobenzene	32.0	0.5	ug/L	ND	80.1	60-130			
1,1-Dichloroethane	32.5	0.5	ug/L	ND	81.2	60-130			
1,2-Dichloroethane	35.5	0.5	ug/L	ND	88.8	60-130			
1,1-Dichloroethylene	29.5	0.5	ug/L	ND	73.8	60-130			
cis-1,2-Dichloroethylene	34.5	0.5	ug/L	ND	86.3	60-130			
trans-1,2-Dichloroethylene	28.2	0.5	ug/L	ND	70.6	60-130			
1,2-Dichloropropane	35.2	0.5	ug/L	ND	88.1	60-130			
cis-1,3-Dichloropropylene	35.6	0.5	ug/L	ND	89.0	60-130			
trans-1,3-Dichloropropylene	34.0	0.5	ug/L	ND	85.0	60-130			
Ethylbenzene	32.4	0.5	ug/L	ND	81.0	60-130			
Ethylene dibromide (dibromoethane, 1,2-	33.2	0.2	ug/L	ND	83.0	60-130			
Hexane	39.0	1.0	ug/L	ND	97.5	60-130			
Methyl Ethyl Ketone (2-Butanone)	77.0	5.0	ug/L	ND	77.0	50-140			
Methyl Isobutyl Ketone	71.3	5.0	ug/L	ND	71.3	50-140			
Methyl tert-butyl ether	88.9	2.0	ug/L	ND	88.9	50-140			
Methylene Chloride	30.9	5.0	ug/L	ND	77.4	60-130			
Styrene	36.8	0.5	ug/L	ND	92.1	60-130			
1,1,1,2-Tetrachloroethane	29.4	0.5	ug/L	ND	73.6	60-130			
1,1,2,2-Tetrachloroethane	42.6	0.5	ug/L	ND	106	60-130			
Tetrachloroethylene	33.6	0.5	ug/L	ND	84.0	60-130			
Toluene	34.2	0.5	ug/L	ND	85.6	60-130			
1,1,1-Trichloroethane	29.4	0.5	ug/L	ND	73.6	60-130			
1,1,2-Trichloroethane	36.1	0.5	ug/L	ND	90.2	60-130			
Trichloroethylene	41.0	0.5	ug/L	ND	103	60-130			
Trichlorofluoromethane	30.8	1.0	ug/L	ND	76.9	60-130			
Vinyl chloride	29.3	0.5	ug/L	ND	73.2	50-140			
m,p-Xylenes	61.8	0.5	ug/L	ND	77.2	60-130			
o-Xylene	30.1	0.5	ug/L	ND	75.3	60-130			
Surrogate: 4-Bromofluorobenzene	*99.9*		*ug/L*		*125*	*50-140*			
Surrogate: Dibromofluoromethane	*83.4*		*ug/L*		*104*	*50-140*			
Surrogate: Toluene-d8	*85.4*		*ug/L*		*107*	*50-140*			

Qualifer No tes:

Login Qualifers :

Sample - Mercury not submitted according to Reg. 153/04, Amended 2011 - not field filtered and preserved
Mercury sample was decanted from the general chemistry bottle and was filtered and preserved at the lab.
Applies to samples: PW-4, PW-4-D

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

CCME PHC additional information:

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

PARACEL LABORATORIES LTD.

