

PHASE II

ENVIRONMENTAL SITE ASSESSMENT



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Prepared for:
Enirox Group Management & Consulting Inc.

Fisher Project No. FE-P 21-11715

December 30, 2021



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Project Name: Due-Diligence Phase II Environmental Site
Assessment

Project Address: 3005 Dundas Street West, Oakville, Ontario

Project Number: FE-P 21-11715

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A handwritten signature in blue ink, appearing to read 'David Fisher', is written over a horizontal line. To the right of the signature is a circular professional engineer seal for the Province of Ontario. The seal contains the text 'LICENSED PROFESSIONAL ENGINEER' at the top, 'D. A. FISHER' in the center, and 'PROVINCE OF ONTARIO' at the bottom.

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GLOSSARY OF ACRONYMS

APEC:	Area of Potential Environmental Concern
asl:	Above Sea Level
AST:	Aboveground Storage Tank
BOD:	Biological Oxygen Demand
bgs:	Below Ground Surface
BTEX:	Benzene, Toluene, Ethylbenzene and Xylenes
COD:	Chemical Oxygen Demand
CPC:	Contaminants of Potential Concern
CSA:	Canadian Standards Association
EC:	Electrical Conductivity
ESA:	Environmental Site Assessment
FIP:	Fire Insurance Plan
MECP:	Ministry of the Environment, Conservation and Parks
MOE:	Ministry of the Environment
OHSA:	Occupational Health and Safety Act
PAH:	Polycyclic Aromatic (Polyaromatic) Hydrocarbons
PCA:	Potentially Contaminating Activity
PCB:	Polychlorinated Biphenyls
pH:	potential of Hydrogen
PHC (F1-F4):	Petroleum Hydrocarbons (Fractions 1 to 4)
ppb:	Parts per Billion
ppm:	Parts per Million
RSC:	Record of Site Condition
SAR:	Sodium Adsorption Ratio
UST:	Underground Storage Tank
VOC:	Volatile Organic Compounds



1. EXECUTIVE SUMMARY

Fisher Environmental Ltd. (Fisher) was commissioned by Enirox Group Management & Consulting Inc. to carry out a Phase II Environmental Site Assessment (ESA) of the property located at 3005 Dundas Street West, Oakville, Ontario, hereinafter referred to as the “Site”. The soil and groundwater investigation was carried out from November 25 to December 16, 2021.

The Site is on the northwest side of Dundas Street West, northeast side of Bronte Road and southwest side of Old Bronte Road, in Oakville, Ontario. The Site is currently vacant and undeveloped, with sand and gravel cover noted at the east portion, at the former location of the fuel service station, and vegetation noted at the remaining Site area.

Existing reports by Wardrop Engineering Inc. and SNC-Lavalin found impacts associated with the former gas station operations. Soil and groundwater remediation, and groundwater monitoring works, were conducted at the Site. A Record of Site Condition was filed with the MECP in 2012, based on commercial use.

Eight (8) boreholes were advanced to depths between approximately 2.1 m and 3.7 m bgs, and a groundwater monitoring well was installed in one of them to facilitate groundwater level monitoring and sampling. The boreholes/monitoring wells were completed, and addition existing monitoring wells selected for sampling, to evaluate surficial or subsurface soil and/or groundwater to assess impacts associated with potentially impacted imported fill materials and operation of gas station.

Eleven (11) soil samples, including one field duplicate, were submitted to the laboratory for Metals, PHC (F1-F4), BTEX, PAH, and/or pH analysis. Nine (9) groundwater samples, including one field duplicate and one trip blank, were collected from the one newly installed monitoring well and six (6) existing monitoring wells, and were submitted to the laboratory for Metals, PHC (F1-F4), BTEX and/or PAH analysis.

Based on the current subsurface investigation, it is concluded that no evidence of soil and groundwater contamination has occurred at the selected sampling locations. No further investigation is recommended at this time.



2. INTRODUCTION

Fisher Environmental Ltd. (Fisher) was commissioned by Enirox Group Management & Consulting Inc. to carry out a Phase II Environmental Site Assessment (ESA) of the property located at 3005 Dundas Street West, Oakville, Ontario, hereinafter referred to as the “Site”. The surficial and subsurface soil and groundwater investigation was carried out from November 25 to December 16, 2021.

3. PROPERTY DESCRIPTION

The Site is on the northwest side of Dundas Street West, northeast side of Bronte Road and southwest side of Old Bronte Road, in Oakville, Ontario. The Site is currently vacant and undeveloped, with sand and gravel cover noted at the east portion, at the former location of the fuel service station, and vegetation noted at the remaining Site area.

4. EXISTING REPORTS REVIEW

The following previous report was reviewed and used as a source of background information:

TABLE 1: PREVIOUS REPORTS

Report Title:	Phase I ESA, Shell Retail No. C05876, Oakville, ON
Prepared By:	Wardrop Engineering Inc.
Date:	September 25, 2008
Findings and Conclusions	
<p>The investigation was undertaken for the former fuel service station only.</p> <p>Eight (8) boreholes, all completed with monitoring wells, were completed at the subject property. Upon completion of the Phase II ESA, PHC (F1-F4) and MTBE exceedances were noted in a five (5) of the eight (8) completed boreholes of soil and groundwater samples.</p>	
Report Title:	Environmental Remediation During Site Decommissioning- Shell Retail No. C05876, Oakville, ON
Prepared By:	Wardrop Engineering Inc.
Date:	June 2, 2009



Findings and Conclusions	
<p>The investigation was undertaken for the former fuel service station only. The scope of the investigation involved the following:</p> <ul style="list-style-type: none"> • Decommissioning of a domestic (potable) water well; • Removal of septic system, hydraulic hoists, five (5) fuel UST, one (1) unknown UST, and building footings; • Removal of contaminated soil; • On-site treatment of soil for reuse. <p>Contaminants of concern carried forward from the previous Phase II ESA, and tested for the purposes of the remediation, included PHC (F1-F4), and MTBE in soil at one location for confirmation of previously encountered exceedance. In total, approximately 9000 tonnes of soil was excavated, and 3,000 tonnes treated on-site using an Allu Bucket, while the remaining was disposed off-Site. No exceedances of MTBE were encountered at any time. Upon completion of remediation, no further soil investigation was required. No groundwater remediation was conducted.</p> <p>After completion, of the remediation program, groundwater monitoring was recommended.</p>	
Report Title:	Post Remediation Assessment- Shell Retail No. C05876, Oakville, ON
Prepared By:	Wardrop Engineering Inc.
Date:	June 2, 2009
Findings and Conclusions	
<p>The investigation was undertaken for the former fuel service station only.</p> <p>Six (6) boreholes completed with monitoring wells were advanced at the property. Groundwater samples from the monitoring wells were tested for PHC (F1-F4), BTEX and MTBE. Groundwater samples from two (2) wells, BH302 and BH304, near the east Site corner and centre portion of former gas station canopy, respectively, had exceedances of Benzene and/or Ethylbenzene, compared to applicable Table 2 SCS.</p>	
Report Title:	Former Shell Fuel Outlet, 3005 Dundas St. W., Oakville – On- and Off-Site Groundwater Monitoring and Sampling
Prepared By:	SNC-Lavalin Inc.
Date:	December 30, 2009



Findings and Conclusions	
<p>The investigation was undertaken for the former fuel service station only.</p> <p>The investigation included decommissioning of the previous (6) monitoring wells (BH301-BH306) and installation of five (5) new monitoring wells (MW-401-MW-405). Groundwater samples from the new monitoring wells were tested for PHC (F1-F4), BTEX and MTBE.</p> <p>MTBE exceedance was noted in MW-402, and Benzene, Toluene, and F1-F2 exceedances were noted in MW-401.</p>	
Report Title:	Former Shell Fuel Outlet, 3005 Dundas St. W., Oakville – Phase I ESA
Prepared By:	SNC-Lavalin Inc.
Date:	October 26, 2021
Findings and Conclusions	
<p>The investigation was undertaken for the former fuel service station only.</p> <p>The Phase One ESA was conducted in general accordance with the 153/04 Standards. The objective of the investigation was for the filing of a Record of Site Condition (RSC) at the Site.</p> <p>Two (2) Areas of Potential Environmental Concern were determined: On-Site operation of fuel service station and off-Site contaminants associated with fuel service station. No off-Site potentially contaminating activities were noted; however, the report did not include any on- and/or off-Site review of records, beyond the previous reports.</p> <p>Based on results, a Phase Two ESA was required.</p>	
Report Title:	Former Shell Fuel Outlet, 3005 Dundas St. W., Oakville – Phase II ESA and Remediation
Prepared By:	SNC-Lavalin Inc.
Date:	November 16, 2021
Findings and Conclusions	
<p>The investigation was undertaken for the former fuel service station only.</p> <p>The Phase Two ESA was conducted in general accordance with the 153/04 Standards. The objective of the investigation was for the filing of a Record of Site Condition (RSC) at the Site.</p> <p>The scope of the investigation included the following:</p>	



- Drilling of four boreholes, completed with monitoring wells (MW-501 to MW-504), to assess soil and groundwater conditions;
- Sampling and analysis of soil and groundwater sampling from the new boreholes/monitoring wells for analysis of PHC (F1-F4), BTEX and MTBE parameters;
- In-situ injections of sodium persulfate via eight (8) injection points located in the vicinity of monitoring wells MW-401 and MW-402 to remediate groundwater impacts of benzene and MTBE;
- Completion of water sampling in nine (9) on-Site monitoring wells (MW-501 to MW-504, and MW-401 to MW-405), until the analytical results from four (4) consecutive events meet applicable RSC standards.

Measured concentrations of the contaminants of concern (benzene and MTBE) satisfying the MECP Table 2 Standards were identified during the latest four (4) consecutive quarterly sampling events conducted between September 2011 and June 2012.

Based on results, the RSC was filed for the property.

Report Title:	Former Shell Fuel Outlet, 3005 Dundas St. W., Oakville – Record of Site Condition
Prepared By:	SNC-Lavalin Inc.
Date:	December 20, 2012
Findings and Conclusions	
<p>The RSC was filed for the fuel service station property on the MECP Environment Registry for Commercial use.</p> <p>RSC No. 206406.</p>	

5. SCOPE OF WORK

The current Phase II ESA was conducted for due diligence purposes, in accordance with the CAN/CSA-Z769-00 standards, as published in March 2000 and reaffirmed in 2018, by the CSA Group.

A Phase II ESA involves sampling and testing of materials considered, usually by the outcome of a Phase I ESA or other investigation, to be possible instances of environmental contamination. The project, as carried out, fulfills the scope of a “Reconnaissance” type investigation in which conditions are previously unknown, and the aim is to establish whether any environmental



contamination is present. Normal environmental assessment protocol reserves a detailed investigation for a subsequent phase if the reconnaissance survey indicates a requirement for further contaminant delineation.

The scope of this work generally consisted of the following:

- **Field Program** - Clearance of underground utilities and advancement of eight (8) boreholes to depths between approximately 2.1 m and 3.7 m bgs, and installation of groundwater monitoring well in one of them.
- **Soil and Groundwater Sampling Program** – Collection of soil samples from the eight (8) new boreholes and groundwater samples from the one newly installed monitoring well and six (6) existing monitoring wells.
- **Laboratory Testing Program** - Recovery and analysis of selected soil and groundwater samples for Metals, PHC (F1-F4), BTEX, PAH and/or pH.
- **Data Evaluation** - Comparison of results of chemical analyses with the applicable MOE (currently MECP) Standards.
- **Reporting** - Provision of final engineering report detailing findings of performed works, and any further recommendations.

The field investigation for the Phase II ESA was performed in conjunction with on-going geotechnical and hydrogeological investigations, which included additional samples submitted for grain size analysis in soil, and Chloride and Sulphate analysis in groundwater.

As conducted, the present investigation may lack information or analytical work that are specific requirements for filing a Record of Site Condition (RSC) under Part XV.1 of the EPA and Amended O. Reg. 153/04, therefore, if an RSC is necessary, the property owner or its agent should undertake complementary investigations required under the RSC filing process.



6. FIELD PROGRAM

The subsurface soil and groundwater investigation (Phase II ESA) was carried out from November 25 to December 16, 2021. The field work was conducted by Arij Alam of Fisher Environmental Ltd. who directed drilling and sampling operations, and assured proper chain of custody procedures for the recovered soil and groundwater samples. The soil and groundwater assessment was conducted concurrent to geotechnical and hydrogeology investigations.