Paracel ID: 2216364

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2216364	№ 135704

Client Name: GEMTEC	Project Ref: 65103.01
Contact Name: Ester Wilson	Quote #:
Address: 32 Steacie Dr. Kanata, ON	PO #: 65103.01 4 Campbell Reid Ct
Telephone: (613) 585-2041	E-mail: ester.wilson@gemtec.ca brenda.thom@gemtec.ca

Page 1 of 1

Turnaround Time

☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular

Date Required:

☒ REG 153/04 ☐ REG 406/19

☒ Table 1 ☐ Res/Park ☐ Med/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other
☒ Table 6
For RSC: ☐ Yes ☒ No

Other Regulation

☐ REG 558 ☐ PWQO
☐ CCME ☐ MISA
☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

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

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	M&I
1	PW-4	GW	-	9	Apr.13/22	9:30 AM	X	X	X		X	X		X
2	PW-4-D	GW	-	9	Apr.13/22	9:30 AM	X	X	X		X	X		X
3	Trip Blank	-	-	1	Apr 11/22	-	X	X						
4														
5														
6														
7														
8														
9														
10														

Comments: Metals and Chrom VI filtered. Mercury not filtered.

Method of Delivery: Walk-in

Relinquished By (Sign): Ester Wilson	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Ester Wilson	Date/Time: 04/13/22 10:57 am	Date/Time: April 13, 22 16:08	Date/Time: April 13, 2022 16:37
Date/Time: April.13/2022 11:00 am	Temperature: 14.2 °C	Temperature: 8.6 °C	pH Verified: ☑ By: BS

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Certificate of Analysis

GEMTEC Consulting Engineers and Scientists Limited

32 Steacie Drive
Kanata, ON K2K 2A9
Attn: Mohit Bhargav

Client PO: 65103.01
Project: 65103.01 4 Campbell Reid Court
Custody:

Report Date: 5-Apr-2022
Order Date: 30-Mar-2022

Order #: 2214286

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

Paracel ID	Client ID
2214286-01	BH22-01 SA1
2214286-02	BH22-02 SA1
2214286-03	BH22-03 SA1
2214286-04	BH22-04 SA1
2214286-05	BH22-05 SA1
2214286-06	BH22-06 SA1
2214286-07	BH22-106 SA1

Approved By:

Dale Robertson, BSc
Laboratory Director

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.8 - ICP-MS	1-Apr-22	1-Apr-22
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	31-Mar-22	1-Apr-22
Conductivity	MOE E3138 - probe @25 °C, water ext	1-Apr-22	1-Apr-22
Cyanide, free	MOE E3015 - Auto Colour, water extraction	31-Mar-22	1-Apr-22
Mercury by CVAA	EPA 7471B - CVAA, digestion	1-Apr-22	5-Apr-22
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	30-Mar-22	31-Mar-22
PHC F1	CWS Tier 1 - P&T GC-FID	1-Apr-22	1-Apr-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	31-Mar-22	31-Mar-22
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	1-Apr-22	1-Apr-22
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	31-Mar-22	4-Apr-22
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	1-Apr-22	1-Apr-22
SAR	Calculated	1-Apr-22	4-Apr-22
Solids, %	Gravimetric, calculation	31-Mar-22	31-Mar-22

Certificate of Analysis

Report Date: 05-Apr-2022

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 30-Mar-2022

Client PO: 65103.01

Project Description: 65103.01 4 Campbell Reid Court

	Client ID:	BH22-01 SA1	BH22-02 SA1	BH22-03 SA1	BH22-04 SA1
	Sample Date:	28-Mar-22 09:00	28-Mar-22 09:00	28-Mar-22 09:00	28-Mar-22 09:00
	Sample ID:	2214286-01	2214286-02	2214286-03	2214286-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	90.1	89.1	92.5	78.0
General Inorganics					
SAR	0.01 N/A	0.10	0.11	0.10	1.74
Conductivity	5 uS/cm	117	90	1020	222
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
pH	0.05 pH Units	7.10	7.49	7.50	6.82
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	2.8	1.6	2.0	3.1
Barium	1.0 ug/g dry	194	37.3	219	266
Beryllium	0.5 ug/g dry	0.6	<0.5	0.5	0.7
Boron	5.0 ug/g dry	6.5	<5.0	12.1	6.3
Boron, available	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	25.6	12.1	37.6	26.8
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	<0.2
Cobalt	1.0 ug/g dry	19.5	3.4	8.3	11.8
Copper	5.0 ug/g dry	28.4	8.5	11.7	14.4
Lead	1.0 ug/g dry	5.5	2.3	11.0	8.2
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Nickel	5.0 ug/g dry	16.4	6.2	20.3	16.0
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	64.5	19.0	29.7	39.7
Zinc	20.0 ug/g dry	59.6	<20.0	26.9	24.2
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Report Date: 05-Apr-2022