Eight (8) boreholes were advanced to depths between approximately 2.1 m and 3.7 m bgs, and a groundwater monitoring well was installed in one of them to facilitate groundwater level monitoring and sampling.

6.1. Site Preparation

Site preparation included the location of public and private underground services by referring to the respective utilities: Town of Oakville, Toronto Hydro, Enbridge Gas, Region of Halton and various telecom providers, to avoid potential disruptions to the utilities during the drilling. Soil drilling was conducted following receipt of clearance from all utilities for the given borehole locations.

6.2. Boreholes, Soil and Groundwater Sampling

The borehole locations were selected by an initial rationale as being the most likely locations of contamination. Refer to the attached Site Plan with Borehole and Monitoring Well Locations (Figure 1 in Appendix A) and Table 2 for description of borehole locations rationale.

All borehole drilling was carried out using a D-50 drilling rig. The following provides the environmental rationale for borehole locations:

TABLE 2: BOREHOLE LOCATION RATIONALE

Borehole #	Borehole Location and Reason
All boreholes	Evaluate surficial or subsurface soil for impacts associated with potentially impacted imported fill materials used during property development and decommissioning/ remediation at the fuel service station and the two residential dwellings.



Borehole #	Borehole Location and Reason
BH21-1 to BH21-6; Existing MWs	Evaluate surficial and sub-surface soil, and groundwater condition at the fuel service station property, to assess impacts associated with on-Site operation of a gas station. The monitoring wells will assess the shallow zones of the first encountered aquifer, in an effort to capture LNAPL contaminants.

Fisher retains Terra Firma Environmental Services Ltd. (Terra Firma) as our drilling contractor. Terra Firma maintains licensure for drilling (Water Well Drillers, Environmental Protection Act, Well Contractor License No. 6946) as required by the MOE, and conducted drilling and soil sampling works in accordance with CSA Standard Z769-00 (reaffirmed in 2018) and the Ontario Ministry of Environment and Energy (MOEE, currently MECP) “Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario”, December 1996, and in compliance with Occupational Health and Safety regulations.

The intrusive subsurface investigation was conducted by means of solid stem auger boreholes advancement through the pavement and/or subsoil, and a 50 mm diameter spoon sampler driven 600 mm into subsoil by a 65 kg hammer, falling 760 mm, collecting soil samples at a maximum of 0.76 m interval and at stratigraphic boundaries.

Soil samples were collected and handled in accordance with generally accepted sampling and handling procedures used by the environmental consulting industry. For guidance, these practices rely on the 1996 MOEE publication “Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario”. To minimize the potential for cross contamination between soil samples, the split spoon sampler used to collect soil samples from the boreholes was brushed clean of soil and then washed in municipal water containing phosphate free detergent, rinsed in municipal water and then rinsed with distilled water. As well, new disposable nitrile gloves and stainless-steel spatula were used during each sampling event to remove the soil cores from the sampler and to transfer the samples into plastic bags and/or glass jars.

Through each soil sample, the lithology and esthetic evidence of impacts (debris, staining and odours) were recorded as part of field quality control (QC) procedures. Additionally, each sample was screened in the field for headspace vapour concentration (combustible soil vapour and total organic vapour) using the 10.6 eV lamp MiniRae 2000 PID calibrated to 100 ppm Isobutylene.



The samples were kept out of direct sunlight during field storage and the headspace measurements were made after at least two hours had elapsed since the sample *was bagged and the sample had* reached a minimum temperature of 15°C. The headspace monitoring was performed on the samples as a preliminary screening for analysis.

Selection of samples to be submitted for laboratory analysis are based on the headspace vapour concentration, physical evidence of odours/ staining, apparent water table and/or proximity to potential contaminant sources. If no odours/staining are noted in the soil samples, the samples with the highest field screening measurement (i.e., highest headspace vapour concentration) are selected for laboratory analysis. Soil samples from the boreholes selected for potential chemical analysis of organic parameters were placed directly into laboratory supplied glass jars at the time of sampling, labeled and packed with minimal headspace. Samples were kept in coolers provided with cold packs during field storage and transportation to Fisher Environmental Laboratories for analysis.

One field duplicate soil sample has been submitted to the lab for analysis for quality assurance/ quality control (QA/QC) purposes.

Following soil sampling, monitoring wells were installed at all borehole locations, in accordance to O. Reg. 903.

6.3. Monitoring Wells Program

One monitoring well was installed on the subject property. The well was constructed of 52 mm ID diameter PVC pipes, which were pre-cleaned at the factory and delivered to the Site in sealed plastic bags. Further construction details of the monitoring well is provided on the “Log of Boreholes” attached in Appendix B.

The new monitoring well, and six (6) existing monitoring wells (MW-401, MW-402, MW-403, MW-405, MW-501 and MW-503) were sampled on 25 November and 16 December, 2021. The day before the first sampling, the monitoring wells were developed to remove sediment, and allow for the influx of formation groundwater at the time of sampling. Groundwater sampling in the newly installed monitoring wells was conducted using the Low Flow Purging and Sampling procedure (USEPA EQASOP-GW 001), by means of a Horiba U-52 equipped with sensors that



simultaneously measure indicator field parameters such as Temperature, pH, Specific Conductance, ORP, DO and Turbidity.

Laboratory supplied sample containers were used to collect groundwater samples which were labeled, stored in coolers provided with cold packs during field storage and transportation to Fisher Environmental Laboratories for analysis.

One (1) travel blank and one (1) field duplicate groundwater sample have been submitted to the lab for analysis for QA/QC purposes.

Groundwater static level measurement was conducted on November 30, 2021. The groundwater static level measurements are summarized in Table 3, as follows.

TABLE 3: GROUNDWATER STATIC LEVEL MEASUREMENTS

Location	Ground Surface Relative Elevation, m asl	Well Depth, m bgs	Groundwater Static Level, m bgs (November 30, 2021)	Groundwater Relative Elevation, m asl
MW21-3	100.00	2.25	2.14	97.86
MW-401	99.74	3.73	1.75	97.99
MW-402	100.06	3.64	2.11	97.95
MW-403	100.20	3.74	1.08	99.12
MW-405	99.96	3.70	0.93	99.03
MW-501	99.34	4.53	1.67	97.67
MW-503	99.48	3.86	1.83	97.65

Groundwater generally flows from areas of high hydraulic head towards areas of low hydraulic head. To assess the direction of groundwater movement, the hydraulic head is measured at each well location. This is accomplished by taking water level measurements and referencing them to a known benchmark to determine their elevation. Water level measurements having higher elevations suggest greater hydraulic head. Conversely, lower elevations of the water table are indicative of a lesser hydraulic head.



As calculated using the groundwater elevation measurements provided in Table 3, the on-Site groundwater within the first encountered aquifer generally flowed east and southeast. The shallow groundwater level is likely influenced by the imported fill materials utilized to backfill the former remediation area.

6.4. Site Topography and Geology

Site topography is generally flat, and level with the surrounding portions.

According to the Ontario Geology Survey, the surficial geology of the Site and surrounding area is classified as *Till (5d): Clay to silt-textured till (derived from glaciolacustrine deposits or shale)*.

Surface and subsurface conditions encountered at borehole locations are shown in Appendix B - Log of Boreholes, and are summarized as follows:

FILL

Fill materials were noted across the Site. Deep fill materials were noted at the former fuel service station area, where remediation was performed. Fill materials primarily consisted of brown sand and gravel, occasional silt, clay, cobbles and topsoil, to a maximum encountered depth of 3.0 m bgs. The water captured in the monitoring wells was primarily water which was present within the fill materials layer.

CLAYEY SILT TILL

Brown clayey silt till, occasionally sandy occasionally sand and gravel, moist to wet, was the first encountered native stratigraphic layer, noted in all boreholes where native soil was reached, to a maximum depth of 3.66 m bgs.

Bedrock in the area is classified as 55a: Shale, limestone, dolostone, siltstone of the Queenston Formation. Bedrock was not encountered as part of the investigation.



6.5. Head Space Combustible Vapours

A 10.6 eV lamp MiniRae 2000 PID calibrated to 100 ppm Isobutylene was used to measure combustible vapours in the soil samples. The headspace readings for all collected soil samples are shown on the Log of Boreholes attached in Appendix B of this report.

No significant headspace readings were noted.

6.6. Visual Olfactory Soil / Groundwater Quality

During the borehole-drilling program, the following visual/olfactory observations were made:

- Fill materials were noted across the Site.
- No odours or visual indicators suggestive of impacts were noted in the soil and groundwater samples.

6.7. Selection of Analytical Samples and Parameters

Selection of samples for environmental analysis was based on appearance, headspace vapour concentrations, odour, expectations of Site conditions, and proximity of potential contaminant sources.

Eleven (11) soil samples, including one field duplicate, were submitted to the laboratory for Metals, PHC (F1-F4), BTEX, PAH, and/or pH analysis. Nine (9) groundwater samples, including one field duplicate and one trip blank, were collected from the one newly installed monitoring well and six (6) existing monitoring wells, and were submitted to the laboratory for Metals, PHC (F1-F4), BTEX and/or PAH analysis.

TABLE 4: RATIONALE FOR ANALYTICAL PARAMETER

Parameter	Description
<i>Metals</i>	Various metallic elements can cause adverse environmental effects at relatively low concentrations. Such metals are associated with industrial activities and/or the use of fill materials of unknown quality, both historic and current, and it is common practice to include Metals analysis in subsurface soil investigations. Eight (8) soil and five (5) groundwater samples collected at the Site were submitted for Metals analysis.



Parameter	Description
<i>PHC(F1-F4)</i>	PHC are components of gasoline, diesel and other petroleum products for which soil quality guidelines have been developed. These compounds are widely utilized and often included in the evaluation of a Site's overall subsurface condition. Eleven (11) soil and eight (8) groundwater samples collected at the Site were submitted for PHC (F1-F4) analysis. PHC F1 analysis does not include BTEX.
<i>BTEX</i>	Benzene, Toluene, Ethylbenzene and Xylene compounds make up the lightest components of PHC F1, and are analyzed as a separate parameter group to the F1 PHCs. Eleven (11) soil and eight (8) groundwater samples collected at the Site were submitted for BTEX analysis. One (1) travel blank sample was submitted for BTEX Analysis.
<i>PAH</i>	PAH are associated with coal and furnace ash, and/or the use of fill materials of unknown quality. Seven (7) soil samples and five (5) groundwater samples collected at the Site were submitted for PAH analysis.
<i>pH</i>	Soil pH is referred to as the "acidity" of the soil. When the soil pH is too "acid" (low pH) or too "alkaline" (high pH), nutrients present in the soil become locked-up or unavailable. Four (4) soil samples collected at the Site were submitted for pH analysis.

7. LABORATORY PROGRAM

7.1. General

Recovered soil and groundwater samples were submitted to Fisher Environmental Laboratories for analysis. As a Canadian Association for Laboratory Accreditation (CALA) registered analytical facility, QA/QC procedures were maintained consistent with CALA requirements and standard laboratory practices. The laboratories ensured that analytical sub-samples were, by appearance, representative of the whole sample as collected in the field.

7.2. Data Evaluation

7.2.1. Soil and Groundwater Standards

The MECP presents Soil and Groundwater Standards, under the Publication "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" April 15, 2011. These standards present soil and groundwater criteria, which have been developed with



regard to toxicological data. They are levels at and below which no environmental or safety concerns, or adverse conditions, are anticipated for environments or persons with average sensitivity.

The subject property has been historically utilized for commercial and residential purposes; however, it is our understanding that a proposed residential development is envisioned. For the purpose of this investigation, the more stringent R/P/I property use standards have been applied.

With regards to the potability status of the groundwater, the Site and surrounding properties primarily utilize water obtained from municipal mains; however, water wells are present within 250 m of the Site, according to the MECP water well database. For the purpose of assessing the soil and groundwater quality at the Site in accordance to the requirements for site assessment, under Part XV.1 of the EPA and Ontario Regulation 153/04, it is our intention to utilize a potable groundwater condition standard.

As specified by O. Reg. 153/04, "coarse textured soil is defined as material having more than 50 percent (by mass) of particles that are 75 µm or larger in mean diameter. Materials having more than 50 percent (by mass) of particles that are smaller than 75 µm in mean diameter are medium and fine textured soils." "When at least 1/3 of the soil at the property, measured by volume, consists of coarse textured soil, the standard for coarse textured soil shall apply. In any other case, the standard for medium and fine textured soil may be applied".

As part of the ongoing geotechnical investigation, grain size analysis was conducted on three (3) soil samples that were representative of the native soil condition. All three (3) samples exhibited a medium to fine textured soil condition, which is consistent with the primarily clay native overburden encountered. However, taking into account that the heterogeneous fill materials are what primarily constitute the first encountered aquifer, the aquifer could not be classified as being present in a medium to fine soil condition. Therefore, a conservative approach has been adopted and coarse textured condition has been applied.

For the purpose of this Phase II ESA, the appropriate standards were identified as: Table 2 (Full Depth Generic Site Condition Standards in a Potable Groundwater Condition – Residential Property Use for soil samples and All Types of Property Use for groundwater samples, coarse



textured soil) as contained in the MOE Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011, hereinafter referred to as the “MECP SCS”.

The criteria values are presented with the results of analysis in the last column of the Certificates of Analysis (Appendix C).

7.2.2. Soil and Groundwater Quality

Eleven (11) soil and nine (9) groundwater samples were submitted to the laboratory for Metals, PHC (F1-F4), BTEX, PAH and/or pH analysis. A copy of the Laboratory Certificates of Analysis is provided in Appendix C. Results of the chemical analyses are summarized in Table 5.

TABLE 5: EXCEEDANCES OF APPLICABLE SITE CONDITION STANDARDS

Borehole ID	Sampling Interval (m bgs)	Laboratory Sample ID	Parameters Analyzed	Exceedances of MECP SCS Table 2; Residential Property Use; Coarse-textured soil
Soil (21-7632) – November 25, 2021				
BH21-1	1.50-2.10	21-7632-1	PHC (F1-F4), BTEX	No exceedances of analyzed parameters were found.
BH21-2	1.50-2.10	21-7632-2	PHC (F1-F4), BTEX	No exceedances of analyzed parameters were found.
BH21-3	1.50-2.10	21-7632-3	Metals, PHC (F1-F4), BTEX, PAH, pH	No exceedances of analyzed parameters were found.
BH21-3	1.50-2.10 Field Duplicate	21-7632-4	Metals, PHC (F1-F4), BTEX, PAH, pH	No exceedances of analyzed parameters were found.
BH21-3	3.00-3.60	21-7632-5	PHC (F1-F4), BTEX	No exceedances of analyzed parameters were found.
BH21-4	0.00-0.60	21-7632-6	Metals, PHC (F1-F4), BTEX, PAH	No exceedances of analyzed parameters were found.
BH21-5	1.50-2.10	21-7632-7	Metals, PHC (F1-F4), BTEX, pH	No exceedances of analyzed parameters were found.
BH21-6	0.00-0.60	21-7632-8	Metals, PHC (F1-F4), BTEX, PAH	No exceedances of analyzed parameters were found.
BH21-6	2.25-2.85	21-7632-9	Metals, PHC (F1-F4), BTEX, PAH, pH	No exceedances of analyzed parameters were found.



Borehole ID	Sampling Interval (m bgs)	Laboratory Sample ID	Parameters Analyzed	Exceedances of MECP SCS Table 2; Residential Property Use; Coarse-textured soil
BH21-7	0.00-0.60	21-7632-10	Metals, PHC (F1-F4), BTEX, PAH	No exceedances of analyzed parameters were found.
BH21-8	0.00-0.60	21-7632-11	Metals, PHC (F1-F4), BTEX, PAH	No exceedances of analyzed parameters were found.
Groundwater (21-7636) – November 25-December 16, 2021				
MW21-3	0.75-2.25	21-7636-1	Metals, PHC (F1-F4), BTEX, PAH	No exceedances of analyzed parameters were found.
MW-401	0.73-3.73	21-7636-2	PHC (F1-F4), BTEX	No exceedances of analyzed parameters were found.
MW-402	0.64-3.64	21-7636-3	PHC (F1-F4), BTEX	No exceedances of analyzed parameters were found.
MW-403	0.74-3.74	21-7636-4	Metals, PHC (F1-F4), BTEX, PAH	No exceedances of analyzed parameters were found.
MW-405	0.70-3.70	21-7636-5	Metals, PHC (F1-F4), BTEX, PAH	No exceedances of analyzed parameters were found.
MW-405	0.70-3.70 Field Duplicate	21-7636-6	Metals, PHC (F1-F4), BTEX, PAH	No exceedances of analyzed parameters were found.
MW-501	1.53-4.53	21-7636-7	Metals, PHC (F1-F4), BTEX, PAH	No exceedances of analyzed parameters were found.
MW-503	0.86-3.86	21-7636-8	PHC (F1-F4), BTEX	No exceedances of analyzed parameters were found.
Travel Blank	N/A	21-7636-9	BTEX	No exceedances of analyzed parameters were found.

NOTES: PHC (F1-F4)*: Petroleum Hydrocarbons fractions (F1-F4)

F1 (C6-C10) Gasoline less BTEX

F2 (C10-C16) Diesel

F3 (C16-C34) Diesel

F4 (C34-C50) Heavy Oil

BTEX: Benzene, Toluene, Ethylbenzene, Xylenes; PAH: Polycyclic Aromatic Hydrocarbons,

pH: potential of Hydrogen

*For a site to meet this standard there must be no evidence of free product, including but not limited to, visible petroleum hydrocarbon film or sheen present on any groundwater samples.

N/A: Not Applicable



7.2.3. Metals

Eight (8) soil and five (5) groundwater samples collected at the Site were submitted for Metals analysis.

The results of chemical analysis for Metals parameters in all soil groundwater samples were found to be in compliance with the applicable MECP SCS (Table 2).

7.2.4. Petroleum Hydrocarbons (PHC) fractions F1-F4

Eleven (11) soil and eight (8) groundwater samples collected at the Site were submitted for PHC (F1-F4) analysis.

The results of chemical analysis for PHC (F1-F4) parameters in all soil groundwater samples were found to be in compliance with the applicable MECP SCS (Table 2).

7.2.5. Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)

Eleven (11) soil and eight (8) groundwater samples collected at the Site were submitted for BTEX analysis. One (1) travel blank sample was also analyzed for quality assurance.

The results of chemical analysis for BTEX parameters in all soil groundwater samples were found to be in compliance with the applicable MECP SCS (Table 2).

7.2.6. Polycyclic Aromatic Hydrocarbons (PAH)

Seven (7) soil samples and five (5) groundwater samples collected at the Site were submitted for PAH analysis.

The results of chemical analysis for PAH parameters in all soil groundwater samples were found to be in compliance with the applicable MECP SCS (Table 2).

7.2.7. pH

Four (4) soil samples were submitted to the laboratory for pH analysis.

The results of pH analysis for the submitted soil samples were found to be within the recommended range of 5 to 9 (for surface samples) or 5 to 11 (for subsurface samples).



7.3. Quality Assurance/Quality Control

A chain of custody form was filled out for all samples prior to submitting to the laboratory. The chain of custody documented movement from selection of the sample to receipt at the laboratory and provided sample identification, requested analysis, and condition of samples upon arrival at the laboratory.

The laboratory checks randomly selected samples for Quality Assurance. Generally, one sample for every twenty samples submitted is selected for Quality Assurance checks. For each parameter, there is an acceptable upper and lower limit for the measured concentration of the parameter. Measured concentrations of analyzed samples must fall within the upper and lower acceptable limits in order for the sample to be valid. If the result exceeds the upper or lower acceptable limits, the sample must be re-analyzed.

Based on Quality Assurance Reports provided by Fisher Environmental Laboratories, measured concentrations in soil samples were within the acceptable limits for quality control. Copies of the QA/QC Reports for Metals, PHC (F1-F4), BTEX, PAH and pH in soil and groundwater are included with the Certificates of Analysis in Appendix C.

The QA/QC program also includes the collection of field duplicate samples for laboratory analysis as follows:

- One (1) field duplicate soil sample was submitted as follows:
 - MW21-3 (1.50-2.10 m bgs) for Metals, PHC (F1-F4), BTEX, PAH and pH
- One (1) field duplicate groundwater sample was submitted as follows:
 - MW-405 for Metals, PHC (F1-F4), BTEX, PAH
- One (1) travel blank water sample was submitted for BTEX.

Relative percent differences (RPDs) were calculated for the field duplicate samples. Quantitative correlation was not calculable for the analytical results of the field duplicate samples and their corresponding sample pairs with reported concentrations equal to or less than five times the reportable detection limits.



8. CONCLUSIONS

Based on the current subsurface investigation, it is concluded that no evidence of soil and groundwater contamination has occurred at the selected sampling locations. No further investigation is recommended at this time.



9. LIMITATIONS

This report was prepared for use by Enirox Group Management & Consulting Inc., and is based on the work as described in the Scope of Work. The conclusions presented in this report reflect existing Site conditions within the scope of this assignment.

No investigation method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. It can only reduce the possibility to an acceptable level. Professional judgment was exercised in gathering and analyzing the information obtained and the formulation of the conclusions and recommendations. Like all professional persons rendering advice, we do not act as absolute insurers of the conclusions reached, but commit ourselves to care and competence in reaching those conclusions. No warranty, whether expressed or implied, is included or intended in this report.

The scope of services performed may not be appropriate for the purposes of other users. This report should not be used in contexts other than pertaining to the evaluation of the property at the current time. Written authorization must be obtained from Fisher Environmental Ltd. prior to use by any other parties, or any future use of this document or its findings, conclusions, or recommendations represented herein. Any use which a third party makes of this report, or any reliance on or decisions made on the basis of it, are the responsibility of the third parties. Fisher Environmental Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Fisher Environmental Ltd. notes that the work conducted at the Site may not fully satisfy the MOE (currently MECP) requirements for the purpose of filling a Record of Site Condition (RSC). Should an RSC be required, then additional investigations should be conducted at the Site.



10. QUALIFICATIONS OF ASSESSOR

As a Qualified Person who conducts and supervises Phase II ESAs, Mr. David Fisher, president of Fisher Environmental Ltd., is a senior Managerial and Environmental Engineering Specialist with over 30 years of progressive, innovative experience in the Petrochemical and Environmental Engineering Industry. Mr. Fisher is responsible for the development and management of a progressive environmental consulting engineering company specializing in environmental site assessments and remediation, geotechnical and hydrogeological investigations, tank removals, PCB waste treatment, land reclamation, recycling, hazardous waste disposal, and associated laboratory analytical practices.

Fisher Environmental Ltd. has been established as a team of engineers and consultants since 1989, and continues to develop a strong, wide client base. The company is staffed with personnel holding graduate or postgraduate qualifications at the Markham headquarters, as well as specialist associates offering a broad range of expertise and knowledge in environmental consulting. With a background in the petroleum industry, extensive experience has been gained in the prevention and cleanup of contamination in air, water and soil.