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 30-Mar-2022

Client PO: 65103.01

Project Description: 65103.01 4 Campbell Reid Court

	Client ID:	BH22-01 SA1	BH22-02 SA1	BH22-03 SA1	BH22-04 SA1
	Sample Date:	28-Mar-22 09:00	28-Mar-22 09:00	28-Mar-22 09:00	28-Mar-22 09:00
	Sample ID:	2214286-01	2214286-02	2214286-03	2214286-04
	MDL/Units	Soil	Soil	Soil	Soil
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05

Certificate of Analysis

Report Date: 05-Apr-2022

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 30-Mar-2022

Client PO: 65103.01

Project Description: 65103.01 4 Campbell Reid Court

	Client ID:	BH22-01 SA1	BH22-02 SA1	BH22-03 SA1	BH22-04 SA1
	Sample Date:	28-Mar-22 09:00	28-Mar-22 09:00	28-Mar-22 09:00	28-Mar-22 09:00
	Sample ID:	2214286-01	2214286-02	2214286-03	2214286-04
	MDL/Units	Soil	Soil	Soil	Soil
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
4-Bromofluorobenzene	Surrogate	108%	108%	85.4%	103%
Dibromofluoromethane	Surrogate	114%	114%	104%	117%
Toluene-d8	Surrogate	100%	99.5%	83.5%	106%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	21	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	14	<4
F3 PHCs (C16-C34)	8 ug/g dry	14	<8	29	16
F4 PHCs (C34-C50)	6 ug/g dry	10	<6	25	15
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
2-Fluorobiphenyl	Surrogate	104%	89.0%	108%	71.4%
Terphenyl-d14	Surrogate	114%	109%	112%	85.2%

Certificate of Analysis

Report Date: 05-Apr-2022

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 30-Mar-2022

Client PO: 65103.01

Project Description: 65103.01 4 Campbell Reid Court

	Client ID:	BH22-05 SA1	BH22-06 SA1	BH22-106 SA1	-
	Sample Date:	28-Mar-22 09:00	28-Mar-22 09:00	28-Mar-22 09:00	-
	Sample ID:	2214286-05	2214286-06	2214286-07	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	82.5	86.5	91.5	-
General Inorganics					
SAR	0.01 N/A	1.13	0.13	0.10	-
Conductivity	5 uS/cm	264	93	74	-
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	-
pH	0.05 pH Units	7.45	7.45	7.53	-
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Arsenic	1.0 ug/g dry	3.3	1.9	1.8	-
Barium	1.0 ug/g dry	143	72.6	53.7	-
Beryllium	0.5 ug/g dry	0.6	<0.5	<0.5	-
Boron	5.0 ug/g dry	5.7	<5.0	<5.0	-
Boron, available	0.5 ug/g dry	<0.5	<0.5	<0.5	-
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	-
Chromium	5.0 ug/g dry	29.9	16.6	15.9	-
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	-
Cobalt	1.0 ug/g dry	8.2	5.1	4.6	-
Copper	5.0 ug/g dry	15.2	18.4	13.9	-
Lead	1.0 ug/g dry	14.7	6.5	5.1	-
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	-
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Nickel	5.0 ug/g dry	15.9	10.3	10.2	-
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	-
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Vanadium	10.0 ug/g dry	40.1	26.5	24.6	-
Zinc	20.0 ug/g dry	56.4	36.7	28.7	-
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-

Certificate of Analysis

Report Date: 05-Apr-2022

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 30-Mar-2022

Client PO: 65103.01

Project Description: 65103.01 4 Campbell Reid Court

	Client ID:	BH22-05 SA1	BH22-06 SA1	BH22-106 SA1	-
	Sample Date:	28-Mar-22 09:00	28-Mar-22 09:00	28-Mar-22 09:00	-
	Sample ID:	2214286-05	2214286-06	2214286-07	-
	MDL/Units	Soil	Soil	Soil	-
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Ethylene dibromide (dibromoethane, 1	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Hexane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	<0.50	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Styrene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	-

Certificate of Analysis

Report Date: 05-Apr-2022

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 30-Mar-2022

Client PO: 65103.01

Project Description: 65103.01 4 Campbell Reid Court

	Client ID:	BH22-05 SA1	BH22-06 SA1	BH22-106 SA1	-
	Sample Date:	28-Mar-22 09:00	28-Mar-22 09:00	28-Mar-22 09:00	-
	Sample ID:	2214286-05	2214286-06	2214286-07	-
	MDL/Units	Soil	Soil	Soil	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate	112%	108%	108%	-
Dibromofluoromethane	Surrogate	106%	108%	111%	-
Toluene-d8	Surrogate	100%	100%	99.9%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	-
F3 PHCs (C16-C34)	8 ug/g dry	38	<8	<8	-
F4 PHCs (C34-C50)	6 ug/g dry	30	<6	<6	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	-
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	-
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
2-Fluorobiphenyl	Surrogate	86.7%	89.4%	120%	-
Terphenyl-d14	Surrogate	100%	109%	119%	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Conductivity	ND	5	uS/cm						
Cyanide, free	ND	0.03	ug/g						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron, available	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium (VI)	ND	0.2	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.33*		*ug/g*		*99.8*	*50-140*			
Surrogate: Terphenyl-d14	*1.44*		*ug/g*		*108*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane, 1,2	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*3.26*		*ug/g*		*102*	*50-140*			
Surrogate: Dibromofluoromethane	*4.01*		*ug/g*		*125*	*50-140*			
Surrogate: Toluene-d8	*2.79*		*ug/g*		*87.1*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	0.29	0.01	N/A	0.25			14.8	30	
Conductivity	163	5	uS/cm	163			0.0	5	
Cyanide, free	ND	0.03	ug/g	ND			NC	35	
pH	6.26	0.05	pH Units	6.27			0.2	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	18	8	ug/g	14			20.4	30	
F4 PHCs (C34-C50)	9	6	ug/g	10			5.9	30	
Metals									
Antimony	1.8	1.0	ug/g	ND			NC	30	
Arsenic	3.0	1.0	ug/g	2.8			6.6	30	
Barium	199	1.0	ug/g	194			2.7	30	
Beryllium	0.6	0.5	ug/g	0.6			3.7	30	
Boron, available	ND	0.5	ug/g	ND			NC	35	
Boron	6.4	5.0	ug/g	6.5			1.8	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g	ND			NC	35	
Chromium	25.5	5.0	ug/g	25.6			0.1	30	
Cobalt	18.1	1.0	ug/g	19.5			7.6	30	
Copper	28.2	5.0	ug/g	28.4			0.7	30	
Lead	5.7	1.0	ug/g	5.5			4.0	30	
Mercury	ND	0.1	ug/g	ND			NC	30	
Molybdenum	ND	1.0	ug/g	ND			NC	30	
Nickel	16.0	5.0	ug/g	16.4			2.1	30	
Selenium	ND	1.0	ug/g	ND			NC	30	
Silver	ND	0.3	ug/g	ND			NC	30	
Thallium	ND	1.0	ug/g	ND			NC	30	
Uranium	ND	1.0	ug/g	ND			NC	30	
Vanadium	62.7	10.0	ug/g	64.5			2.7	30	
Zinc	58.8	20.0	ug/g	59.6			1.4	30	
Physical Characteristics									
% Solids	88.1	0.1	% by Wt.	90.1			2.3	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g	ND			NC	40	
Anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Chrysene	ND	0.02	ug/g	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g	ND			NC	40	
Fluoranthene	ND	0.02	ug/g	ND			NC	40	
Fluorene	ND	0.02	ug/g	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
Naphthalene	ND	0.01	ug/g	ND			NC	40	
Phenanthrene	ND	0.02	ug/g	ND			NC	40	
Pyrene	ND	0.02	ug/g	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	*1.52*		*ug/g*		*103*	*50-140*			
Surrogate: Terphenyl-d14	*1.68*		*ug/g*		*114*	*50-140*			
Volatiles									