11. REFERENCES

The Phase II ESA was conducted in accordance with the applicable Regulations, Guidelines, Policies, Standards, Protocols and Objectives administrated by the Ontario Ministry of the Environment. Specific reference is made to the following:

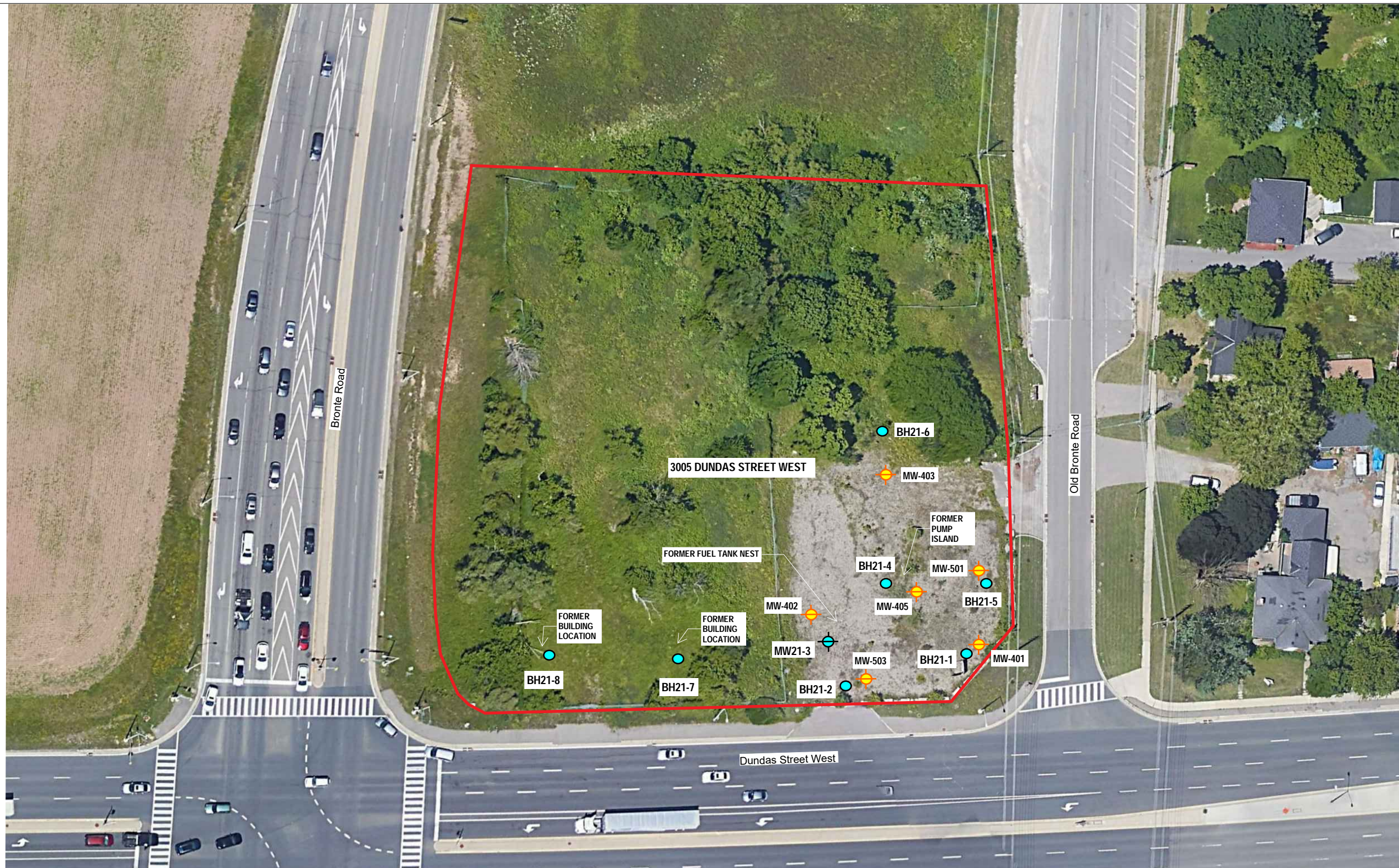
- CAN/CSA Standard Z769-00 (reaffirmed in 2013), Phase II Environmental Site Assessment, A National Standard of Canada;
- “Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario” Ministry of the Environment of Ontario, December 1996;
- Environmental Protection Act, RSO 1990, Charter E. 19, as amended, September 2004;
- Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act, dated April 15, 2011;
- The Ontario Water Resources Act – R.R.O. 1990, Regulation 903 – Amended to O .Reg. 128.03, August 2003;
- Google Earth;
- MNRF Make a Topographic Map;
- OGS: Surficial Geology of Southern Ontario (Google Earth Layer);
- OGS: Bedrock Geology of Ontario (Google Earth Layer);
- Freeze and Cherry 1979 and Holtz and Kovacs 1981;

Reference of previous reports is provided in Section 4 of the report.



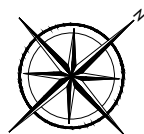
APPENDIX A – SITE LOCATION MAP, SITE PLAN AND PHYSICAL SETTINGS MAPS





400 Esna Park Dr., #15
 Markham, Ontario
 L3R 3K2
 Tel: 905 475-7755
 Fax: 905 475-7718

NORTH



LEGEND

- APPROXIMATE SITE BOUNDARY
- EXISTING MONITORING WELL LOCATION (SNC-LAVALIN; 2009-2010)
- NEW MONITORING WELL LOCATION (FISHER)
- NEW BOREHOLE LOCATION (FISHER)

PROJECT NAME AND ADDRESS

**DUE-DILIGENCE
 PHASE TWO ESA**
 3005 DUNDAS STREET WEST,
 OAKVILLE

PROJECT NO.

FE-P 21-11715

DATE

DECEMBER 2021

SCALE

FIGURE 1:

**SITE PLAN WITH
 ENVIRONMENTAL
 BOREHOLE AND
 MONITORING
 WELL LOCATIONS**

SHEET NO.

1

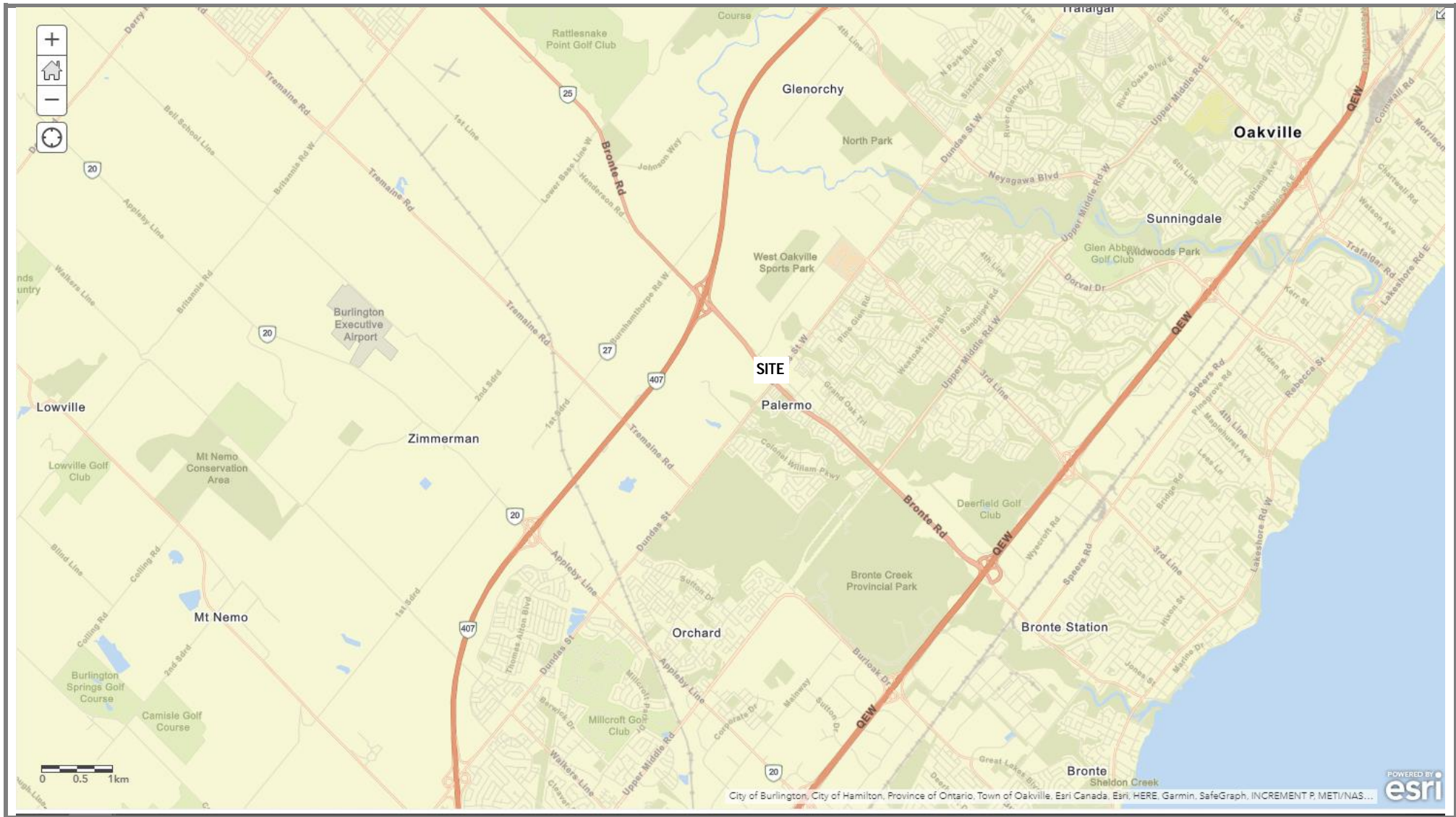


Figure II:

Site Location Map



FE-P 21-11715
December 2021

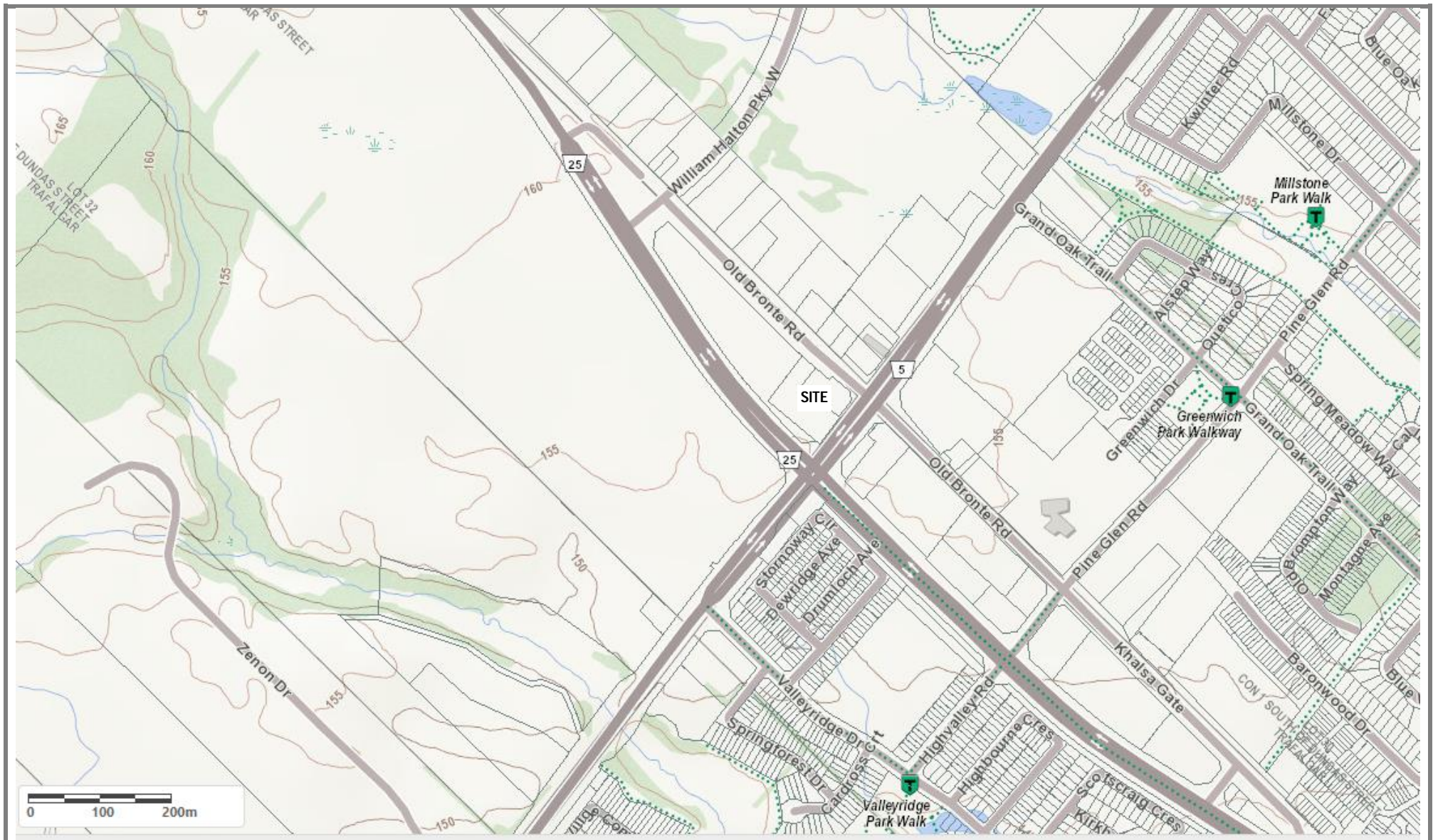


Figure III:
Regional Topographic Map



FE-P 21-11715
December 2021

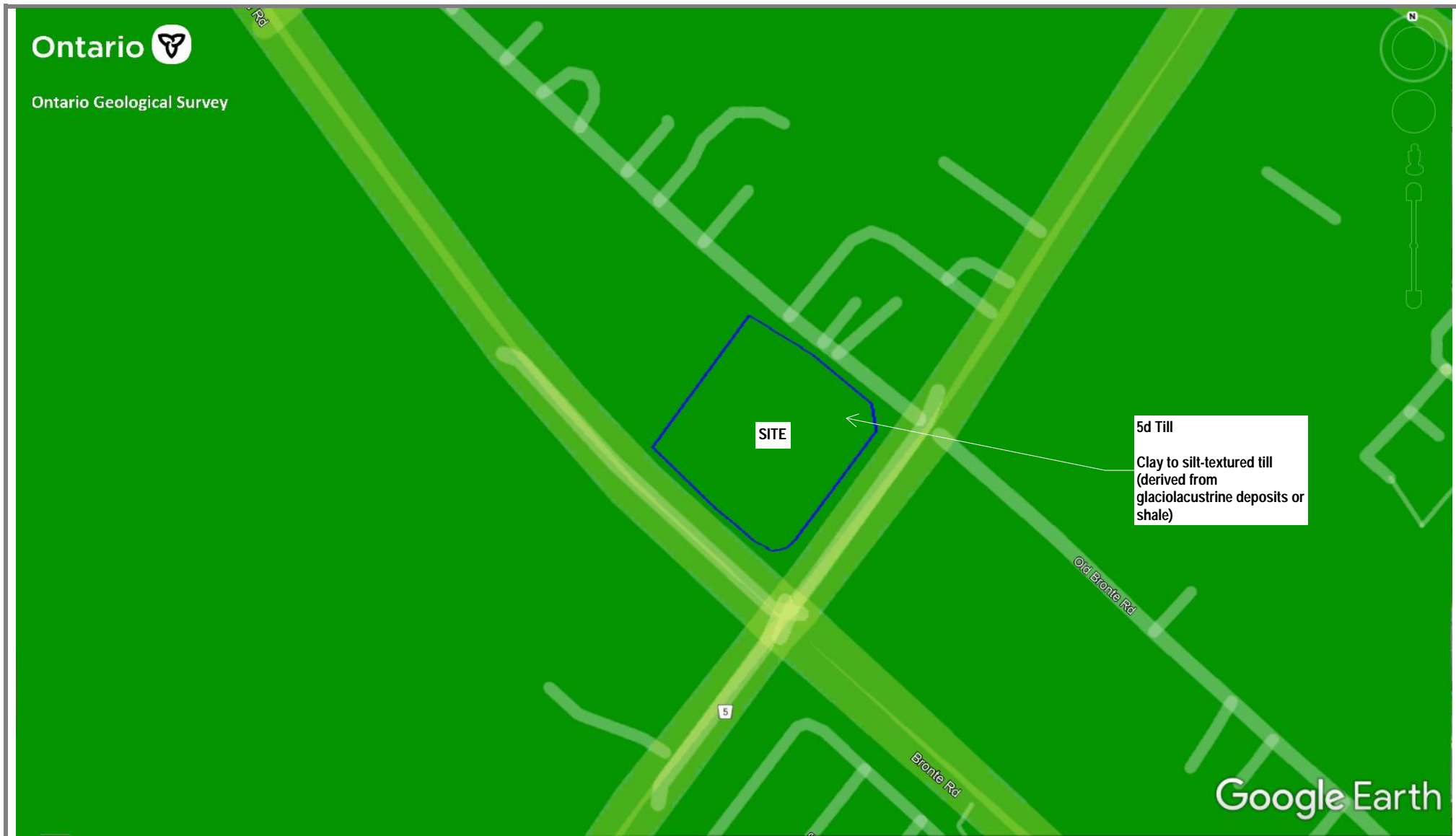


Figure IV:

Surficial Geology Map



FE-P 21-11715
December 2021



Figure V:

Bedrock Geology Map



FE-P 21-11715
December 2021

APPENDIX B – LOG OF BOREHOLES





Log of Borehole: BH21-1

3005 Dundas St W,
Oakville, ON

Sheet: 1 of 1

Project #: 21-11715

G.S.Elevation:

Location:

Drill Method: D-50, Solid Stem, Auger.

Drilling Date: 24 November, 2021

Sample Method: Split Spoon

Dates Water Level

Borehole Diameter: 6"

Water Level:

Logged By: R.R.

Checked By: A.A.

DEPTH (meters)	Sample No.	Parameters	Vapour Readings	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
			0		FILL/ TOPSOIL: Brown sand and gravel, dry	
	21-7632-1	PHC's	0		FILL: Brown silty sand with clay and gravel, wet	
					End of borehole at 2.13m bgs	



Log of Borehole: BH21-2

3005 Dundas St W,
Oakville, ON

Sheet: 1 of 1

Project #: 21-11715

G.S.Elevation:

Location:

Drill Method: D-50, Solid Stem, Auger.

Drilling Date: 24 November, 2021

Sample Method: Split Spoon

Dates Water Level

Borehole Diameter: 6"

Water Level:

Logged By: R.R.

Checked By: A.A.

DEPTH (meters)	Sample No.	Parameters	Vapour Readings	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
					FILL: Grey sandy silt with clay and gravel, wet	
	21-7632-2	PHC's	0			
			0		FILL: Grey to brown sand and gravel, with clay, wet	
			0		CLAYEY to SANDY SILT TILL: Brown, moist to dry	
					End of borehole at 3.66m bgs	



Log of Borehole: BH21-3(MW)

3005 Dundas St W,
Oakville, ON

Sheet: 1 of 1

Project #: 21-11715

G.S.Elevation:

Location:

Drill Method: D-50, Solid Stem, Auger.

Drilling Date: 24 November, 2021

Sample Method: Split Spoon

Dates Water Level 30 December, 2021

Borehole Diameter: 6"

Water Level: 2.14m

Logged By: R.R.

Checked By: A.A.

DEPTH (meters)	Sample No.	Parameters	Vapour Readings	DEPTH (feet)	DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
			0			FILL/ TOPSOIL: Brown silty sand, with gravel, dry	
			0			FILL: Brown sand and gravel, dry	
	21-7632-3 21-7632-4 (Field Duplicate)	Metals, PHC's, PAH, pH	0			FILL: Brown sand and gravel, moist	
			0			FILL: Brown sand and gravel, trace cobbles, wet	
	21-7632-5	PHC's	0			CLAYEY SILT TILL: Brown, moist	
						End of borehole at 3.66m bgs	



Log of Borehole: BH21-4

3005 Dundas St W,
Oakville, ON

Sheet: 1 of 1

Project #: 21-11715

G.S.Elevation:

Location:

Drill Method: D-50, Solid Stem, Auger.

Drilling Date: 24 November, 2021

Sample Method: Split Spoon

Dates Water Level

Borehole Diameter: 6"

Water Level:

Logged By: R.R.

Checked By: A.A.

DEPTH (meters)	Sample No.	Parameters	Vapour Readings	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
	21-7632-6	Metal, PHC's, PAH	0		FILL/ TOPSOIL: Brown sand and gravel with silt, dry	
			0		FILL: Brown sand and gravel, moist	
					End of borehole at 2.13m bgs	



Log of Borehole: BH21-5

3005 Dundas St W,
Oakville, ON

Sheet: 1 of 1

Project #: 21-11715

G.S.Elevation:

Location:

Drill Method: D-50, Solid Stem, Auger.

Drilling Date: 24 November, 2021

Sample Method: Split Spoon

Dates Water Level

Borehole Diameter: 6"

Water Level:

Logged By: R.R.

Checked By: A.A.

DEPTH (meters)	Sample No.	Parameters	Vapour Readings	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
					FILL/ TOPSOIL: Grey silty sand with gravel and clay, wet.	
	21-7632-7	Metals, PHC's, pH	0			
					End of borehole at 2.13m bgs	



Log of Borehole: BH21-6

3005 Dundas St W,
Oakville, ON

Sheet: 1 of 1

Project #: 21-11715

G.S.Elevation:

Location:

Drill Method: D-50, Solid Stem, Auger.

Drilling Date: 24 November, 2021

Sample Method: Split Spoon

Dates Water Level

Borehole Diameter: 6"

Water Level:

Logged By: R.R.

Checked By: A.A.

DEPTH (meters)	Sample No.	Parameters	Vapour Readings	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
	21-7632-8	Metals, PHC's, PAH	0		FILL/ TOPSOIL: Brown sand and gravel, dry	
	21-7632-9	Metals, PHC's, PAH, pH	0		FILL: Grey silty clay, with sand and gravel, moist to wet	
					End of borehole at 2.13m bgs	



Log of Borehole: BH21-7

3005 Dundas St W,
Oakville, ON

Sheet: 1 of 1

Project #: 21-11715

G.S.Elevation:

Location:

Drill Method: D-50, Solid Stem, Auger.

Drilling Date: 24 November, 2021

Sample Method: Split Spoon

Dates Water Level

Borehole Diameter: 6"

Water Level:

Logged By: R.R.

Checked By: A.A.

DEPTH (meters)	Sample No.	Parameters	Vapour Readings	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
					GRASS/ TOPSOIL	
	21-7632-10	Metals, PHC's, PAH	0		FILL/ TOPSOIL: Brown silty sand, trace clay and gravel, organic matter, dry	
1			0	1	SANDY TO CLAY SILT TILL: Brown, dry	
2			0	2	SANDY TO CLAY SILT TILL: Brown, moist	
					End of borehole at 2.13m bgs	



Log of Borehole: BH21-8

3005 Dundas St W,
Oakville, ON

Sheet: 1 of 1

Project #: 21-11715

G.S.Elevation:

Location:

Drill Method: D-50, Solid Stem, Auger.

Drilling Date: 24 November, 2021

Sample Method: Split Spoon

Dates Water Level

Borehole Diameter: 6"

Water Level:

Logged By: R.R.

Checked By: A.A.

DEPTH (meters)	Sample No.	Parameters	Vapour Readings	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
	21-7632-10	Metals, PHC's, PAH	0		GRASS/ TOPSOIL	
					FILL/ TOPSOIL: Brown silty sand, trace clay and organic matter, dry	
					SANDY TO CLAY SILT TILL: Brown, dry	
					SANDY TO CLAY SILT TILL: Brown, moist	
					End of borehole at 2.13m bgs	

APPENDIX C – CERTIFICATES OF ANALYSIS





FISHER ENVIRONMENTAL LABORATORIES

FULL RANGE ANALYTICAL SERVICES • SOIL/WATER/AIR TESTING • ENVIRONMENTAL COMPLIANCE PACKAGES • 24 HOUR EMERGENCY RESPONSE • CALA ACCREDITED

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FAX: 905 475-7718
www.fisherenvironmental.com


Client: ENIROX 3005 DUNDAS LP
Address: 101 Railside Road
Toronto, ON
M3A 1B2
Tel.: 416-661-6900
Email:
Attn.: Arash Kamali

F.E. Job #: 21-7632
Project Name: Phase Two ESA
Project ID: FE-P 21-11715
Date Sampled: 25-Nov-2021
Date Received: 1-Dec-2021
Date Reported: 8-Dec-2021
Location: 3005 Dundas Street West

Certificate of Analysis

Analyses	Matrix	Quantity	Date Extracted	Date Analyzed	Lab SOP	Method Reference
Metals	Soil	8	3-Dec-21	3-Dec-21	Metals F-18	EPA 200.2/200.8
PHCs (F1 & BTEX)	Soil	11	1-Dec-21	3-Dec-21	PHCs F-7	CCME CWS
PHCs (F2 - F4)	Soil	11	2-Dec-21	2-Dec-21	PHCs F-7	CCME CWS
PAHs	Soil	7	6-Dec-21	7-Dec-21	PAHs F-4	SM 6410-B
pH	Soil	4	2-Dec-21	2-Dec-21	pH-EC-SAR F-16	SW-846, 9045D
Moisture Content	Soil	11	N/A	1-Dec-21	Support Procedures F-99	Carter (1993)

Fisher Environmental Laboratories is accredited by CALA (the Canadian Association for Laboratory Accreditation Inc.) for specific parameters as required by Ontario Regulation 153/04. All analytical testing has been performed in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act published by Ontario Ministry of the Environment.