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Acetone	ND	0.50	ug/g	ND			NC	50	
Benzene	ND	0.02	ug/g	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g	ND			NC	50	
Bromoform	ND	0.05	ug/g	ND			NC	50	
Bromomethane	ND	0.05	ug/g	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g	ND			NC	50	
Chloroform	ND	0.05	ug/g	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g	ND			NC	50	
Dichlorodifluoromethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2	ND	0.05	ug/g	ND			NC	50	
Hexane	ND	0.05	ug/g	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g	ND			NC	50	
Styrene	ND	0.05	ug/g	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: 4-Bromofluorobenzene	*3.90*		*ug/g*		*109*	*50-140*			
Surrogate: Dibromofluoromethane	*2.54*		*ug/g*		*71.0*	*50-140*			
Surrogate: Toluene-d8	*3.63*		*ug/g*		*101*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Cyanide, free	0.227	0.03	ug/g	ND	68.4	50-150			
Hydrocarbons									
F1 PHCs (C6-C10)	210	7	ug/g	ND	105	80-120			
F2 PHCs (C10-C16)	89	4	ug/g	ND	100	60-140			
F3 PHCs (C16-C34)	227	8	ug/g	14	97.8	60-140			
F4 PHCs (C34-C50)	153	6	ug/g	10	104	60-140			
Metals									
Antimony	43.1	1.0	ug/g	ND	85.5	70-130			
Arsenic	53.9	1.0	ug/g	1.1	105	70-130			
Barium	141	1.0	ug/g	77.6	127	70-130			
Beryllium	52.6	0.5	ug/g	ND	105	70-130			
Boron, available	4.34	0.5	ug/g	ND	86.7	70-122			
Boron	52.8	5.0	ug/g	ND	100	70-130			
Cadmium	50.5	0.5	ug/g	ND	101	70-130			
Chromium (VI)	2.0	0.2	ug/g	ND	35.5	70-130			QM-05
Chromium	64.1	5.0	ug/g	10.2	108	70-130			
Cobalt	59.3	1.0	ug/g	7.8	103	70-130			
Copper	61.6	5.0	ug/g	11.4	100	70-130			
Lead	49.9	1.0	ug/g	2.2	95.4	70-130			
Mercury	1.50	0.1	ug/g	ND	100	70-130			
Molybdenum	52.7	1.0	ug/g	ND	105	70-130			
Nickel	56.9	5.0	ug/g	6.5	101	70-130			
Selenium	49.2	1.0	ug/g	ND	98.1	70-130			
Silver	49.5	0.3	ug/g	ND	99.0	70-130			
Thallium	50.0	1.0	ug/g	ND	99.8	70-130			
Uranium	53.0	1.0	ug/g	ND	105	70-130			
Vanadium	81.2	10.0	ug/g	25.8	111	70-130			
Zinc	73.9	20.0	ug/g	23.9	100	70-130			
Semi-Volatiles									
Acenaphthene	0.208	0.02	ug/g	ND	112	50-140			
Acenaphthylene	0.170	0.02	ug/g	ND	91.9	50-140			
Anthracene	0.178	0.02	ug/g	ND	96.0	50-140			
Benzo [a] anthracene	0.159	0.02	ug/g	ND	86.0	50-140			
Benzo [a] pyrene	0.200	0.02	ug/g	ND	108	50-140			
Benzo [b] fluoranthene	0.186	0.02	ug/g	ND	100	50-140			
Benzo [g,h,i] perylene	0.176	0.02	ug/g	ND	94.9	50-140			
Benzo [k] fluoranthene	0.145	0.02	ug/g	ND	78.1	50-140			
Chrysene	0.201	0.02	ug/g	ND	109	50-140			
Dibenzo [a,h] anthracene	0.177	0.02	ug/g	ND	95.6	50-140			
Fluoranthene	0.180	0.02	ug/g	ND	97.1	50-140			
Fluorene	0.182	0.02	ug/g	ND	98.4	50-140			
Indeno [1,2,3-cd] pyrene	0.151	0.02	ug/g	ND	81.4	50-140			