Authorized by: 
Roger Lin, Ph. D., C. Chem.
Laboratory Manager



Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs, pH
Sample Description:	11 Soil Sample(s)

Parameter	21-7632-3 BH21 - 3 1.50-2.10m	21-7632-4 BH21 - 3 (Dup) 1.50-2.10m	21-7632-6 BH21 - 4 0.00-0.60m	21-7632-7 BH21 - 5 1.50-2.10m	21-7632-8 BH21 - 6 0.00-0.60m	Soil Standards ¹
	Concentration (µg/g)					
Metals in Soil						
Antimony	<1	<1	<1	<1	<1	7.5
Arsenic	2.5	1.4	2.6	3.9	2.4	18
Barium	27	24	12	72	13	390
Beryllium	<2	<2	<2	<2	<2	(5) 4
Boron	5.6	5.3	5.6	5.2	6.2	120
Cadmium	<1	<1	<1	<1	<1	1.2
Chromium	7.1	7.3	6.3	18	6.8	160
Cobalt	4.3	4.1	3.2	11	4.1	22
Copper	26	29	16	32	28	(180) 140
Lead	15	16	35	33	59	120
Molybdenum	<2	<2	<2	<2	<2	6.9
Nickel	12	12	12	26	16	(130) 100
Selenium	<1	<1	<1	<1	1.2	2.4
Silver	<0.5	<0.5	<0.5	<0.5	<0.5	(25) 20
Thallium	<1	<1	<1	<1	<1	1
Uranium	<1	<1	<1	<1	<1	23
Vanadium	<10	10	<10	24	<10	86
Zinc	117	120	245	121	282	340

< result obtained was below RL (Reporting Limit).

Bold: Result exceeds limit noted in Soil Standard.

¹ MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition.

Residential/Parkland/Institutional Property Use (**R/P/I**);

() Standard value in brackets applies to medium and fine textured soils.

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs, pH
Sample Description:	11 Soil Sample(s)

Parameter	21-7632-9	21-7632-10	21-7632-11			Soil Standards ¹
	BH21 - 6 2.25-2.85m	BH21 - 7 0.00-0.60m	BH21 - 8 0.00-0.60m			
Concentration (µg/g)						
<i>Metals in Soil</i>						
Antimony	<1	<1	<1			7.5
Arsenic	3.8	3.1	2.6			18
Barium	48	62	60			390
Beryllium	<2	<2	<2			(5) 4
Boron	5.4	<5	<5			120
Cadmium	<1	<1	<1			1.2
Chromium	14	18	24			160
Cobalt	9.1	12	13			22
Copper	30	24	30			(180) 140
Lead	14	<10	15			120
Molybdenum	<2	<2	<2			6.9
Nickel	26	28	30			(130) 100
Selenium	<1	<1	<1			2.4
Silver	<0.5	<0.5	<0.5			(25) 20
Thallium	<1	<1	<1			1
Uranium	<1	<1	<1			23
Vanadium	20	22	29			86
Zinc	90	73	83			340

< result obtained was below RL (Reporting Limit).

¹ MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition.

Residential/Parkland/Institutional Property Use (**R/P/I**);

() Standard value in brackets applies to medium and fine textured soils.

QA/QC Report

Parameter	Blank	RL	CRM	AR	MS	AR
	(µg/g)		(µg/g)		Recovery (%)	
<i>Metals in Soil</i>						
Antimony	<1	1	3.0	0-10	96	70-130
Arsenic	<1	1	62	25-125	86	70-130
Barium	<5	5	192	149-281	87	70-130
Beryllium	<2	2	0.7	0-5	94	70-130
Boron	<5	5	7	5-20	89	70-130
Cadmium	<1	1	2.1	0-5	93	70-130
Chromium	<5	5	32	14-54	79	70-130
Cobalt	<2	2	13	9-15	84	70-130
Copper	<5	5	208	139-243	81	70-130
Lead	<10	10	122	68-184	90	70-130
Molybdenum	<2	2	2.2	0-5	80	70-130
Nickel	<5	5	57	33-75	74	70-130
Selenium	<1	1	0.0	0-5	93	70-130
Silver	<0.5	0.5	0.8	0-5	90	70-130
Thallium	<1	1	0.5	0-5	96	70-130
Uranium	<1	1	1.1	0-5	97	70-130
Vanadium	<10	10	37	17-51	91	70-130
Zinc	<30	30	588	337-597	95	70-130

LEGEND:

RL - Reporting Limit
 CRM = Certified Reference Material
 MS - Matrix Spike
 AR - Acceptable Range

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
<i>Metals in Soil</i>						
Antimony	8.7	0-30				
Arsenic	0.8	0-30				
Barium	8.0	0-30				
Beryllium	8.0	0-30				
Boron	1.5	0-30				
Cadmium	10.3	0-30				
Chromium	2.4	0-30				
Cobalt	6.7	0-30				
Copper	1.2	0-30				
Lead	0.2	0-30				
Molybdenum	12.0	0-30				
Nickel	3.5	0-30				
Selenium	0.0	0-30				
Silver	0.0	0-30				
Thallium	9.5	0-30				
Uranium	6.3	0-30				
Vanadium	3.5	0-30				
Zinc	3	0-30				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs, pH					
Sample Description:	11 Soil Sample(s)					
Parameter	21-7632-1	21-7632-2	21-7632-3	21-7632-4	21-7632-5	Soil Standards ¹
	BH21 - 1 1.50-2.10m	BH21 - 2 1.50-2.10m	BH21 - 3 1.50-2.10m	BH21 - 3 (Dup) 1.50-2.10m	BH21 - 3 3.00-3.60m	
<i>Concentration (µg/g)</i>						
BTEX in Soil						
Benzene	<0.02	<0.02	<0.02	<0.02	<0.02	(0.17) 0.21
Toluene	<0.2	<0.2	<0.2	<0.2	<0.2	(6) 2.3
Ethylbenzene	<0.05	<0.05	<0.05	<0.05	<0.05	(1.6) 1.1
Xylenes	<0.05	<0.05	<0.05	<0.05	<0.05	(25) 3.1
PHCs (F₁-F₄) in Soil						
F1-BTEX (C ₆ - C ₁₀)	<10	<10	<10	<10	<10	(65) 55
F2 (C ₁₀ - C ₁₆)	<10	<10	<10	<10	<10	(150) 98
F3 (C ₁₆ - C ₃₄)	<50	<50	<50	<50	<50	(1300) 300
F4 (C ₃₄ -C ₅₀)	<50	<50	<50	<50	<50	(5600) 2800
Chromatogram descends to baseline by nC50 ? (Yes/No)	Yes	Yes	Yes	Yes	Yes	
Surrogate Recovery (%)						
1,2-Dichloroethane-d4	121	101	101	104	102	60-140
Toluene-d8	109	95	97	95	125	60-140
4-Bromofluorobenzene	132	134	133	132	126	60-140

F_{4G} (gravimetric heavy hydrocarbons) cannot be added to the C₆ to C₅₀ hydrocarbons.

< result obtained was below RL (Reporting Limit).

¹ MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition.

Residential/Parkland/Institutional Property Use (**R/P/I**);

() Standard value in brackets applies to medium and fine textured soils.

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs, pH					
Sample Description:	11 Soil Sample(s)					
Parameter	21-7632-6 BH21 - 4 0.00-0.60m	21-7632-7 BH21 - 5 1.50-2.10m	21-7632-8 BH21 - 6 0.00-0.60m	21-7632-9 BH21 - 6 2.25-2.85m	21-7632-10 BH21 - 7 0.00-0.60m	Soil Standards ¹
	<i>Concentration (µg/g)</i>					
BTEX in Soil						
Benzene	<0.02	<0.02	<0.02	<0.02	<0.02	(0.17) 0.21
Toluene	<0.2	<0.2	<0.2	<0.2	<0.2	(6) 2.3
Ethylbenzene	<0.05	<0.05	<0.05	<0.05	<0.05	(1.6) 1.1
Xylenes	<0.05	<0.05	<0.05	<0.05	<0.05	(25) 3.1
PHCs (F₁-F₄) in Soil						
F1-BTEX (C ₆ - C ₁₀)	<10	<10	<10	<10	<10	(65) 55
F2 (C ₁₀ - C ₁₆)	<10	<10	<10	<10	<10	(150) 98
F3 (C ₁₆ - C ₃₄)	<50	<50	<50	<50	<50	(1300) 300
F4 (C ₃₄ -C ₅₀)	<50	<50	<50	<50	<50	(5600) 2800
Chromatogram descends to baseline by nC50 ? (Yes/No)	Yes	Yes	Yes	Yes	Yes	
Surrogate Recovery (%)						
1,2-Dichloroethane-d4	97	106	101	106	101	60-140
Toluene-d8	94	94	95	123	94	60-140
4-Bromofluorobenzene	136	139	131	139	132	60-140

F_{4G} (gravimetric heavy hydrocarbons) cannot be added to the C₆ to C₅₀ hydrocarbons.

< result obtained was below RL (Reporting Limit).

¹ MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition.

Residential/Parkland/Institutional Property Use (**R/P/I**);

() Standard value in brackets applies to medium and fine textured soils.

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs, pH					
Sample Description:	11 Soil Sample(s)					
Parameter	21-7632-11					Soil Standards ¹
	BH21 - 8 0.00-0.60m					
<i>Concentration (µg/g)</i>						
BTEX in Soil						
Benzene	<0.02					(0.17) 0.21
Toluene	<0.2					(6) 2.3
Ethylbenzene	<0.05					(1.6) 1.1
Xylenes	<0.05					(25) 3.1
PHCs (F₁-F₄) in Soil						
F1-BTEX (C ₆ - C ₁₀)	<10					(65) 55
F2 (C ₁₀ - C ₁₆)	<10					(150) 98
F3 (C ₁₆ - C ₃₄)	<50					(1300) 300
F4 (C ₃₄ -C ₅₀)	<50					(5600) 2800
Chromatogram descends to baseline by nC50 ? (Yes/No)	Yes					
Surrogate Recovery (%)						
1,2-Dichloroethane-d4	108					60-140
Toluene-d8	85					60-140
4-Bromofluorobenzene	118					60-140

F_{4G} (gravimetric heavy hydrocarbons) cannot be added to the C₆ to C₅₀ hydrocarbons.

< result obtained was below RL (Reporting Limit).

¹ MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition.

Residential/Parkland/Institutional Property Use (**R/P/I**);

() Standard value in brackets applies to medium and fine textured soils.

QA/QC Report

Parameter	Blank	RL	LCS	AR	MS	AR
	(µg/g)		Recovery (%)		Recovery (%)	
<i>BTEX in Soil</i>						
Benzene	<0.02	0.02	109	60-130	91	50-140
Toluene	<0.2	0.2	105	60-130	92	50-140
Ethylbenzene	<0.05	0.05	102	60-130	91	50-140
Xylenes	<0.05	0.05	101	60-130	94	50-140
<i>PHCs (F₁-F₄) in Soil</i>						
F1-BTEX (C ₆ - C ₁₀)	<10	10	105	80-120	92	60-140
F2 (C ₁₀ - C ₁₆)	<10	10	101	80-120	117	60-140
F3 (C ₁₆ - C ₃₄)	<50	50	103	80-120	121	60-140
F4 (C ₃₄ -C ₅₀)	<50	50	101	80-120	125	60-140
<i>Surrogates</i>						
Parameter	Blank	AR	Recovery (%)	AR	Recovery (%)	AR
1,2-Dichloroethane-d4	112	60-140	107	60-140	107	60-140
Toluene-d8	113	60-140	75	60-140	71	60-140
4-Bromofluorobenzene	106	60-140	121	60-140	102	60-140

LEGEND:

RL - Reporting Limit

LCS - Laboratory Control Sample

MS - Matrix Spike

AR - Acceptable Range

BTEX should be subtracted from F₁, Naphthalene from F₂ and selected PAHs from F₃ if BTEX/PAHs are analyzed, then report F₁-BTEX, F₂-Naph. and F₃-PAH. nC₅₀ response factor was within 70% of nC₁₀+nC₁₆+nC₃₄ average.