1-Methylnaphthalene	0.206	0.02	ug/g	ND	111	50-140			
2-Methylnaphthalene	0.220	0.02	ug/g	ND	119	50-140			
Naphthalene	0.233	0.01	ug/g	ND	126	50-140			
Phenanthrene	0.187	0.02	ug/g	ND	101	50-140			
Pyrene	0.212	0.02	ug/g	ND	115	50-140			
Surrogate: 2-Fluorobiphenyl	*1.54*		*ug/g*		*104*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Terphenyl-d14	*1.73*		*ug/g*		*117*	*50-140*			
Volatiles									
Acetone	10.2	0.50	ug/g	ND	102	50-140			
Benzene	3.56	0.02	ug/g	ND	89.0	60-130			
Bromodichloromethane	3.78	0.05	ug/g	ND	94.4	60-130			
Bromoform	3.37	0.05	ug/g	ND	84.3	60-130			
Bromomethane	4.96	0.05	ug/g	ND	124	50-140			
Carbon Tetrachloride	4.43	0.05	ug/g	ND	111	60-130			
Chlorobenzene	3.28	0.05	ug/g	ND	82.0	60-130			
Chloroform	4.19	0.05	ug/g	ND	105	60-130			
Dibromochloromethane	3.09	0.05	ug/g	ND	77.2	60-130			
Dichlorodifluoromethane	5.06	0.05	ug/g	ND	126	50-140			
1,2-Dichlorobenzene	3.34	0.05	ug/g	ND	83.5	60-130			
1,3-Dichlorobenzene	3.33	0.05	ug/g	ND	83.2	60-130			
1,4-Dichlorobenzene	3.53	0.05	ug/g	ND	88.3	60-130			
1,1-Dichloroethane	4.24	0.05	ug/g	ND	106	60-130			
1,2-Dichloroethane	4.11	0.05	ug/g	ND	103	60-130			
1,1-Dichloroethylene	4.72	0.05	ug/g	ND	118	60-130			
cis-1,2-Dichloroethylene	3.92	0.05	ug/g	ND	97.9	60-130			
trans-1,2-Dichloroethylene	4.29	0.05	ug/g	ND	107	60-130			
1,2-Dichloropropane	3.83	0.05	ug/g	ND	95.7	60-130			
cis-1,3-Dichloropropylene	3.56	0.05	ug/g	ND	89.1	60-130			
trans-1,3-Dichloropropylene	4.40	0.05	ug/g	ND	110	60-130			
Ethylbenzene	2.81	0.05	ug/g	ND	70.3	60-130			
Ethylene dibromide (dibromoethane, 1,2-	3.20	0.05	ug/g	ND	80.0	60-130			
Hexane	3.88	0.05	ug/g	ND	96.9	60-130			
Methyl Ethyl Ketone (2-Butanone)	8.64	0.50	ug/g	ND	86.4	50-140			
Methyl Isobutyl Ketone	7.73	0.50	ug/g	ND	77.3	50-140			
Methyl tert-butyl ether	12.1	0.05	ug/g	ND	121	50-140			
Methylene Chloride	4.14	0.05	ug/g	ND	104	60-130			
Styrene	2.69	0.05	ug/g	ND	67.2	60-130			
1,1,1,2-Tetrachloroethane	3.45	0.05	ug/g	ND	86.3	60-130			
1,1,2,2-Tetrachloroethane	3.06	0.05	ug/g	ND	76.5	60-130			
Tetrachloroethylene	3.35	0.05	ug/g	ND	83.8	60-130			
Toluene	3.20	0.05	ug/g	ND	80.0	60-130			
1,1,1-Trichloroethane	4.06	0.05	ug/g	ND	102	60-130			
1,1,2-Trichloroethane	3.59	0.05	ug/g	ND	89.8	60-130			
Trichloroethylene	3.53	0.05	ug/g	ND	88.2	60-130			
Trichlorofluoromethane	4.57	0.05	ug/g	ND	114	50-140			
Vinyl chloride	4.73	0.02	ug/g	ND	118	50-140			
m,p-Xylenes	7.25	0.05	ug/g	ND	90.7	60-130			
o-Xylene	2.98	0.05	ug/g	ND	74.6	60-130			
Surrogate: 4-Bromofluorobenzene	*2.28*		*ug/g*		*71.3*	*50-140*			
Surrogate: Dibromofluoromethane	*3.98*		*ug/g*		*124*	*50-140*			
Surrogate: Toluene-d8	*3.10*		*ug/g*		*96.8*	*50-140*			

Qualifer No tes:

QC Qualifers :

QM-05 : The spike recovery was outside acceptance limits for the matrix spike due to matrix interference.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

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

PARACEL LABORATORIES LTD.

Paracel ID: 2214286

Paracel Order Number (Lab Use Only)

Chain Of Custody (Lab Use Only)

Client Name: GEMTEC	Project Ref: 65103.01 4 Campbell Reid Court
Contact Name: Mohit Bhargav	Quote #:
Address: 32 Steacie Drive	PO #: 65103.01
	E-mail: mohit.bhargav@gemtec.ca brenda.thom@gemtec.ca
Telephone: 5068970427	

Page 1 of 2

Turnaround Time

☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular

Date Required:

Regulation 153/04: ☒ Table 1 ☒ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ Table ___ For RSC: ☐ Yes ☒ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm Mun: ☒ Other: 406/19 (Leachate)

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

Required Analysis

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4	VOCs	PAHs	M&I
1	BH22-01 SA1	S		2	March 28, 2022	AM	✔	✔	✔	✔
2	BH22-02 SA1	S		2	March 28, 2022	AM	✔	✔	✔	✔
3	BH22-03 SA1	S		2	March 28, 2022	AM	✔	✔	✔	✔
4	BH22-04 SA1	S		2	March 28, 2022	AM	✔	✔	✔	✔
5	BH22-05 SA1	S		2	March 28, 2022	AM	✔	✔	✔	✔
6	BH22-06 SA1	S		2	March 28, 2022	AM	✔	✔	✔	✔
7	BH22-106 SA1	S		2	March 28, 2022	AM	✔	✔	✔	✔
8										
9										
10										

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign): Mohit Bhargav	Received By Driver/Depot: A. Strome	Received at Lab: Sumeypovn Dokma	Verified By:
Relinquished By (Print): Mohit Bhargav	Date/Time: 30/03/22 1:02	Date/Time: Mar 30, 2022 02.52	Date/Time: Mar 30 2022 15:0
Date/Time: 30 March 2022	Temperature: °C PH	Temperature: 7.6 C	pH Verified: ☐ By: NA

experience • knowledge • integrity

civil	civil
geotechnical	géotechnique
environmental	environnementale
field services	surveillance de chantier
materials testing	service de laboratoire des matériaux

expérience • connaissance • intégrité