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
<i>BTEX in Soil</i>						
Benzene	0.0	0-50				
Toluene	8.6	0-50				
Ethylbenzene	0.0	0-50				
Xylenes	0.0	0-50				
<i>PHCs (F₁-F₄) in Soil</i>						
F1-BTEX (C ₆ - C ₁₀)	8.3	0-30				
F2 (C ₁₀ - C ₁₆)	3.0	0-30				
F3 (C ₁₆ - C ₃₄)	6.0	0-30				
F4 (C ₃₄ -C ₅₀)	3.5	0-30				
<i>Surrogates</i>						
Parameter	Recovery (%)	AR				
1,2-Dichloroethane-d4	99	60-140				
Toluene-d8	109	60-140				
4-Bromofluorobenzene	135	60-140				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs, pH
Sample Description:	11 Soil Sample(s)

Parameter	21-7632-3 BH21 - 3 1.50-2.10m	21-7632-4 BH21 - 3 (Dup) 1.50-2.10m	21-7632-6 BH21 - 4 0.00-0.60m	21-7632-8 BH21 - 6 0.00-0.60m	21-7632-9 BH21 - 6 2.25-2.85m	Soil Standards ¹
	Concentration (µg/g)					
PAHs in Soil						
Naphthalene	<0.05	<0.05	<0.05	<0.05	<0.05	(0.75) 0.6
2-Methylnaphthalene	<0.05	<0.05	<0.05	<0.05	<0.05	(3.4) 0.99
1-Methylnaphthalene	<0.05	<0.05	<0.05	<0.05	<0.05	
Acenaphthylene	<0.05	<0.05	<0.05	<0.05	<0.05	(0.17) 0.15
Acenaphthene	<0.05	<0.05	<0.05	<0.05	<0.05	(29) 7.9
Fluorene	<0.05	<0.05	<0.05	<0.05	<0.05	(69) 62
Phenanthrene	<0.05	<0.05	<0.05	<0.05	<0.05	(7.8) 6.2
Anthracene	<0.05	<0.05	<0.05	<0.05	<0.05	(0.74) 0.67
Fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	0.69
Pyrene	<0.05	<0.05	<0.05	<0.05	<0.05	78
Benzo [a] anthracene	<0.05	<0.05	<0.05	<0.05	<0.05	(0.63) 0.5
Chrysene	<0.05	<0.05	<0.05	<0.05	<0.05	(7.8) 7
Benzo [b] fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	0.78
Benzo [k] fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	0.78
Benzo [a] pyrene	<0.05	<0.05	<0.05	<0.05	<0.05	0.3
Indeno [1,2,3-cd] pyrene	<0.1	<0.1	<0.1	<0.1	<0.1	(0.48) 0.38
Dibenzo [a,h] anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Benzo [g,h,i] perylene	<0.1	<0.1	<0.1	<0.1	<0.1	(7.8) 6.6
Surrogate Recovery (%)						
Naphthalene-d8	101	96	92	79	100	50-140
Phenanthrene-d10	114	98	90	96	109	50-140
Chrysene-d12	117	131	84	104	107	50-140

< result obtained was below RL (Reporting Limit).

¹ MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition.

Residential/Parkland/Institutional Property Use (**R/P/I**);

() Standard value in brackets applies to medium and fine textured soils.

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs, pH
Sample Description:	11 Soil Sample(s)

Parameter	21-7632-10 BH21 - 7 0.00-0.60m	21-7632-11 BH21 - 8 0.00-0.60m				Soil Standards ¹
	Concentration (µg/g)					
PAHs in Soil						
Naphthalene	<0.05	<0.05				(0.75) 0.6
2-Methylnaphthalene	<0.05	<0.05				(3.4) 0.99
1-Methylnaphthalene	<0.05	<0.05				
Acenaphthylene	<0.05	<0.05				(0.17) 0.15
Acenaphthene	<0.05	<0.05				(29) 7.9
Fluorene	<0.05	<0.05				(69) 62
Phenanthrene	<0.05	<0.05				(7.8) 6.2
Anthracene	<0.05	<0.05				(0.74) 0.67
Fluoranthene	<0.05	<0.05				0.69
Pyrene	<0.05	<0.05				78
Benzo [a] anthracene	<0.05	<0.05				(0.63) 0.5
Chrysene	<0.05	<0.05				(7.8) 7
Benzo [b] fluoranthene	<0.05	<0.05				0.78
Benzo [k] fluoranthene	<0.05	<0.05				0.78
Benzo [a] pyrene	<0.05	<0.05				0.3
Indeno [1,2,3-cd] pyrene	<0.1	<0.1				(0.48) 0.38
Dibenzo [a,h] anthracene	<0.1	<0.1				0.1
Benzo [g,h,i] perylene	<0.1	<0.1				(7.8) 6.6
Surrogate Recovery (%)						
Naphthalene-d8	86	91				50-140
Phenanthrene-d10	106	86				50-140
Chrysene-d12	96	103				50-140

< result obtained was below RL (Reporting Limit).

¹ MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition.

Residential/Parkland/Institutional Property Use (**R/P/I**);

() Standard value in brackets applies to medium and fine textured soils.

QA/QC Report

Parameter	Blank	RL	LCS	AR	MS	AR
	(µg/g)		Recovery (%)		Recovery (%)	
PAHs in Soil						
Naphthalene	<0.05	0.05	107	50-140	107	50-140
2-Methylnaphthalene	<0.05	0.05	105	50-140	110	50-140
1-Methylnaphthalene	<0.05	0.05	104	50-140	110	50-140
Acenaphthylene	<0.05	0.05	107	50-140	109	50-140
Acenaphthene	<0.05	0.05	104	50-140	105	50-140
Fluorene	<0.05	0.05	106	50-140	105	50-140
Phenanthrene	<0.05	0.05	103	50-140	92	50-140
Anthracene	<0.05	0.05	103	50-140	92	50-140
Fluoranthene	<0.05	0.05	106	50-140	92	50-140
Pyrene	<0.05	0.05	99	50-140	96	50-140
Benzo [a] anthracene	<0.05	0.05	115	50-140	92	50-140
Chrysene	<0.05	0.05	115	50-140	93	50-140
Benzo [b] fluoranthene	<0.05	0.05	98	50-140	96	50-140
Benzo [k] fluoranthene	<0.05	0.05	98	50-140	96	50-140
Benzo [a] pyrene	<0.05	0.05	106	50-140	94	50-140
Indeno [1,2,3-cd] pyrene	<0.1	0.1	91	50-140	57	50-140
Dibenzo [a,h] anthracene	<0.1	0.1	98	50-140	86	50-140
Benzo [g,h,i] perylene	<0.1	0.1	107	50-140	90	50-140
Surrogates						
Parameter	Recovery (%)	AR	Recovery (%)	AR	Recovery (%)	AR
Naphthalene-d8	78	50-140	106	50-140	116	50-140
Phenanthrene-d10	90	50-140	99	50-140	91	50-140
Chrysene-d12	91	50-140	98	50-140	96	50-140

LEGEND:

RL - Reporting Limit

LCS - Laboratory Control Sample

MS - Matrix Spike

AR - Acceptable Range

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
PAHs in Soil						
Naphthalene	0.0	0-40				
2-Methylnaphthalene	0.0	0-40				
1-Methylnaphthalene	0.0	0-40				
Acenaphthylene	0.0	0-40				
Acenaphthene	0.0	0-40				
Fluorene	0.0	0-40				
Phenanthrene	0.0	0-40				
Anthracene	0.0	0-40				
Fluoranthene	0.0	0-40				
Pyrene	0.0	0-40				
Benzo [a] anthracene	0.0	0-40				
Chrysene	0.0	0-40				
Benzo [b] fluoranthene	0.0	0-40				
Benzo [k] fluoranthene	0.0	0-40				
Benzo [a] pyrene	0.0	0-40				
Indeno [1,2,3-cd] pyrene	0.0	0-40				
Dibenzo [a,h] anthracene	0.0	0-40				
Benzo [g,h,i] perylene	0.0	0-40				
Surrogates						
Parameter	Recovery (%)	AR				
Naphthalene-d8	82	50-140				
Phenanthrene-d10	77	50-140				
Chrysene-d12	83	50-140				

LEGEND:

AR - Acceptable Range
 RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs, pH
Sample Description:	11 Soil Sample(s)

Parameter	21-7632-3 BH21 - 3 1.50-2.10m	21-7632-4 BH21 - 3 (Dup) 1.50-2.10m	21-7632-7 BH21 - 5 1.50-2.10m	21-7632-9 BH21 - 6 2.25-2.85m		Soil Standards *
pH (pH unit)	8.36	8.44	7.86	7.88		(5-11) 5-9

* Surface soil pH value from 5 - 9, Sub-surface soil pH value from 5-11.

QA/QC Report

Parameter	LCS	AR	Duplicate	AR		
	Absolute Difference (pH Unit)					
pH (pH unit)	7.05	6.90-7.20	0.04	<0.3		

LEGEND:

LCS - Laboratory Control Sample

AR - Acceptable Range

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs, pH
Sample Description:	11 Soil Sample(s)

Parameter	21-7632-1 BH21 - 1 1.50-2.10m	21-7632-2 BH21 - 2 1.50-2.10m	21-7632-3 BH21 - 3 1.50-2.10m	21-7632-4 BH21 - 3 (Dup) 1.50-2.10m	21-7632-5 BH21 - 3 3.00-3.60m	21-7632-6 BH21 - 4 0.00-0.60m
Moisture Content (%)	14	15	5	5	12	6

Parameter	21-7632-7 BH21 - 5 1.50-2.10m	21-7632-8 BH21 - 6 0.00-0.60m	21-7632-9 BH21 - 6 2.25-2.85m	21-7632-10 BH21 - 7 0.00-0.60m	21-7632-11 BH21 - 8 0.00-0.60m	
Moisture Content (%)	12	6	10	14	14	

QA/QC Report

Parameter	Blank	RL	LCS	AR	Duplicate	AR
	Recovery (%)			RPD (%)		
Moisture Content (%)	<0.1	0.1	100	70-130	5.3	0-20

LEGEND:

- RL - Reporting Limit
- LCS - Laboratory Control Sample
- AR - Acceptable Range
- RPD - Relative Percent Difference



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F.E. Job #: 21-7636
Project Name: Phase Two ESA
Project ID: FE-P 21-11715
Date Sampled: 25-Nov & 16-Dec-2021
Date Received: 1 & 17-Dec-2021
Date Reported: 17-Dec-2021
Location: 3005 Dundas Street West

Certificate of Analysis

Analyses	Matrix	Quantity	Date Extracted	Date Analyzed	Lab SOP	Method Reference
Metals	Water	5	N/A	17-Dec-21	Metals F-18	EPA 200.2/200.8
PHCs (F1 & BTEX)	Water	9	N/A	2-Dec-21	PHCs F-7	CCME CWS
PHCs (F2 - F4)	Water	8	6-Dec-21	6-Dec-21	PHCs F-7	CCME CWS
PAHs	Water	5	3-Dec-21	3-Dec-21	PAHs F-4	SM 6410B

Fisher Environmental Laboratories is accredited by CALA (the Canadian Association for Laboratory Accreditation Inc.) for specific parameters as required by Ontario Regulation 153/04. All analytical testing has been performed in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act published by Ontario Ministry of the Environment.

Authorized by:


Roger Lin, Ph. D., C. Chem.
Laboratory Manager



Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs
Sample Description:	9 Water Sample(s)

Parameter	21-7636-1 MW21 - 3	21-7636-4 MW403	21-7636-5 MW405	21-7636-6 MW405 Duplicate	21-7636-7 MW501	Ground Water Standards ¹
	Concentration (µ g/L)					
Metals in Water						
Antimony	<0.5	<0.5	<0.5	<0.5	<0.5	6
Arsenic	<1	<1	<1	<1	<1	25
Barium	47	40	23	26	41	1,000
Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5	4
Boron	113	165	102	119	181	5,000
Cadmium	<0.5	<0.5	0.61	0.52	<0.5	2.7
Chromium	<10	<10	<10	<10	<10	50
Cobalt	<1	<1	<1	<1	<1	3.8
Copper	<5	<5	<5	<5	<5	87
Lead	<1	<1	<1	<1	<1	10
Molybdenum	2.3	<0.5	0.63	0.65	1.2	70
Nickel	2.5	2.9	2.5	2.8	3.2	100
Selenium	<5	<5	<5	<5	<5	10
Silver	<0.3	<0.3	<0.3	<0.3	<0.3	1.5
Thallium	<0.5	<0.5	<0.5	<0.5	<0.5	2
Uranium	<2	2.3	3.2	3.3	<2	20
Vanadium	0.55	0.95	0.62	0.74	0.90	6.2
Zinc	8.8	22	22	<5	12	1,100

< result obtained was below RL (Reporting Limit).

¹ MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition.

All Types of Property Use. () Standard value in brackets applies to medium and fine textured soils.

QA/QC Report

Parameter	Blank	RL	LCS	AR	MS	AR
	(µg/L)		Recovery (%)		Recovery (%)	
Metals in Water						
Antimony	<0.5	0.5	104	80-120	99	70-130
Arsenic	<1	1	102	80-120	119	70-130
Barium	<2	2	103	80-120	92	70-130
Beryllium	<0.5	0.5	120	80-120	94	70-130
Boron	<10	10	89	80-120	117	70-130
Cadmium	<0.5	0.5	98	80-120	99	70-130
Chromium	<10	10	102	80-120	82	70-130
Cobalt	<1	1	96	80-120	84	70-130
Copper	<5	5	94	80-120	78	70-130
Lead	<1	1	103	80-120	97	70-130
Molybdenum	<0.5	0.5	96	80-120	109	70-130
Nickel	<1	1	95	80-120	86	70-130
Selenium	<5	5	103	80-120	110	70-130
Silver	<0.3	0.3	102	80-120	73	70-130
Thallium	<0.5	0.5	104	80-120	86	70-130
Uranium	<2	2	98	80-120	105	70-130
Vanadium	<0.5	0.5	102	80-120	83	70-130
Zinc	<5	5	111	80-120	92	70-130

LEGEND:

RL - Reporting Limit

LCS - Laboratory Control Sample

MS - Matrix Spike

AR - Acceptable Range

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
<i>Metals in Water</i>						
Antimony	11.8	0-20				
Arsenic	0.0	0-20				
Barium	0.1	0-20				
Beryllium	0.0	0-20				
Boron	8.0	0-20				
Cadmium	0.0	0-20				
Chromium	0.5	0-20				
Cobalt	2.2	0-20				
Copper	2.5	0-20				
Lead	10.5	0-20				
Molybdenum	16.4	0-20				
Nickel	0.9	0-20				
Selenium	0.0	0-20				
Silver	0.0	0-20				
Thallium	0.0	0-20				
Uranium	3.6	0-20				
Vanadium	1.3	0-20				
Zinc	3.0	0-20				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs					
Sample Description:	9 Water Sample(s)					
Parameter	21-7636-1 MW21 - 3	21-7636-2 MW401	21-7636-3 MW402	21-7636-4 MW403	21-7636-5 MW405	Ground Water Standards ¹
	Concentration (µ g/L)					
BTEX in Water						
Benzene	<0.5	<0.5	<0.5	<0.5	<0.5	5
Toluene	<0.5	<0.5	<0.5	<0.5	<0.5	24
Ethylbenzene	<0.5	<0.5	<0.5	<0.5	<0.5	2.4
Xylenes	<0.5	<0.5	<0.5	<0.5	<0.5	300
PHCs (F1-F4) in Water						
F1 _{BTEX} (C ₆ - C ₁₀)	<25	<25	<25	<25	<25	750
F2 (C ₁₀ - C ₁₆)	<100	<100	<100	<100	<100	150
F3 (C ₁₆ - C ₃₄)	<100	<100	<100	<100	<100	500
F4 (>C ₃₄)	<100	<100	<100	<100	<100	500
Chromatogram descends to baseline by nC50 ? (Yes/No)	Yes	Yes	Yes	Yes	Yes	
Surrogate Recovery (%)						
Bromochloromethane	102	112	84	100	72	60-140
1,4-Difluorobenzene	99	113	88	104	76	60-140
1,4-Dichlorobutane	98	110	81	100	78	60-140

F_{4G} (gravimetric heavy hydrocarbons) cannot be added to the C₆ to C₅₀ hydrocarbons.

< result obtained was below RL (Reporting Limit).

¹ MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition.

All Types of Property Use. () Standard value in brackets applies to medium and fine textured soils.

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs					
Sample Description:	9 Water Sample(s)					
Parameter	21-7636-6 MW405 Duplicate	21-7636-7 MW501	21-7636-8 MW503	21-7636-9 VOC Blank		Ground Water Standards ¹
	<i>Concentration (µ g/L)</i>					
BTEX in Water						
Benzene	<0.5	<0.5	<0.5	<0.5		5
Toluene	<0.5	<0.5	<0.5	<0.5		24
Ethylbenzene	<0.5	<0.5	<0.5	<0.5		2.4
Xylenes	<0.5	<0.5	<0.5	<0.5		300
PHCs (F1-F4) in Water						
F1 _{BTEX} (C ₆ - C ₁₀)	<25	<25	<25	N/A		750
F2 (C ₁₀ - C ₁₆)	<100	<100	<100	N/A		150
F3 (C ₁₆ - C ₃₄)	<100	<100	<100	N/A		500
F4 (>C ₃₄)	<100	<100	<100	N/A		500
Chromatogram descends to baseline by nC50 ? (Yes/No)	Yes	Yes	Yes	N/A		
Surrogate Recovery (%)						
Bromochloromethane	84	121	60	106		60-140
1,4-Difluorobenzene	86	121	61	101		60-140
1,4-Dichlorobutane	82	117	66	105		60-140

F_{4G} (gravimetric heavy hydrocarbons) cannot be added to the C₆ to C₅₀ hydrocarbons.

< result obtained was below RL (Reporting Limit).

¹ MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition.

All Types of Property Use. () Standard value in brackets applies to medium and fine textured soils.

QA/QC Report

Parameter	Blank	RL	LCS	AR	MS	AR
	(ug/L)		Recovery (%)		Recovery (%)	
<i>BTEX in Water</i>						
Benzene	<0.5	0.5	94	60-130	113	50-140
Toluene	<0.5	0.5	101	60-130	94	50-140
Ethylbenzene	<0.5	0.5	103	60-130	74	50-140
Xylenes	<0.5	0.5	91	60-130	94	50-140
<i>PHC (F1-F4) in Water</i>						
F1 _{BTEX} (C ₆ - C ₁₀)	<25	25	97	80-120	91	60-140
F2 (C ₁₀ - C ₁₆)	<100	100	90	60-140	85	60-140
F3 (C ₁₆ - C ₃₄)	<100	100	90	60-140	83	60-140
F4 (>C ₃₄)	<100	100	91	60-140	84	60-140
<i>Surrogates</i>						
Parameter	Recovery (%)	AR	Recovery (%)	AR	Recovery (%)	AR
Bromochloromethane	72	60-140	120	60-140	68	60-140
1,4-Difluorobenzene	76	60-140	126	60-140	65	60-140
1,4-Dichlorobutane	74	60-140	122	60-140	66	60-140

LEGEND:

RL - Reporting Limit
 LCS - Laboratory Control Sample
 MS - Matrix Spike
 AR - Acceptable Range

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
<i>BTEX in Water</i>						
Benzene	0.0	0-30				
Toluene	0.0	0-30				
Ethylbenzene	0.0	0-30				
Xylenes	0.0	0-30				
<i>PHC (F1-F4) in Water</i>						
F1 _{BTEX} (C ₆ - C ₁₀)	0.0	0-30				
F2 (C ₁₀ - C ₁₆)	0.0	0-30				
F3 (C ₁₆ - C ₃₄)	0.0	0-30				
F4 (>C ₃₄)	0.0	0-30				
<i>Surrogates</i>						
Parameter	Recovery (%)	AR				
Bromochloromethane	120	60-140				
1,4-Difluorobenzene	119	60-140				
1,4-Dichlorobutane	114	60-140				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs					
Sample Description:	9 Water Sample(s)					
Parameter	21-7636-1 MW21 - 3	21-7636-4 MW403	21-7636-5 MW405	21-7636-6 MW405 Duplicate	21-7636-7 MW501	Ground Water Standards ¹
	Concentration (µ g/L)					
PAHs in Water						
Naphthalene	<2	<2	<2	<2	<2	11
2-Methylnaphthalene	<1	<1	<1	<1	<1	3.2
1-Methylnaphthalene	<1	<1	<1	<1	<1	1
Acenaphthylene	<1	<1	<1	<1	<1	4.1
Acenaphthene	<1	<1	<1	<1	<1	120
Fluorene	<0.5	<0.5	<0.5	<0.5	<0.5	1
Phenanthrene	<0.1	<0.1	<0.1	<0.1	<0.1	2.4
Anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	0.41
Fluoranthene	<0.4	<0.4	<0.4	<0.4	<0.4	4.1
Pyrene	<0.2	<0.2	<0.2	<0.2	<0.2	1
Benzo [a] anthracene	<0.2	<0.2	<0.2	<0.2	<0.2	0.1
Chrysene	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Benzo [b] fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Benzo [k] fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1	0.01
Benzo [a] pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	0.2
Indeno [1,2,3-cd] pyrene	<0.2	<0.2	<0.2	<0.2	<0.2	0.2
Dibenzo [a,h] anthracene	<0.2	<0.2	<0.2	<0.2	<0.2	0.2
Benzo [g,h,i] perylene	<0.2	<0.2	<0.2	<0.2	<0.2	0.2
Surrogate Recovery (%)						
Naphthalene-d8	64	54	50	50	50	50-140
Phenanthrene-d10	66	64	50	50	50	50-140
Chrysene-d12	97	103	76	74	75	50-140

< result obtained was below RL (Reporting Limit).

¹ MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition.

All Types of Property Use. () Standard value in brackets applies to medium and fine textured soils.

QA/QC Report

Parameter	Blank	RL	LCS	AR	MS	AR
	(µg/L)		Recovery (%)		Recovery (%)	
PAHs in Water						
Naphthalene	<2	2	71	50-140	90	50-140
2-Methylnaphthalene	<1	1	74	50-140	72	50-140
1-Methylnaphthalene	<1	1	61	50-140	63	50-140
Acenaphthylene	<1	1	75	50-140	95	50-140
Acenaphthene	<1	1	55	50-140	70	50-140
Fluorene	<0.5	0.5	55	50-140	57	50-140
Phenanthrene	<0.1	0.1	64	50-140	54	50-140
Anthracene	<0.1	0.1	101	50-140	86	50-140
Fluoranthene	<0.4	0.4	82	50-140	84	50-140
Pyrene	<0.2	0.2	85	50-140	86	50-140
Benzo [a] anthracene	<0.2	0.2	83	50-140	82	50-140
Chrysene	<0.1	0.1	84	50-140	85	50-140
Benzo [b] fluoranthene	<0.1	0.1	88	50-140	90	50-140
Benzo [k] fluoranthene	<0.1	0.1	69	50-140	74	50-140
Benzo [a] pyrene	<0.01	0.01	77	50-140	78	50-140
Indeno [1,2,3-cd] pyrene	<0.2	0.2	78	50-140	83	50-140
Dibenzo [a,h] anthracene	<0.2	0.2	80	50-140	81	50-140
Benzo [g,h,i] perylene	<0.2	0.2	82	50-140	81	50-140
Surrogates						
Parameter	Recovery (%)	AR	Recovery (%)	AR	Recovery (%)	AR
Naphthalene-d8	55	50-140	63	50-140	63	50-140
Phenanthrene-d10	51	50-140	50	50-140	75	50-140
Chrysene-d12	74	50-140	88	50-140	88	50-140

LEGEND:

RL - Reporting Limit
 LCS - Laboratory Control Sample
 MS - Matrix Spike
 AR - Acceptable Range

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
PAHs in Water						
Naphthalene	0.0	0-30				
2-Methylnaphthalene	0.0	0-30				
1-Methylnaphthalene	0.0	0-30				
Acenaphthylene	0.0	0-30				
Acenaphthene	0.0	0-30				
Fluorene	0.0	0-30				
Phenanthrene	0.0	0-30				
Anthracene	0.0	0-30				
Fluoranthene	0.0	0-30				
Pyrene	0.0	0-30				
Benzo [a] anthracene	0.0	0-30				
Chrysene	0.0	0-30				
Benzo [b] fluoranthene	0.0	0-30				
Benzo [k] fluoranthene	0.0	0-30				
Benzo [a] pyrene	0.0	0-30				
Indeno [1,2,3-cd] pyrene	0.0	0-30				
Dibenzo [a,h] anthracene	0.0	0-30				
Benzo [g,h,i] perylene	0.0	0-30				
Surrogates						
Parameter	Recovery (%)	AR				
Naphthalene-d8	54	50-140				
Phenanthrene-d10	65	50-140				
Chrysene-d12	93	50-140				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference