FISHER ENVIRONMENTAL LTD.

ENGINEERING & LABORATORY

Professional Engineers Ontario

CALA Canadian Association for Laboratory Accreditation Inc.

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

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Prepared for:

390 Derry Development Inc.

Fisher Project No. FE-P 16-7880-B

August 22, 2017

ISSUED TO:	390 DERRY DEVELOPMENT INC.
ADDRESS:	206-7100 WOODBINE AVENUE, MARKHAM, ON
PROJECT NAME:	PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PROJECT ADDRESS:	376 & 390 DERRY ROAD WEST, MISSISSAUGA, ONTARIO
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GLOSSARY OF ACRONYMS

APEC:	Area of Potential Environmental Concern
ASL:	Above Sea Level
BGS:	Below Ground Surface
BTEX:	Benzene, Toluene, Ethylbenzene, Xylene
CALA:	Canadian Association for Laboratory Accreditation
CCME:	Canadian Council of Ministers of the Environment
COC:	Contaminants of Concern
CPC:	Contaminants of Potential Concern
CSM:	Conceptual Site Model
DNAPL:	Dense Non-aqueous Phase Liquid
DO:	Dissolved Oxygen
EPA:	Environmental Protection Act
LDPE:	Low-density Polyethylene
LNAPL:	Light Non-aqueous Phase Liquid
MOECC:	Ministry of the Environment and Climate Change
NAPL:	Non-aqueous Phase Liquid
OC Pesticide:	Organochlorine Pesticide
ORP:	Oxidation-reduction Potential
PAH:	Polycyclic Aromatic Hydrocarbon
PCA:	Potentially Contaminating Activity
PCB:	Polychlorinated Biphenyl
Phase I ESA:	Phase One Environmental Site Assessment
Phase II ESA:	Phase Two Environmental Site Assessment
PHCs (F1-F4):	Petroleum Hydrocarbons in four fractions, F1-F4
PID:	Photoionization Detector
PPM:	Parts per Million
PVC:	Polyvinyl Chloride
QA/QC:	Quality Assurance/Quality Control
QP:	Qualified Person
RA:	Risk Assessment
RSC:	Record of Site Condition
SCS:	Site Condition Standards
USDA:	United States Department of Agriculture
VOC:	Volatile Organic Compound

1. EXECUTIVE SUMMARY

Fisher Environmental Ltd. was retained by Mr. Mike Wang of 376 Derry Development Inc. and 390 Derry Development Inc. to conduct a Phase II Environmental Site Assessment (ESA) at the property addressed as 376-390 Derry Road West, Mississauga, Ontario, herein referred to as the Site or Phase Two Property.

The Site is located on the south side of Derry Road West, approximately 100 m northeast of the nearest major intersection of McLaughlin Road and Derry Road West. NAD 83 Datum for the centroid of the Site is 17-603767-4832402, and has an area of 23,448 m^2. The Site is legally described as Part of Lot 10, Concession 1, West of Hurontario Street with PINs 13214-0058(LT) and 13214-0078(LT). The Site is 'L' shaped and is bounded by residential buildings and a gasoline service station to the west, Derry Road West to the north, and additional residential buildings to the east and south. The Site has a total area of 2.34 hectares.

A Phase I ESA was undertaken at the Site by Fisher, with a certification date of August 30, 2017, in accordance with O.Reg 153/04, as amended. It was revealed that no current operations representing PCAs were identified at the Site. 376 Derry Road West consists of a one (1) storey frame dwelling utilized for religious gathering purposes and a metal barn utilized for miscellaneous storage. The majority of the property is dirt and gravel covered and utilized for vehicle storage and parking. 390 Derry Road West consists of a one (1) storey brick dwelling that is abandoned and a metal garage that is unoccupied. The remainder of the property is dirt and gravel covered or grass covered.

One (1) PCA was identified within the phase one study area that may contribute to an APEC on-Site: **PCA 28** (gasoline and associated products storage in fixed tanks), associated with the current gasoline service stations operating at two (2) properties: 450 Derry Road West, Mississauga (adjacent to and west of the Site) and 7030 McLaughlin Road, Mississauga (145 m east of the Site). Two (2) historical PCAs were identified on-Site, that may contribute to an APEC: **PCA 28** and **PCA 30** (importation of fill material of unknown quality), associated with the historical presence of a heating oil AST at 390 Derry Road West and the historical importation of fill materials at the Site.

Fisher prepared the Sampling and Analysis Plan as part of the current Phase II ESA, which included the comprehensive scope of the investigation, and determined the proposed borehole locations, based on the findings of the aforementioned Phase I ESA. The current Phase II ESA works were carried out in accordance with the requirements of Part VIII (sections 32 to 33.8) and Schedule E of the Ontario Regulation 153/04 RSC under the EPA.

Based on the visual examination of the soil samples, the groundwater appears to exist in the wet layer embedded in the grey sandy silt till, having a maximum thickness of 2.32 m. The local groundwater level appears to vary from 190.91 m asl to 194.25 m asl (6.78 m bgs to 5.40 m bgs) based on elevation measurements, which is approximately the top elevation of the first

encountered aquifer indicating an unconfined condition. The sandy silt till matrix of the aquifer indicates a hydraulic conductivity range of approximately 10^{-4} to 10^{-5} cm/sec. Based on the field measurements, the groundwater flow direction at the Site is in a southwest direction. Based on the type of PCAs and their associated CPCs as determined, the investigation of the aquitard was determined not to be a requirement; however the aquitard was encountered in all boreholes advanced (shale).

To determine the current applicable Site Condition Standards, discerned by property use (proposed, in this instance), soil stratigraphy and texture, and potable water use, Fisher identified applicable SCS as Table 3: Full Depth Generic SCS in a Non-potable Groundwater Condition, R/P/I Property Use for soil samples and All Types of Property Use for groundwater samples, medium-to-fine textured soil condition as contained in the MOECC's "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", April 15, 2011.

The Phase II ESA involved the drilling of ten (10) boreholes, six (6) of which were completed as groundwater monitoring wells. Fifteen (15) soil samples were submitted for Metals analysis, seven (7) soil samples were submitted for Hot Water Soluble Boron analysis, fifteen (15) soil samples were submitted for PHCs (F1-F4) and BTEX analysis, three (3) soil samples were submitted for PAHs analysis, four (4) soil samples were submitted for pH, analysis, two (2) soil samples were submitted for EC and SAR analysis, and two (2) soil samples were submitted for grain size distribution analysis. Seven (7) groundwater samples were submitted for Metals analysis, seven (7) groundwater samples were submitted for PHCs (F1-F4) and BTEX analyses, one (1) trip blank water sample was submitted for BTEX analysis, and five (5) groundwater samples were submitted for PAHs analysis.

Upon review of the laboratory analysis results, all soil and groundwater samples samples tested for associated CPCs were within the applicable MOECC Table 3 SCS, i.e. no CPCs are to be carried forward herein as Contaminants of Concern (COCs). It is Fisher's opinion that no further investigation is warranted at this time.

2. INTRODUCTION

Fisher Environmental Ltd. (Fisher) conducted a Phase II ESA at the property addressed 376 and 390 Derry Road West, Mississauga, Ontario.

The EPA defines the Phase II ESA as an assessment of a property conducted in accordance with the regulations by or under the supervision of a QP to determine the location and concentration of one (1) or more contaminants in the land or water on, in or under the property.

This definition applies only to Phase II ESAs prepared in support of the filing of a RSC. The process of filing a RSC in the Environmental Site Registry is regulated by Ontario Regulation 153/04, as amended. The general rules for filing a RSC are found in Part V of the Regulation, while Phase II ESA rules are mainly found in Parts VI and VIII (sections 22, 32 to 33.8) of the Regulation and Part XII, Schedule E of the Regulation.

2.1. Site Description

The Site is located on the south side of Derry Road West, approximately 100 m northeast of the nearest major intersection of McLaughlin Road and Derry Road West. NAD 83 Datum for the centroid of the Site is 17-603767-4832402.

The Site is 'L' shaped and is bounded by residential buildings and a gasoline service station to the west, Derry Road West to the north, a residential building to the east, and residential buildings to the south. The Site has an area of 23,448 m^2.

The Site is legally described as Part of Lot 10, Concession 1, West of Hurontario Street, City of Mississauga, and Regional Municipality of Peel. PIN for 376 Derry Road West is 13214-0058(LT) with assessment roll number 21-05-040-098-25200-0000. PIN for 390 Derry Road West is 13214-0078(LT) with assessment roll number 21-05-040-098-25100-0000.

2.2. Property Ownership

Fisher Environmental Limited (Fisher) received authorization to carry out the Phase II ESA from Mr. Mike Wang of 376 Derry Development Inc. and 390 Derry Development Inc., care of Time Development Group Inc., herein referred to as the Client, whose address is 7100 Woodbine Ave., Suite 206, Markham, ON L3R 5J2, and can be contacted via email at mike.wang@timedevelopmentgroup.com. The current owners of the Site, as listed on the property transfer deeds, are 390 Derry Development Inc. as of July 25, 2016 (for 390 Derry Road West) and 376 Derry Development Inc. as of March 28, 2017 (for 376 Derry Road West).

2.3. Current and Proposed Property Uses

No current operations representing PCAs were identified at the phase two property. 376 Derry Road West consists of a one (1) storey frame dwelling utilized for religious gathering purposes and a metal barn utilized for miscellaneous storage. The majority of the property is dirt

and gravel covered and utilized for vehicle storage and parking. 390 Derry Road West consists of a one (1) storey brick dwelling that is abandoned and a metal garage that is unoccupied. The remainder of the property is dirt and gravel covered or grass covered.

It is recommended that the Site maintains its residential use until the results of the Phase II ESA (contained herein) would indicate compliance of the Site with the current applicable MOECC SCS and permit filing of a RSC with the Environmental Site Registry. The proposed redevelopment of the property is for residential purposes.

As specified under section 168.3.1 of the EPA, filing of a RSC with the Environmental Site Registry is mandatory when there is a change (in all or in part of the property) from an industrial, commercial or community property use to residential, institutional, parkland or agricultural or other property use, with the exceptions prescribed by the amended Ontario Regulation 153/04.

2.4. Applicable Site Condition Standards

The concentration of each CPC on, in or under the Site must not exceed the applicable SCS for the contaminant, unless there are standards specified in a RA for the Site.

The MOECC presents Soil, Groundwater and Sediment Standards in the document “Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the EPA”, dated April 15, 2011. These standards are soil, groundwater and sediment effect-based criteria which have been developed to protect against potential adverse effects or the likelihood of adverse effects to human health, ecosystem health and the natural environment resulting from contamination due to human activities. They are levels at and below which no further remedial response actions would be required based upon the potential risk of harm posed by these contaminants.

2.4.1. Soil Texture

As specified by Ontario Regulation 153/04, as amended, “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”.

Two (2) soil samples were submitted to Fisher Environmental Laboratories for grain size distribution analysis. Below is a summary of the findings:

- BH4 (1.52-2.13 m bgs, sample number 16-4839-9)

  Coarse fraction (> 75 μm): 18.9 %

  Fine fraction (< 75 μm): 81.1 %; and,

- BH10 (3.05-3.66 m bgs, sample number 16-4839-18)

Coarse fraction (> 75 μm): 37.2 %

Fine fraction (< 75 μm): 62.8 %

2.4.2. Groundwater Use

The Site and neighbouring properties rely on municipal water from surface water bodies (Lake Ontario) as a source of drinking water and for domestic use. Based on the groundwater use within the area, Fisher provided letters to the City of Mississauga and Region of Peel requesting no objection to the intent to use non-potable groundwater SCS. Upon fulfilling requirements set out in the objection letters from both municipalities, the Region of Peel in a letter dated January 26, 2017 and the City of Mississauga in a letter dated February 1, 2017, withdrew their objections to our use of non-potable groundwater SCS.

2.4.3. Selection of Applicable SCS

For the purpose of this Phase II ESA, the applicable SCS was identified as: Table 3: Full Depth Generic SCS in a Non-potable Groundwater Condition, Residential/Parkland/Institutional (R/P/I) Property Use for soil samples and All Types of Property Use for groundwater samples, medium-to-fine textured soil condition.

3. BACKGROUND INFORMATION

The specific objectives of a background information review are to develop an understanding of the general physical setting of the Site and to verify the extent, validity and reliability of data gathered during previous investigations carried out at the Site, if available.

3.1. Physical Setting

3.1.1. Water Bodies and Areas of Natural Significance within the Phase One Study Area

Table 1: Water Bodies and Areas of Natural Significance

Water Bodies	
Source:	MNRF Map
Regional Conditions:	Fletcher's Creek, the nearest open water body, is located approximately 200 m east of the Site.
Phase One Study Area Conditions:	No on-Site water bodies were encountered as part of the existing Phase One ESA (2016)
Areas of Natural Significance	
Source:	MNRF Map, Credit Valley Source Protection Area Map and Credit Valley Watershed Map

Phase One Study Area Conditions:	According to the MNRF map, no provincial or federal conservation or natural heritage area was located in the phase one study area. According to the Credit Valley Watershed map, the Site falls within the Fletcher's Creek Subwatershed of the Credit River Watershed System. According to the Credit Valley Source Protection Area map, maintained by Credit Valley Conservation Authority, no portion of the Site or phase one study area falls within a wellhead drawing zone.

3.1.2. Topography and Surface Water Drainage on the Phase Two Property

Table 2: Topography and Drainage

Topography and Drainage	
Source:	Google Earth; Legal Survey and Site Topography; Regional Topographic Map
Regional Conditions:	Grade elevations in the east-west direction were measured along Derry Road West at 250 m east and 250 m west of the Site, which revealed westward sloping from 196 m asl to 200 m asl. Grade elevation at Aspendale Crescent, 200 m north of the Site was 201 m asl, while grade elevation at Krotone Crescent, 200 m south of the Site, was 197 m asl, suggesting a southward sloping. Lowest elevation within the phase one study area was near Fletcher's Creek at 184 m asl., 180 m east of the Site.
Site Conditions:	Site topography features gradual sloping in the west and south-west directions at the Site, with the highest point on-Site measured at 199.6 m asl at the north corner of 376 Derry Road West, and the lowest on-Site points measured at the south corners of both 376 and 390 Derry Road West lots. Surface water percolates towards the water table at the grass and gravel covered areas of the Site and surface runoff drains into catch basins located along Derry Road West.

3.2. Past Investigations

Information provided by previous reports may be relied on in planning, conducting or supervising the present Phase II ESA if all of the following requirements are met:

(a) the date the last work (on all of the planning for the site investigation, conducting the site investigation and reviewing and evaluating the information gathered through the site investigation required for the Phase II ESA that is the subject of this report was done) is no later than eighteen (18) months before the submission of the RSC or the commencement of the RA;

(b) the phase one CSM included in the previous investigation accurately reflects the environmental condition of the Site prior to any actions taken to reduce the concentration of contaminants;

(c) in the professional opinion of the QP conducting the present Phase II ESA, there is no new or materially changed APEC at the Site;

(d) the previous Phase I ESA meets all other requirements of Part VII and Schedule D of Ontario Regulation 153/04 for a Phase I ESA, including the requirements for a Phase I ESA report;

(d) the previous Phase II ESA meets all other requirements of Part VIII and Schedule E of Ontario Regulation 153/04 for a Phase II ESA, including the requirements for a Phase II ESA report;

(e) the report is a single document; and

(f) the report is the most recent document that meets the requirements of Part VII and Schedule D of Ontario Regulation 153/04 for a Phase I ESA, including the requirements for a Phase I ESA report.

3.2.1. Summary of Previous Investigations of the Phase Two Property

The following previous report was reviewed and used as a source for background information prior to planning the site investigation for the present Phase II ESA:

Table 3: Previous Reports

Report Title	Phase One Environmental Site Assessment; 390 Derry Road West, Mississauga, Ontario				
Prepared By	Terraprobe Inc.	**Prepared For**	Friends of Pinehurst Lane Company Inc.	**Dated**	October 28, 2013
Scope and Conclusions					
The investigation was conducted for the portion of the property addressed 390 Derry Road West. The subject phase one ESA involved the following: a review of historical site records and activities, interviews with individuations having knowledge of current/historical site activities, a reconnaissance inspection, and evaluation of information. The report was stated to have been completed to satisfy requirements, methodologies and practices for phase one ESAs as described in O. Reg. 153/04 (as amended). At the time, the subject property was an unoccupied residential property, owned by Friends of Pinehurst Lane Inc. As part of the report, three (3) PCAs that created an APEC at the subject property were identified, including: historical use of heating fuel oil at the subject property; operation of a gasoline service station at 450 Derry Road West; and operation of a second gasoline service station at 7030 McLaughlin Road. A phase two ESA was required to investigate indentified concerns prior to filing for a Record of Site Condition.					

Report Title	Phase Two Environmental Site Assessment; 390 Derry Road West, Mississauga, Ontario				
Prepared By	Terraprobe Inc.	**Prepared For**	Friends of Pinehurst Lane Company Inc.	**Dated**	October 28, 2013

Scope and Conclusions

The investigation was conducted for the portion of the property addressed 390 Derry Road West.

Scope of work included the following: field program, which involved the advancement boreholes and installation of groundwater monitoring wells; laboratory testing program for soil and groundwater samples; and, data evaluation and reporting. The following APECs were investigated as part of this investigation: APEC-1 south of the residential building (PCA-28 on-site), APEC-2 property western boundary (PCA-28 off-site at 450 Derry Rd. W.), and APEC-3 property northwestern boundary (PCA-28 off-site at 7030 McLaughlin Rd.).

Seven (7) boreholes were advanced in the investigated property and in six (6) of them, monitoring wells were installed, from which thirty four (34) soil and seven (7) groundwater samples were submitted to the laboratory for Metals and Inorganics, PHC (F1-F4) and/or VOC analysis.

Surficial geology encountered as part of the drilling works consisted of surficial and fill materials: topsoil to weathered clayey silt with sand and gravel, to 1.5 m bgs, underlain by native soils: clayey silt till, some sand and trace gravel and shale fragments, to 8.1 m bgs. No bedrock was encountered.

Groundwater elevations calculated at six locations revealed groundwater flowed towards the south-east.

Analytical sample results for submitted soil and groundwater samples revealed no exceedances of current applicable MOECC SCS (Table 3, R/P/I) in groundwater, however two (2) exceedances of applicable SCS were encountered in soil, as follows:

BH5 (1.52-1.98 m) – Electrical Conductivity – 0.738 mS/cm vs. 0.7 mS/cm

BH7 (0.00-0.76 m) – Boron (Hot-Water-Soluble) – 2.38 ppm vs. 1.5 ppm

It was recommended these impacts are delineated and removed prior to filing of the RSC.

Report Title	Phase One Environmental Site Assessment; 376 & 390 Derry Road West, Mississauga, Ontario				
Prepared By	Fisher Environmental Ltd.	**Prepared For**	390 Derry Developments Inc.	**Dated**	August 20, 2017 (certification date)

Scope and Conclusions

The investigation was conducted for the complete Phase Two Property. The Phase I ESA was conducted in accordance with Part VII and Schedule D of the Ontario Regulation 153/04 (RSC – Part XV.1 of the EPA), as amended as of July 1, 2011.

The records review, interviews and Site reconnaissance conducted as part of the current Phase I ESA identified PCAs at the Site and within the phase one study area that may contribute to APECs at the Site. This conclusion is supported by a combination of factors, namely the distance and up-gradient nature of off-Site PCAs identified at neighbouring fuel service stations, potential on-Site historic heating oil use, on-Site importation of fill materials of unknown quality, and the geological and hydrogeological conditions in the area.

Considering the findings of the current Phase I ESA, it is concluded that a Phase II ESA is recommended for the Site. In order to verify the existence of CPCs in the soil and/or groundwater at the Site, a number of boreholes and groundwater monitoring wells should be advanced within the identified APECs to determine the location and concentration of CPCs. Three (3) APECs were identified, with the recommended course of action (as part of the Phase II ESA), as follows:

Location of APEC	PCA	Recommended Course of Action
APEC A – All Site area	PCA-30: Importation of Fill Materials of Unknown Quality	Drill ten (10) boreholes up to 9.0 m below grade, into the first encountered aquifer, install groundwater monitoring wells in six (6) of them, and collect soil and groundwater samples for analysis of Metals, PHCs (F1 to F4), VOCs II (BTEX), PAHs, Hot-Water-Soluble Boron, pH, EC, SAR.
APEC B – At the south and exterior portion of the residential dwelling at 390 Derry Road West	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks	Drill one (1) borehole up to 9.0 m below grade, install a monitoring well and collect soil and groundwater samples for analysis of Metals, PHCs (F1 to F4), VOCs II (BTEX), PAHs.
APEC C – Along the west Site boundary within 390 Derry Road West	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks	Drill two (2) boreholes up to 9.0 m below grade, into the first encountered aquifer, install groundwater monitoring wells in, and collect soil and groundwater samples for analysis of Metals, PHCs (F1 to F4), VOCs II (BTEX), PAHs.

The Phase I ESA recommended that the Site maintains its current use until the results of a Phase II ESA or subsequent Site Remediation would indicate compliance of the Site with the current applicable MOECC Standards (or permit filing of an application for change in property use), or until a (Modified Generic) RA would develop property-specific standards that will allow a specific property use.

3.2.2. Reliability of Information or Data Provided in Previous Investigations

To ensure reliability of information for the reviewed reports, the following reports were assessed for general objectives and specific requirements for a Phase I ESA or Phase II ESA as per O.Reg 153/04. Table 4 outlines the assessment for reliability for the three (3) reviewed reports:

Table 4: Previous Investigation

Phase One Environmental Site Assessment, 390 Derry Road West, Mississauga, Ontario; Terraprobe Inc. (October 28, 2013)	
General Objectives and/or Specific Requirements	**Reliability and/or Comments**
Comprehensiveness of Scope of Work	Adequate

Compliance with the Requirements set out in Part VII and Schedule D of Ontario Regulation 153/04	Does not meet specific requirements for O.Reg 153/04. Including: ▪ Historical research conducted as part of Records Review was deficient for meeting requirements. ▪ Conceptual Site Model was not done in accordance with O.Reg. 153/04
Phase Two Environmental Site Assessment, 390 Derry Road West, Mississauga, Ontario; Terraprobe Inc. (October 28, 2013)	
General Objectives and/or Specific Requirements	**Reliability and/or Comments**
Selection of Applicable Site Condition Standards	Deficient due to: ▪ Use of MOECC Table 3 SCS in the report without a Letter of No Objection from the Region of Peel upon information of their intent to use non-potable SCS. ▪ Use of non-potable SCS with two (2) water wells present on-Site and total of four (4) water wells present within 250 m from nearest Site boundary.
Sampling and Analysis Plan	Deficient due to: ▪ Locations, depths and/or frequency of soil sampling inadequately correlated with the Phase One CSM. ▪ Incomplete and/or uncorrelated selection of Contaminants of Potential Concern for analysis, related to identified PCAs. ▪ Inadequate QA/QC plan, data quality objectives and/or standard operating procedures.
Interpretation of Geologic Information	Adequate
Soil Collection	Deficient due to: ▪ Sampling and handling of groundwater samples not done in accordance with Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.
Ground Water Characterization	Deficient due to: ▪ Sampling protocol not sufficient to obtain formation water. Low-flow sampling not conducted and groundwater quality parameters not tested to confirm formation water. ▪ Sampling and handling of groundwater samples not done in accordance with Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. ▪ Measuring points for vertical and horizontal hydraulic gradient calculation do not sufficiently address the complete Site area.
Soil Vapor Survey	▪ Not conducted.
Analytical Methods	Adequate.

Phase Two Conceptual Site Model	Deficient due to: ▪ Undeveloped diagrams, cross-sections and figures. ▪ Hydrogeological characteristics unrelated to contaminant transport pathways and specific contaminant distribution. ▪ Lack of narrative content presenting logical bases for the interpretations, reason for discharge into the natural environment of the contaminants and soil vapor intrusion into buildings. ▪ Undeveloped presentation of release mechanisms, transport pathways, human and/or ecological receptors, exposure points and/or routes of exposure.
Phase One Environmental Site Assessment, 376 & 390 Derry Road West, Mississauga, Ontario; Fisher Environmental Ltd. (certification date August 20, 2016)	
General Objectives and/or Specific Requirements	**Reliability and/or Comments**
Comprehensiveness of Scope of Work	Adequate
Compliance with the Requirements set out in Part VII and Schedule D of Ontario Regulation 153/04	Adequate

4. SCOPE OF THE INVESTIGATION

The specific objectives of the site investigation component of the Phase II ESA are:

- To determine what applicable SCS apply to the Site;
- To confirm if contaminants are present at the Site, and if so, their type, location and concentration, by investigating and characterizing soil, groundwater and/or sediment, and further investigating and characterizing applicable media following any remediation; and
- To determine if any contaminants at the Site are at concentrations greater than the applicable SCS or standards specified in a RA for the contaminants (where a RA has been accepted by the Director with respect to contaminants at the Site) by investigating and characterizing soil, groundwater and/or sediment, and further investigating and characterizing applicable media following any remediation.

The scope of the current investigation is as per Fisher's proposal and request by 390 Derry Development Inc. for consulting services in support of an environmental due diligence investigation for a proposed redevelopment of the Site.

4.1. Overview of Site Investigation

Fisher conducted the current Phase II ESA at the Site from September 20, 2016 to October 6, 2016 to confirm if contaminants are present at the Site at concentrations greater than the applicable SCS and if so, their type, location and concentration, and to assess applicable remedial and risk management options for the Site, if required.

From the analytical results, it was determined that soil and groundwater samples collected at all borehole/monitoring well locations at the Site and tested for Metals, PHCs (F1-F4) and BTEX, and/or PAHs, indicated that all tested parameters met the applicable SCS as presented in the MOECC's Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA, April 15, 2011. Based on the current Phase II ESA, no contaminants identified at CPCs as part of the existing Phase I ESA, were carried forward as COCs.

4.2. Media Investigated

Schedule E of Ontario Regulation 153/04 contains both generic requirements (applicable to all media: soil, groundwater or sediment, which may be investigated) and specific requirements (for example, those applicable when soil vapour investigations are being undertaken for the purposes of a RA).

The rationale for determining the investigated media in the current Phase II ESA has been based on information obtained from the Phase I ESA (FE-P 16-7880-A prepared by Fisher with a certification date of August 20, 2016) and the phase one CSM.

4.2.1. Rationale for Groundwater and Sediment Investigation

A Phase II ESA must include the investigation, sampling and analysis of groundwater on, in or under the Site where:

- The property is an enhanced investigation property;
- There is no soil on, in or under the property and an investigation, sampling, and analysis of soil already undertaken does not meet the requirements and objectives of a Phase II ESA;
- There is no soil on, in or under the property and no investigation, sampling, and analysis of soil has been undertaken; or,
- It is advisable to do so in order to achieve the Phase II ESA objectives or other provisions of the Regulation and Schedules.

Based on the PCAs identified, on-site migration of CPCs and off-site migration of CPCs to the Site, with potential lateral and vertical migration within the aquifer, may impact the quality of the groundwater at the Site. No sediment investigation is required as part of the Phase II ESA.

4.2.2. Overview of Soil, Groundwater and Sediment Field Investigation

The current Phase II ESA program undertaken by Fisher involved the drilling of ten (10) boreholes, six (6) of which were completed as groundwater monitoring wells. Soil samples were collected from each of the ten (10) boreholes and submitted to the laboratory for Metals, PHCs (F1-F4) and BTEX, PAHs, pH, EC, SAR, and/or grain size distribution analysis. Groundwater samples were collected from the groundwater monitoring wells installed during this investigation and submitted to the laboratory for Metals, PHCs (F1-F4) and BTEX, and/or PAHs analysis.

4.3. Phase One Conceptual Site Model

The phase one CSM summarized below synthesizes relevant information gathered during the phase one study area evaluation, co-relates the Site's features and geological/hydrogeological conditions in the area with on-site and/or off-site PCAs, identifies transport pathways, and identifies CPCs that may contribute to APECs on, in or under the Site.

Table 5: Phase One CSM

Areas where PCA have occurred in the phase one study area:	PCA-30 (Importation of Fill Materials of Unknown Quality): On-Site; PCA-28 (Gasoline and Associated Products Storage in Fixed Tanks): On-Site, 390 Derry Road West and 7030 McLaughlin Road.
Surface and subsurface structures that may affect contaminant distribution and transport:	T-1: Off-Site underground utility mains along Derry Road West T-2: On-Site underground utility service lines to residential dwellings, between Derry Road West and the dwellings T-3: On-Site water line at 390 Derry Road West to residential dwelling from concrete well
Geological and hydrogeological interpretations:	
Considering that the surficial geology of native soils in the APECs is primarily clayey silt, and that the regional hydrogeologic conditions indicate a typical range of hydraulic conductivity for these soils of 10^{-7} – 10^{-8} cm/sec, it is expected that contaminants introduced to the subsurface groundwater are more likely to be significantly distributed in areas where the first encountered aquifer makes direct contact with the imported fill materials as opposed to areas where the actual and potential contaminants within the fill materials access the aquifer through leaching. Additionally, any groundwater contamination within the aquifer is more likely limited to the shallower zones of the first encountered aquifer, as vertical migration within very fine soils, as is the case at the Site, is limited without reliance on coarse seams and fractures. Due to the heterogeneous nature of fill materials and deep building foundations (basements), as expected at the Site, the groundwater may exhibit local anomalies in flow direction and contaminant transport.	
Uncertainty or absence of information:	
The imported fill materials at the Site are likely highly heterogeneous. No information regarding origin of imported fill material deposits or disposal documentation was available for review. No records or information gleaned from interviews could confirm the historic presence of a heating oil tank, and suggestion of a heating oil AST at 390 Derry Road West is based solely on observations made during the Site visit. No information regarding UST spills at the two fuel service stations were available on the reviewed databases. This phase one CSM represents the current understanding of the Site in terms of the relevant potentially contaminating sources, subsurface materials and processes, serves as the basis for further Site characterization, and will ultimately support the evaluation of various remedial alternatives, if necessary. Because of the limited intrusive and/or non-intrusive investigations data in the phase one study area, the site	

conceptual model can only provide an approximation to the real world. At the early stages of the CSM development, it is possible that several realizations will be tenable however, as more monitoring and other data become available, the subsequent CSMs should provide a more detailed picture of fluid flow and material transport, and transformation processes.

4.4. Deviations from Sampling and Analysis Plan

There were no deviations from the sampling and analysis plan for the Phase II ESA.

4.5. Impediments

There were neither any physical impediments nor any denial of access during the Phase II ESA.

5. INVESTIGATION METHOD

The investigation methodology was completed in accordance to Parts VI and VIII (sections 22, 32 to 33.8) and Part XII, Schedule E, of Ontario Regulation 153/04, as amended.

5.1. General

Prior to commencing any field activities, borehole locations were cleared of underground utilities through the services of public utility locate services. Borehole drilling was conducted utilizing a Diedrich-50 truck-mounted drilling rig equipped with solid stem auger sampling equipment to assess the soil conditions. Fisher personnel logged the subsurface conditions encountered within each of the boreholes at the time of the field work. Soil samples from within the boreholes were recovered at regular depth intervals by driving a split spoon sampler using standard sampling procedures in accordance with ASTM D1586. Soil samples were visually classified and tested for headspace vapour readings using a 10.6 eV lamp Mini Rae 2000 PID calibrated to 100 ppm isobutylene.

A minimum of one (1) soil sample recovered from each of the advanced boreholes was submitted to Fisher Environmental Laboratories of Markham, Ontario. If field observations suggested that PHC and/or VOC-impacts were evident in a borehole, the impacted soil and/or a second deeper soil sample would be submitted from that borehole for laboratory analysis for purposes of vertical delineation.

From the Phase II ESA, fifteen (15) soil samples were submitted for Metals analysis, fifteen (15) soil samples were submitted for PHCs (F1-F4) and BTEX analysis, fifteen (15) soil samples were submitted for PAHs analysis, four (4) soil samples were submitted for pH analysis, two (2) soil samples were submitted for EC and SAR analysis, and two (2) soil samples were submitted for grain size distribution analysis.

The groundwater conditions, where encountered, were recorded at the time of borehole drilling and at the completion of each borehole. A groundwater monitoring well comprising of 52 mm inside diameter flush-threaded PVC pipe was installed in six (6) of the ten (10) boreholes drilled

at the Site. The portion intersecting and/or below the groundwater table was constructed of a similar diameter machine-slotted screen to permit future measurement of water levels and the collection of groundwater samples.

Each newly installed groundwater monitoring well was monitored to determine the depth to the groundwater table, presence/absence of free-phase product within the groundwater monitoring well, and subsurface vapour concentrations. Prior to sampling, the newly installed groundwater monitoring wells were developed to remove any water or fluids used during borehole drilling and any fine grained material from around the screened interval by pumping out up to ten (10) well casing volumes of groundwater using dedicated LDPE tubing and a submersible pump. After each well development operation, the submersible pump was washed with an Alconox® solution and rinsed with distilled water. The development and sampling methodology followed at each of the newly installed groundwater monitoring well locations was in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the EPA, specifically using a Low Flow Purging and Sampling procedure (USEPA EQASOP-GW 001). The pumping rate varied until the water level has stabilized or a significant change in water level was not observed to ensure the sampling of “fresh” formation water. Indicator field parameters such as temperature, pH, specific conductance, ORP, DO and turbidity were measured during purging activities at each well. Once the indicator field parameters have stabilized, groundwater samples were taken upstream of the flow-through cell to prevent cross-contamination. Five (5) of the six (6) groundwater monitoring wells failed to achieve stabilization of the indicator field parameters due to poor recharge of the groundwater to the groundwater monitoring well.

Groundwater samples were collected at the newly installed groundwater monitoring wells and were submitted to Fisher Environmental Laboratories for analysis of Metals, PHCs (F1-F4) and BTEX, and/or PAHs.

QA/QC samples were collected and analyzed during the field program as follows:

- One (1) soil QA/QC field duplicate was collected at BH4 (0.00-0.61 m bgs, sample number 16-4839-8);
- One (1) groundwater QA/QC field duplicate was collected at MW7 (sample number 16-4947-5); and
- One (1) trip blank (sample number 16-4947-8) water sample was analyzed for BTEX.

5.2. Drilling and Excavating

5.2.1. Borehole Drilling

Borehole drilling was conducted by Fisher of Markham, Ontario. The exterior boreholes during the Phase II ESA advanced at the Site were completed using a Diedrich-50 truck-mounted

drilling rig that is hydraulically operated, equipped with solid stem augers and were completed to depths of up to 9.75 m below grade.

The solid stem auger drilling procedure was used during the Phase II ESA when advancing boreholes into the surface and intermediate overburden depths. From the truck-mounted drilling rig, each solid stem auger section is typically 1.52 m (5 ft) in length and has a 114.3 mm (4.5 inch) outside diameter. The augers were connected together with bolts and have no interior communication channels. The augers were advanced to the required sampling depth, spun to remove all soil cuttings from within the borehole and then removed to make room for the split spoon sampler.

To minimize cross-contamination, the augers were cleaned with a high-pressure washer containing Alconox® then rinsed with distilled water prior to moving to the next borehole location. The split spoon sampler was brushed clean of soil, washed with municipal water containing Alconox®, and rinsed with distilled water subsequent to each use.

5.2.2. Test Pits Excavation

No test pits were excavated as part of the Phase II ESA.

5.3. Soil Sampling

Soil sampling at the Site was conducted as outlined in the Sampling and Analysis Plan (included in Appendix A of this report) designed on the basis of the information obtained from the Phase I ESA (FE-P 16-7880-A prepared by Fisher and with certification date of August 20, 2016) and the phase one CSM.

5.3.1. Description of Soil Sampling Equipment

Soil samples were collected during the Phase II ESA by means of a 50 mm diameter spoon sampler driven 610 mm into the subsoil by a standard size 65 kg hammer, falling 760 mm, collecting soil samples at a maximum of 1.52 m (5 ft) intervals to completion depths. Samples were collected using a 0.61 m (2.0 ft) split-barrel sampler, hence 0.15 m (0.5 ft) of soil from each interval remained un-sampled.

At the time of sampling, the split-barrel sampler was fitted to the sampling rods and lowered into the borehole. The dead weight of the sampler, rods, anvil, and drive weight were left to rest at the bottom of the borehole. The split spoon was driven in the soil by imparting recurring blows with the standard size hammer. Once the entire length of the sampler had been advanced or once sampler refusal was encountered, the sampler was returned to the surface and opened.

Subsurface conditions encountered in the boreholes including soil type, moisture content, soil colour and visual and olfactory indications of environmental impacts, if applicable, were logged at the time of the field programs. A representative portion of each recovered soil sample was immediately placed in laboratory supplied sample containers. The remaining portion of the soil

sample was put into a re-sealable bag to be used for field screening of combustible soil vapour concentrations. New disposable latex and/or nitrile gloves and a cleaned stainless steel spatula were used during each sampling event to remove the soil cores from the sampler and to transfer the samples into re-sealable bags and/or laboratory supplied containers. Hermetic samplers were also used for sampling of soil to be tested for BTEX and PHCs (F1).

5.3.2. Geological Description of Soil and Sediment Samples

The soil samples recovered from the boreholes generally consisted of grey and brown to grey sandy silt till to red weathered shale. No sediment samples were taken as part of the Phase II ESA.

5.4. Field Screening Measurements

All of the recovered soil samples were analyzed in the field for combustible vapour concentrations using a MiniRae 2000 PID equipped with a 10.6 eV lamp and calibrated to 100 ppm isobutylene. PIDs are used for applications where high sensitivity is needed to monitor ppm levels of VOCs. The MiniRae 2000 PID has a measurement accuracy range of ±2 ppm or 10% of reading between 0 – 2000 ppm, and ±20% of reading for >2000 ppm. It has an internally integrated pump with a flow rate of 450-550 cc/min. Work humidity conditions are from 0% to 95% relative humidity (non-condensing). The MiniRae 2000 is equipped with a 10 inch hydrophobic probe. The probe includes a replaceable water trap filter disk that prevents particulates and water from entering the instrument's flow system.

Calibration consists of exposing the instrument to gas samples of known concentration. The combustible and toxic gas samples should have concentrations in approximately the middle of the detection range. The PID is calibrated to an isobutylene standard.

The MiniRae 2000 was calibrated in the field at the beginning of each work day. The calibration records were recorded each time the MiniRae 2000 was calibrated. This information is useful for establishing a calibration interval and keeping track of individual instrument performance. Each of the recovered soil samples was visually classified and screened in the field for headspace vapour concentration (combustible soil vapour and total organic vapour) using the MiniRae 2000. Selection of samples to be submitted for laboratory analysis was based on the headspace vapour concentration and/or physical evidence of odours/staining. If no odours/staining were noted in the soil samples, the samples with the highest field screening measurement (i.e. highest headspace vapour concentration) or at depths in which certain COCs were likely expected were selected for laboratory analysis. In addition, if odours/staining were noted in the soil sample or soil headspace vapour concentrations were elevated, additional soil samples may be selected from below the anticipated impacted zone for laboratory analysis for vertical delineation purposes. Soil vapour concentrations were taken during the soil sampling and the readings are included in the logs of boreholes in Appendix B.

The depth to groundwater and the presence or absence of NAPLs was measured in all groundwater monitoring wells using a Solinst Oil/Water Interface Probe, Model 122 (interface meter). The sensor accuracy is 1.0 mm. The manufacturer recommends annual calibration of the interface probe. All field screening methods completed in the field during Phase II ESA were in accordance with the standard operating procedures.

5.5. Monitoring Wells Installation and Development

The boreholes advanced at the Site were completed using a truck-mounted drilling rig as described in Sub-section 5.2.1 of this report. A groundwater monitoring well comprising 52 mm inside diameter flush-threaded PVC pipe was installed in six (6) of the ten (10) boreholes drilled at the Site. The portion intersecting the groundwater table was constructed of a similar diameter machine-slotted 0.25 mm (10 slot) screen to permit future measurement of water levels and the collection of groundwater samples.

Groundwater monitoring wells were constructed using the following procedure:

- The end cap was threaded onto the bottom of the well screen and the well screen was lowered to the bottom of the open borehole by threading together the necessary number of well screen and riser lengths;
- The primary filter pack material consisted of Type 2 silica sand. The size of the filter pack material was selected based on the texture of the formation in which the well was screened and the slot size of the well screen. The filter pack was installed in the annulus between the borehole and the well screen by hand-pouring from the surface;
- The annular space was backfilled with Type 2 silica sand from the bottom of the well to approximately 0.61 m above the top of the screen;
- A bentonite seal was installed from the top of the filter pack to 0.30 m below grade in each of the boreholes. Unprocessed 9.5 mm (3/8 inch) diameter granular bentonite was installed in lifts of 0.15 m to 0.30 m;
- Three (3) groundwater monitoring wells were covered with a steel flush mount and three (3) groundwater monitoring wells were encased in a steel protector and locked. The well construction details for each groundwater monitoring well is presented in the Log of Boreholes in Appendix B.

To minimize the potential for cross-contamination during groundwater monitoring well installation, the following actions were completed:

- The wells were designed and assembled following the completion of the drilling activities. The project manager and field personnel reviewed the soil stratigraphy observed in each borehole to ensure that the proposed groundwater monitoring well screen did not present a significant pathway for the vertical migration of chemicals/contaminants (i.e. did not cross any confining layers);

- The presence of the bentonite seal reduced the likelihood of any water impacts from the surface reaching the groundwater monitoring well annulus;
- Only new well materials were used; these materials were factory-cleaned and delivered to the Site wrapped in plastic;
- New latex or nitrile gloves were worn when handling well screen and riser materials;
- No PVC cements, solvents or lubricants were used in the construction of wells; and
- The top of the well casing was covered using a PVC slip cap to prevent filter pack sand or bentonite backfill material from entering the well pipe during the well installation activities.

Development is intended to establish good hydraulic connection between the well screen and the surrounding aquifer material so that any future samples collected from the groundwater monitoring well can be considered representative of the subsurface conditions.

The installed groundwater monitoring wells were developed to remove any water and/or drilling fluids added during drilling/installation and any fine grained material from around the screened interval by purging up to ten (10) well casing volumes of groundwater using a dedicated LDPE tubing and a submersible pump. The volume of fluid evacuated from each well was measured using a calibrated bucket and the volumes were recorded on standard field forms.

5.6. Field Measurement of Water Quality Parameters

Groundwater sampling in the newly installed groundwater monitoring wells was conducted using the Low Flow Purging and Sampling procedure (USEPA EQASOP-GW 001), by means of a Horiba U-52 flow-through cell equipped with sensors that simultaneously measure indicator field parameters such as temperature, pH, specific conductance, ORP, DO and turbidity.

Measurement principle, range, resolution, repeatability and accuracy for each of the sensors incorporated in the Horiba U-52 flow-through Cell are presented below:

Table 6: Water Quality Parameters

Sensor	Measurement Principle	Range	Resolution	Repeatability	Accuracy
pH	Glass electrode method	0 to 14	0.01	±0.05	±0.1
DO	Polarographic method	0 to 50.0 mg/L	0.01 mg/L	±0.1 mg/L	0 to 20 mg/L: ±0.2 mg/L 20 to 50 mg/L: ±0.5 mg/L
Specific Conductivity	4 AC electrode method	0 to 10 S/m (0 to 100 mS/cm)	0.000 to 0.999 mS/cm: 0.001 1.00 to 9.99 mD/cm: 0.01 10.0 to 99.9 mS/cm: 0.1 0.0 to 99.9 mS/m: 0.1 0.100 to 0.999 S/m: 0.001	±0.05% F.S.	±1% F.S. (Median of two-point calibration)

			1.00 to 9.99 S/m: 0.01		
Temperature	Thermistor method	-10 to -55°C	0.01°C	±0.10°C (at calibration point)	JIS class B platinum thermometer sensor (±0.3 + 0.005 / 1°C)
Turbidity	LED transmitting light source, 30° forward scattering method	0 to 800 NTU	0.1 NTU	±5% (reading) or ±0.5 NTU whichever is greater	±5% (reading) or ±1 NTU whichever is greater
ORP	Platinum electrode method	-2000 mV to +2000 mV	1 mV	±5 mV	±15 mV

The measurement of indicator field parameters was conducted in accordance with the following procedure:

- 5/8 inch outer diameter LDPE tubing was attached to a stainless steel Grundfos Redi-flo submersible pump placed at a depth corresponding to the middle of the screened interval of each groundwater monitoring well, if plausible, and groundwater was pumped at variable flow rates;
- After the water level has stabilized, if plausible, the flow-through cell was connected to the LDPE tubing through a "T" connector to monitor the indicator field parameters. When excessive turbidity was encountered with the pump startup, the groundwater monitoring well was purged for a while without connection to the flow-through cell in order to minimize particulate buildup in the cell. Water level drawdown measurements were made using a Solinst Water Interface Probe;
- During well purging, indicator field parameters (turbidity, temperature, specific conductance, pH, ORP, DO) were monitored at a frequency of five (5) minute intervals. The pump's flow rate was able to "turn over" at least one (1) flow-through cell volume between measurements (ie- for a 250 ml flow-through cell, a minimum flow rate of 50 ml/min with a monitoring frequency of every five (5) minutes is required);
- Purging was considered complete and sampling began when all the above indicator field parameters have stabilized. Stabilization is considered to be achieved when three (3) consecutive readings are within the following limits:
  - Turbidity (10% for values greater than 5 NTU; if three (3) turbidity values are less than 5 NTU, consider the values as stabilized),
  - DO (10% for values greater than 0.5 mg/L, if three (3) DO values are less than 0.5 mg/L, consider the values as stabilized),
  - Specific conductivity (3%),
  - Temperature (3%),
  - pH (± 0.1),
  - ORP (± 10 mV);

- Five (5) of the six (6) groundwater monitoring wells failed to achieve stabilization of the indicator field parameters due to poor recharge of the groundwater to the groundwater monitoring well;
- All measurements, except turbidity, were obtained using the flow-through cell. Samples for turbidity measurements were obtained before the groundwater entered the flow-through cell; and,
- A transparent flow-through cell was used, allowing field personnel to observe for particulate build-up within the cell. This build-up may affect indicator field parameter values measured within the cell.

The Horiba U-52 unit was calibrated prior to arriving on-site for the first time. The calibration records were recorded each time the Horiba U-52 was calibrated.

5.7. Groundwater Sampling

Groundwater sampling in the newly installed groundwater monitoring wells was conducted using the Low Flow sampling procedure (USEPA EQASOP-GW 001). The flow-through cell was connected through a 5/8 inch outer diameter LDPE tubing to a stainless steel Grundfos Redi-flo submersible pump placed at a depth corresponding to the middle of the screened interval of each groundwater monitoring well, if plausible.

The sampling of groundwater was conducted in accordance with the following procedure:

- The static groundwater level in the well was measured prior to installing the pump. The initial water level was recorded on the data log sheet;
- The pump, tubing and electrical lines were lowered slowly (to minimize disturbance) into the well to the appropriate depth;
- The sampling depth was selected as specified in the Sampling and Analysis Plan. The pump intake was kept at least 1 ft above the bottom of the well to minimize mobilization of particulates present at the bottom of the well;
- Pump tubing lengths above the top of well casing were kept as short as possible to minimize heating the groundwater in the tubing by exposure to sunlight and ambient air temperatures. Heating may cause the groundwater to degas, which is unacceptable for the collection of samples for VOC II (BTEX) analysis;
- Before starting the pump, the water level in the well was measured;
- From the time the pump started, purging continued until the samples were collected. The purged water was discharged into a graduated bucket to determine the total volume of groundwater purged. This information was recorded on the data log sheet;
- The pump was started at a low pump rate and the rate was slowly increased until discharge occurred; and

- Pumping rate was adjusted until there was little or no water level drawdown, if plausible. The minimal drawdown that has been achieved exceeded 0.3 ft. The water level and pumping rate were monitored and recorded every five minutes during purging. Pumping rate adjustments were recorded (both time and flow rate). Pumping rates were, as needed, reduced to the minimum capabilities of the pump to ensure stabilization of the water level. Adjustments were made in the first fifteen minutes of pumping in order to help minimize purging time

The pump's tubing was disconnected from the "T" connector with a valve and the flow-through cell. The samples were collected directly from the pump's tubing. BTEX and PHCs (F1) samples were collected first and directly into laboratory supplied pre-preserved sample containers. All sample containers were filled by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence. For the purposes of collecting groundwater for Metals analysis, the pump's tubing was connected to a dedicated Metals filter and the discharge was collected directly into laboratory supplied pre-preserved sample containers.

5.8. Sediment Sampling

No sediment samples were taken as part of the Phase II ESA.

5.9. Analytical Testing

Analytical testing during this investigation was carried out by Fisher Environmental Laboratories in Markham, Ontario and ALS in Richmond Hill, Ontario. Fisher Environmental Laboratories and ALS are accredited by CALA in accordance to ISO/IEC 17025 - 2005 – *"General Requirements for the Competence of Testing and Calibration Laboratories"* for the analysis of specific parameters for all samples in the scope of work for which SCS have been established under Ontario Regulation 153/04, as amended. The laboratory ensured that analytical samples were, by appearance, representative of the whole sample as collected in the field.

5.10. Residue Management Procedures

Drilling-generated wastes of soil and groundwater were handled in accordance with applicable laws. Soil cuttings following the sampling process were collected in 205 litre metal drums and stored on-site. Groundwater from purging and sampling activities was drummed and stored on-site.

5.11. Elevation Surveying

Elevation data is included in Table 1: Groundwater and Monitoring Data attached to this report. The elevation equipment used, SLR200H Horizontal Rotary Laser, has an accuracy reading of ±0.003 m. The benchmark utilized was a catch basin on Derry Road West with a geodetic benchmark elevation of 199.63 m asl.

5.12. Quality Assurance / Quality Control Measures

Soil samples were collected and handled in accordance with accepted industry standards. Sampling, transportation, and storage procedures were conducted according to "*CCME Guidance Manual on Sampling, Analysis and Data Management for Contaminated Sites"* and the MOECC's *"Guidance on Sampling and Analytical* Methods *for use at Contaminated Sites in Ontario"* and followed standard chain of custody procedures. All containers used for sampling were provided by the laboratory and were labeled prior to sampling, taking caution not to open the containers.

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, washed in municipal water containing Alconox®, and then rinsed with distilled water.

All equipment used for sampling was washed with an Alconox® solution and rinsed in between samples, and a new pair of disposable latex or nitrile gloves (one (1) per sample) was used during sample collection. New hermetic samplers were used for sampling of soil to be tested for BTEX and PHCs (F1).

Through each soil sample, the lithology and esthetic evidence of impacts (debris, staining and odours) were recorded as part of field QC procedures.

The field QC measurements included the collection of duplicate samples at a minimum of one (1) duplicate for every ten (10) samples for soil. One (1) field duplicate soil sample was collected and included in the laboratory analysis. For groundwater samples, one (1) field duplicate and one (1) trip blank water sample were included in the laboratory analysis.

Headspace combustible vapour measurements were taken inside the re-sealable plastic bags using a 10.6 eV lamp Mini Rae 2000 PID calibrated to 100 ppm isobutylene. The soil and groundwater samples were placed in coolers with ice and/or ice packs and kept out of direct sunlight during field storage and transportation to the laboratory.

6. REVIEW AND EVALUATION

6.1. Geology

Description of the subsurface conditions encountered at the borehole locations is presented in Log of Boreholes attached in Appendix B.

Fill Materials

Surface materials at borehole locates consisted of topsoil or gravel-cover, and the fill materials encountered consisted of brown and/or grey sandy silt that extended up to a depth of 2.13 m bgs.

Unit I (Unsaturated Zone)

Unit I of overburden consisted of light brown and grey or brown and light brown sandy silt till that extended up to a depth of 6.10 m bgs.

Unit II (Aquifer)

Unit II of overburden consisted of grey sandy silt till that extended up to a depth of 9.45 m bgs.

Unit III (Aquitard)

Unit III of overburden consisted of red weathered shale that was first encountered at a depth of 4.88 m bgs

The approximate depth to bedrock in the study area is 6.1 m bgs. According to Ontario Geological Survey's Bedrock Geology of Ontario map, bedrock geology at most of the Site and phase one study area is classified as: Queenston Formation consisting of shale, limestone, dolostone, with the southwest portion classified as: Georgian Bay Formation; Blue Mountain Formation; Billings Formation; Collingwood Member; Eastview Member consisting of: shale, limestone, dolostone, siltstone. According to the Phase I ESA (2016), two (2) water well records listed on the MOECC's well records database, with coordinates located within the property boundaries, listed the bedrock as consisting of red shale, and first occurring at 20 feet bgs and 34 feet bgs.

6.1.1. Description, Properties and Rationale for Choice of Relevant Aquifers and Aquitards

Based on the visual examination of the soil samples, the groundwater appears to exist in the wet layer embedded in the grey sandy silt till, having a maximum thickness of 2.32 m. Based on the groundwater level measurements, the depth to the aquifer's water table were within the identified saturated zone. The local groundwater level appears to vary from 190.91 m asl to 194.25 m asl (6.78 m bgs to 5.40 m bgs) based on elevation measurements, which is approximately the top elevation of the first encountered aquifer indicating an unconfined condition. The sand matrix of the aquifer indicates a hydraulic conductivity range of approximately 10^{-4} to 10^{-5} cm/sec.

Based on the field measurements, the groundwater flow direction at the Site is southwest. The localized groundwater flow direction may be influenced by the presence of off-site underground utilities, building foundations, variations in vertical and horizontal stratigraphy, seasonal water level variations, depth of wells' screened intervals and/or well trauma. During rain events, snow

melt, and the months of March to May, the groundwater levels are expected to rise and fluctuate on-site since the majority of the property is unpaved, which may increase the potential to facilitate the migration of contaminants, if any.

Investigation of this first encountered aquifer was deemed necessary due to the potential for direct discharge/migration of Metals, PHCs (F1-F4) and BTEX, and/or PAHs from the on-site fill materials of unknown quality, historical on-site presence of an AST, and the current off-site presence of gasoline and diesel USTs at adjacent and neighbouring properties.

Based on the type of PCAs and their associated CPCs as determined, the investigation of the aquitard was determined not to be a requirement; however the aquitard was encountered in all boreholes advanced.

6.2. Groundwater Elevations and Flow Direction

The elevation equipment used, SLR200H Horizontal Rotary Laser, has an accuracy reading of ±0.003 m. The benchmark utilized was a catch basin on Derry Road West. The groundwater flow direction was determined to be southwest.

6.2.1. Locations and Screened Intervals of Monitoring Wells

Six (6) groundwater monitoring wells were installed at the subject property during the Phase II ESA.

Locations of the groundwater monitoring wells and depth of the screened intervals used to determine groundwater flow direction were selected to:

- Represent upgradient, cross-gradient and downgradient groundwater levels and to investigate potential movement of CPCs within and/or between APECs;
- Capture groundwater level in the first encountered aquifer, considering the potential effect of water table seasonal variability on the concentrations of CPCs;
- Characterize heterogeneous stratigraphic conditions in the first encountered aquifer and their potential influence on concentrations of CPCs; and/or
- Depict potential influence of underground structures and utilities on local groundwater flow direction and movement of CPCs.

The screen sections of the groundwater monitoring wells were no longer than 3.05 m. The construction of the groundwater monitoring wells is illustrated in Appendix B – Logs of Boreholes.

6.2.2. Results of Measurements Taken Using an Interface Probe

After water level measurements were obtained using a Solinst Oil/Water Interface Probe, Model 122, a transparent bailer with a bottom valve was also used to collect a fluid sample in order to observe the presence or absence of free flowing product in the groundwater monitoring wells. No free flowing product was noted in the installed groundwater monitoring wells.

6.2.3. Method Used to Calculate Ground Water Elevations

Groundwater level measurements were taken at each groundwater monitoring well. Each groundwater monitoring well collar was tied to a geodetic benchmark to determine their elevation, which was a catch basin on Derry Road West having an elevation of 199.63 m asl.

Groundwater level elevation in each groundwater monitoring well was calculated by subtracting the groundwater level measurement bgs from the geodetic elevation of the grade near the collar flushed at ground surface.

Date and time of measurements, and calculated groundwater level elevations at each monitoring well installed in the first encountered aquifer are presented in the Tables section, Table 1: Groundwater and Monitoring Data.

6.2.4. Interpretation of Groundwater Flow Direction

To assess the direction of groundwater movement, the hydraulic head was measured at each well location. Groundwater generally flows from areas of high hydraulic head towards areas of low hydraulic head. Water level measurements having higher elevations suggest greater hydraulic head. Conversely, lower elevations of the water table are indicative of a lesser hydraulic head.

Considering heterogeneity of the stratigraphic conditions in the first encountered unconfined aquifer, interpretation of groundwater flow direction was based on groundwater elevations calculated from the installed groundwater monitoring wells. Groundwater elevations varied from 190.91 m asl to 194.25 m asl (6.78 m bgs to 5.40 m bgs).

Based on the field measurements, the groundwater flow direction at the Site was determined to be in a southwest direction towards a tributary of Fletcher's Creek, part of the Credit River Watershed. The localized groundwater flow direction may be influenced by variations in weather conditions and/or vertical and horizontal stratigraphy may have contributed additional water into nearby groundwater monitoring wells screened at the corresponding depths.

6.3. Hydraulic Gradients

6.3.1. Horizontal Hydraulic Gradient

Horizontal hydraulic gradient is the slope of the water table or potentiometric surface. Distances between monitoring wells were measured on a scaled site plan with monitoring well locations and groundwater flow direction. To determine the horizontal hydraulic gradient all selected wells were completed in the same aquifer.

Horizontal hydraulic gradient was measured between wells MW1 and MW3 as the least distance apart and it was determined to be 0.0397. Horizontal hydraulic gradient was measured between wells MW1 and MW9 as the greatest distance apart and it was determined to be 0.0109. Average horizontal hydraulic gradient was 0.0253.

6.3.2. Vertical Hydraulic Gradient

Vertical hydraulic gradient is the difference in water head over the difference in wells' bottom elevation. Vertical hydraulic gradient was measured between wells MW1 and MW3 as the least distance apart and it was determined to be 1.287. Horizontal hydraulic gradient was measured between wells MW1 and MW9 as the greatest distance apart and it was determined to be 0.958. Average horizontal hydraulic gradient was 1.123.

6.4. Soil Texture

As specified by Ontario Regulation 153/04, as amended, "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".

Based on visual and field observations and considering the soil types encountered at the borehole locations, as classified in the USDA Soil Survey Manual and the distribution of boreholes across the Site, the soil is medium to fine textured.

Two (2) soil samples were submitted to Fisher Environmental Laboratories for grain size distribution analysis. Below is a summary of the findings:

- BH4 (1.52-2.13 m bgs, sample #16-4839-9)
  Coarse fraction (> 75 μm): 18.9 %
  Fine fraction (< 75 μm): 81.1; and
- BH10 (3.05-3.66 m bgs, sample #16-4839-18)
  Coarse fraction (> 75 μm): 37.2 %

Fine fraction (< 75 μm): 62.8%

6.5. Soil Field Screening

All soil samples collected at the Site were field screened for the presence of petroleum/solvent-derived vapours using visual, olfactory, and combustible vapour measurement considerations. The PID readings, in ppm isobutylene equivalent, and the findings of the field observations at each borehole location are provided on the Log of Boreholes in Appendix B.

No hydrocarbon or any other odour was noted from all collected soil samples and all PID readings were 0.0 ppm.

6.6. Soil Quality

The laboratory Certificates of Analysis are provided in Appendix C. Soil analytical results are summarized in Tables 2 through 7 in Section 11 of this report. All tables include comparison of the analytical results against the applicable MOECC Table 3: Full Depth Generic SCS in a Potable Groundwater Condition, R/P/I Property Use for soil samples and All Types of Property Use for groundwater samples, medium-to-fine textured soil condition, as contained in the MOECC's "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA", April 15, 2011. A discussion of the laboratory analytical results, CPCs, locations and depth of samples, and comparison of analytical results to the applicable SCS is provided below.

METALS (INCLUDING HYDRIDE FORMING METALS)

Metals in the soil at the Site are potentially associated with the historical on-site PCA 28 and PCA 30 and off-site PCA 28. Metals analysis was conducted on fifteen (15) soil samples: MW1 (0.76-1.37 m bgs, sample number 16-4839-1), MW1 (6.10-6.71 m bgs, sample number 16-4839-2), MW2 (0.00-0.61 m bgs, sample number 16-4839-3), MW2 (4.57-5.18 m bgs, sample number 16-4839-4), MW3 (0.00-0.61 m bgs, sample number 16-4839-5), MW3 (3.81-4.42 m bgs, sample number 16-4839-6), BH4 (0.00-0.61 m bgs, sample number 16-4839-7), BH4 Duplicate (0.00-0.61 m bgs, sample number 16-4839-8), BH5 (0.00-0.61 m bgs, sample number 16-4839-10), BH6 (0.00-0.61 m bgs, sample number 16-4839-11), MW7 (0.00-0.61 m bgs, sample number 16-4839-12), MW7 (4.57-5.18 m bgs, sample number 16-4839-13), MW8 (0.00-0.61 m bgs, sample number 16-4839-14), MW9 (0.00-0.61 m bgs, sample number 16-4839-15), and BH10 (0.00-0.61 m bgs, sample number 16-4839-17). The Metals concentrations of all fifteen (15) analyzed soil samples were below the applicable MOECC Table 3 SCS and are summarized in Tables 3 and 4.

INORGANIC AND OTHER REGULATED PARAMETERS

Inorganic parameters in the soil at the Site are potentially influenced by the historical on-site PCA 30. The applicable MOECC Table 3 SCS may be compared if the surface (depth not

greater than 1.50 m) soil pH value is within the acceptable range of 5 to 9 and the subsurface (depth greater than 1.50 m) soil pH value is within the acceptable range of 5 to 11.

pH analysis was conducted on four (4) soil samples: MW1 (6.10-6.71 m bgs, sample number 16-4839-2), BH4 (1.52-2.13 m bgs, sample number 16-4839-9), MW9 (0.76-1.37 m bgs, sample number 16-4839-16), and BH10 (3.05-3.66 m bgs, sample number 16-4839-18). The pH of all four (4) soil samples were within acceptable range. EC and SAR analyses were conducted on two (2) soil samples: BH4 (1.52-2.13 m bgs, sample number 16-4839-9) and MW9 (0.76-1.37 m bgs, sample number 16-4839-16). Hot Water Soluble Boron analysis was conducted on seven (7) soil samples: MW2 (0.00-0.61 m bgs, sample number L1835145-1), BH4 (0.00-0.61 m bgs, sample number L1835145-2), BH4 Duplicate (0.00-0.61 m bgs, sample number L1835145-3), BH5 (0.00-0.61 m bgs, sample number L1835145-4), BH6 (0.00-0.61 m bgs, sample number L1835145-5), MW7 (0.00-0.61 m bgs, L1835145-6), and BH10 (0.00-0.61 m bgs, sample number L1835145-7).

The inorganic and other regulated parameters analyzed in all soil samples were below and within range of the applicable MOECC Table 3 SCS and are summarized in Table 7.

PHCs (F1-F4) AND BTEX

PHCs (F1-F4) and BTEX in the soil at the Site are potentially associated with the historical on-site PCA 28 and PCA 30 and off-site PCA 28. PHCs (F1-F4) and BTEX analyses were conducted on fifteen (15) soil samples: MW1 (0.76-1.37 m bgs, sample number 16-4839-1), MW1 (6.10-6.71 m bgs, sample number 16-4839-2), MW2 (0.00-0.61 m bgs, sample number 16-4839-3), MW2 (4.57-5.18 m bgs, sample number 16-4839-4), MW3 (0.00-0.61 m bgs, sample number 16-4839-5), MW3 (3.81-4.42 m bgs, sample number 16-4839-6), BH4 (0.00-0.61 m bgs, sample number 16-4839-7), BH4 Duplicate (0.00-0.61 m bgs, sample number 16-4839-8), BH5 (0.00-0.61 m bgs, sample number 16-4839-10), BH6 (0.00-0.61 m bgs, sample number 16-4839-11), MW7 (0.00-0.61 m bgs, sample number 16-4839-12), MW7 (4.57-5.18 m bgs, sample number 16-4839-13), MW8 (0.00-0.61 m bgs, sample number 16-4839-14), MW9 (0.00-0.61 m bgs, sample number 16-4839-15), and BH10 (0.00-0.61 m bgs, sample number 16-4839-17). The PHCs (F1-F4) and BTEX concentrations of all fifteen (15) analyzed soil samples were below the applicable MOECC Table 3 SCS and are summarized in Table 5.

PAHs

PAHs in the soil at the Site are potentially associated with the historical on-site PCA 28 and PCA 30 and off-site PCA 28. PAHs analysis was conducted on three (3) soil samples: MW1 (0.76-1.37 m bgs, sample number 16-4839-1), MW1 (6.10-6.71 m bgs, sample number 16-4839-2), MW2 (0.00-0.61 m bgs, sample number 16-4839-3), MW2 (4.57-5.18 m bgs, sample number 16-4839-4), MW3 (0.00-0.61 m bgs, sample number 16-4839-5), MW3 (3.81-4.42 m bgs, sample number 16-4839-6), BH4 (0.00-0.61 m bgs, sample number 16-4839-7), BH4 Duplicate (0.00-0.61 m bgs, sample number 16-4839-8), BH5 (0.00-0.61 m bgs, sample number 16-4839-10), BH6 (0.00-0.61 m bgs, sample number 16-4839-11), MW7 (0.00-0.61 m bgs,

sample number 16-4839-12), MW7 (4.57-5.18 m bgs, sample number 16-4839-13), MW8 (0.00-0.61 m bgs, sample number 16-4839-14), MW9 (0.00-0.61 m bgs, sample number 16-4839-15), and BH10 (0.00-0.61 m bgs, sample number 16-4839-17). The PAHs concentrations of all fifteen (15) analyzed soil samples were below the applicable MOECC Table 3 SCS and are summarized in Table 6.

6.7. Groundwater Quality

The laboratory Certificates of Analysis are provided in Appendix C. Groundwater analytical results are summarized in Tables 8 through 12 in Section 11 of this report. All tables include comparison of the analytical results against the applicable MOECC Table 3: Full Depth Generic SCS in a Potable Groundwater Condition, R/P/I Property Use for soil samples and All Types of Property Use for groundwater samples, medium-to-fine textured soil condition, as contained in the MOECC's "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the EPA", April 15, 2011. A discussion of the laboratory analytical results, CPCs, locations of samples, and comparison of analytical results to the applicable SCS is provided below.

METALS

Metals in the groundwater at the Site are potentially associated with the historical on-site PCA 28 and PCA 30 and off-site PCA 28. As the determination of dissolved metal concentrations was a sampling objective, filtered water samples were collected for Metals analysis. An in-line 0.45 µm filter (transparent housing) was pre-rinsed with groundwater prior to sample collection and the filter was free of air bubbles before samples were collected. The filtered water samples were immediately placed in laboratory supplied containers.

Metals analysis was conducted on seven (7) groundwater samples: MW1 (sample number 16-4947-1), MW2 (sample number 16-4947-2), MW3 (sample number 16-4947-3), MW7 (sample number 16-4947-4), MW7 Duplicate (sample number 16-4947-5), MW8 (sample number 16-4947-6), and MW9 (sample number 16-4947-7). The Metals concentrations in all seven (7) analyzed groundwater samples were below the applicable MOECC Table 3 SCS and are summarized in Tables 9 and 10.

PHCS (F1-F4) AND BTEX

PHCs (F1-F4) and BTEX in the groundwater at the Site are potentially associated with the historical on-site PCA 28 and PCA 30 and off-site PCA 28. PHCs (F1-F4) and/or BTEX analyses were conducted on seven (7) groundwater samples: MW1 (sample number 16-4947-1), MW2 (sample number 16-4947-2), MW3 (sample number 16-4947-3), MW7 (sample number 16-4947-4), MW7 Duplicate (sample number 16-4947-5), MW8 (sample number 16-4947-6), and MW9 (sample number 16-4947-7). BTEX analysis was conducted on one (1) trip blank water sample. The PHCs (F1-F4) and BTEX concentrations in the analyzed groundwater samples and trip blank water sample were below the applicable MOECC Table 3 SCS and are

summarized in Table 11. Insufficient volume of groundwater was obtained for the analysis of PHCs (F1-F4) in MW3 and MW9.

PAHs

PAHs in the groundwater at the Site are potentially associated with the historical on-site PCA 28 and PCA 30 and off-site PCA 28. PAHs analysis was conducted on five (5) groundwater samples: MW1 (sample number 16-4947-1), MW2 (sample number 16-4947-2), MW7 (sample number 16-4947-4), MW7 Duplicate (sample number 16-4947-5), and MW8 (sample number 16-4947-6). The PAHs concentrations in the analyzed groundwater samples were below the applicable MOECC Table 3 SCS and are summarized in Table 12. Insufficient volume of groundwater was obtained for the analysis of PAHs in MW3 and MW9.

Considering the maximum CPCs concentrations encountered in the analyzed groundwater samples, it is concluded that it is likely the Queenston shale bedrock serves as a source of contaminant mass contributing to groundwater impacts. No indications of LNAPLs or DNAPLs in the groundwater were noted at the sampling locations and screened intervals.

6.8. Sediment Quality

No sediment samples were taken as part of this Phase II ESA.

6.9. Quality Assurance/Quality Control Results

6.9.1. Description of Types of Quality Control Samples Collected

QA/QC samples were collected and analyzed during the field program as follows:

- One (1) field duplicate soil sample was submitted for laboratory analysis. Duplicate of BH4 (0.00-0.61 m bgs, sampled number 16-4839-8) was submitted for Metals, PHCs (F1-F4) and BTEX, PAHs, and Hot Water Soluble Boron (sample number L1835145-3) analysis. The concentrations of the CPCs were similar between the original and duplicate samples in the field duplicate, indicating acceptable precision in the field sampling method and the laboratory analysis;

- One (1) field duplicate groundwater sample was submitted for laboratory analysis. Duplicate of MW7 (sample number 16-4947-5) was submitted for Metals, PHCs (F1-F4) and BTEX, and PAHs analysis. The concentrations of the CPCs were similar between the original and duplicate samples in the field duplicate, indicating acceptable precision in the field sampling method and the laboratory analysis; and

- Where groundwater samples were analyzed for BTEX, one (1) trip blank sample was submitted for analysis with each field session. The BTEX analytical results for the trip blank water sample indicated that all BTEX concentrations were less than the laboratory method

detection limits, indicating that there was minimal or no contamination introduced to the sample during transport to the laboratory.

All samples were handled in accordance with the analytical protocol. 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.

QA/QC of the laboratory analysis of the soil and groundwater samples was carried out by Fisher Environmental Laboratories and ALS to evaluate the accuracy of the analytical data. The results of laboratory's soil and groundwater QA/QC program are reported in the Certificates of Analysis in Appendix C.

The percent recoveries provided by Fisher Environmental Laboratories and ALS for all submitted soil and groundwater samples were within the acceptable range, which indicate that minimal to no contamination was introduced to the sample during laboratory processing.

Fisher Environmental Laboratories completed replicate analysis for Metals, PHCs (F1-F4) and BTEX, and PAHs in one (1) soil and groundwater sample. ALS completed replicate analysis for Hot Water Soluble Boron in one (1) soil sample. The detected parameter concentrations in the laboratory replicate samples were consistent with the concentrations in the original sample, which indicates acceptable laboratory precision.

The laboratory Certificates of Analysis contain a complete record of the submission and analysis, including all correspondence between the laboratory and the QP or anyone under the supervision and control of the QP with respect to the sample collection, chain of custody, handling and analysis including:

(a) the laboratory name, address, contact and phone number;

(b) client name, client contact, address and phone number;

(c) sample identification number for tracking purposes;

(d) sample type and location;

(e) sampling date;

(f) date the sample was received;

(g) date the sample was analyzed;

(h) method identification and method reference as specified in the Analytical Protocol;

(i) chemical parameter measured;

(j) reporting limits, including adjustment for sample size, moisture content or dilution factor;

(k) method specific QA/QC requirements as specified in the Analytical Protocol;

(l) authorization to release the certificate including:

(i) the name, function, and signature or equivalent of any person authorizing the release;
(ii) a statement that the results relate only to the items tested and to all the items tested;

(m) certification that the data met all analytical requirements in the Analytical Protocol with, if applicable, a detailed description of and rationale for qualification for required exceptions; and

(n) all information recorded by the laboratory with respect to the condition of samples brought to the laboratory, including information recorded with respect to:

(i) sample quality, holding time, preservation and storage;
(ii) sample containers.

Certificates of Analysis have been received for each sample submitted for analysis. All Certificates of Analysis received have been included in Appendix C.

6.9.2. Results of Other Quality Assurance/Quality Control Measures Taken During Field Investigation

BOREHOLE DRILLING

Borehole locations were cleared for underground utilities through the services of public and private utility locate services. No limitations or deviations from the sampling and analysis plan occurred. To minimize cross-contamination, the augers were cleaned with a high-pressure washer then rinsed with distilled water prior to advancing the depth of the borehole and between borehole locations.

SOIL SAMPLING

During the drilling program, the split spoon samplers were brushed clean of soil, washed with municipal water containing Alconox® and rinsed with distilled water between samples.

A representative portion of each recovered soil sample was immediately placed into laboratory supplied sample containers. The remaining portion of the soil sample was placed into a re-sealable bag for field screening of combustible soil vapour concentrations. New disposable latex or nitrile gloves and a cleaned 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 laboratory supplied sample containers. New hermetic samplers were also used for sampling of soil to be tested for BTEX and PHCs (F1).

FIELD SCREENING MEASUREMENTS

Each recovered soil sample was visually classified and screened in the field for headspace vapour concentration (combustible soil vapour and total organic vapour) using a MiniRae 2000 PID. Selection of samples to be submitted for laboratory analysis was based on the headspace vapour concentration and/or physical evidence of odours/staining. If no odours/staining were noted in the soil samples, the samples with the highest field screening measurement (i.e. highest headspace vapour concentration) or at depths at which the CPCs were likely expected were selected for laboratory analysis. In addition, if odours/staining or soil headspace vapour concentrations were elevated, additional soil samples were selected from below the anticipated impacted zone for laboratory analysis for vertical delineation purposes.

MONITORING WELL INSTALLATION AND DEVELOPMENT

Prior to sampling, the installed groundwater monitoring wells were developed to remove any water and/or drilling fluids added during drilling/installation and any fine grained material from around the screened interval by purging up to ten (10) well casing volumes of groundwater using a dedicated LDPE tubing and a submersible pump. The submersible pump was decontaminated between each well by washing with municipal water containing Alconox® and rinsed with distilled water. The volume of fluid evacuated from each well was measured using a calibrated bucket and the volumes were recorded on standard field forms.

COLLECTION OF GROUNDWATER SAMPLES

Samples for PHCs (F1) and BTEX analysis were collected first and directly into pre-preserved sample containers. All sample containers were filled by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence. During purging and sampling, the pump tubing remained filled with water to avoid aeration of the groundwater.

As determination of filtered Metal concentrations was a sampling objective, filtered groundwater samples were collected using the low flow procedures. An in-line 0.45 µm filter (transparent housing) was used. The filter was pre-rinsed with groundwater prior to sample collection. The filter was free of air bubbles before samples were collected.

Sampling progressed at the Site from the well that was expected to be least contaminated to the well that was expected to be most contaminated to minimize the potential for cross-contamination. The monitoring equipment and submersible pump was decontaminated between each well by washing with municipal water containing Alconox® and rinsed with distilled water. Dedicated sampling LDPE tubing was used for each groundwater monitoring well.

6.10. Phase Two Conceptual Site Model

INTRODUCTION

The Phase II ESA was conducted in support of an environmental due diligence investigation for a proposed change in land use and the potential for the filing of a RSC. It is our understanding that a mixed residential and commercial development is proposed for the Site. No current operations representing PCAs were identified at the phase two property. 376 Derry Road West consists of a one (1) storey frame dwelling utilized for religious gathering purposes and a metal barn utilized for miscellaneous storage. The majority of the property is dirt and gravel covered and utilized for vehicle storage and parking. 390 Derry Road West consists of a one (1) storey brick dwelling that is abandoned and a metal garage that is unoccupied. The remainder of the property is dirt and gravel covered or grass covered.

One (1) PCA identified within the phase one study area may contribute to an APEC on-site:

- **PCA 28**: gasoline and associated products storage in fixed tanks

PCA 28 is associated with the current gasoline service stations operating at two (2) properties: 450 Derry Road West, Mississauga (adjacent to the Site) and 7030 McLaughlin Road, Mississauga (145 m east of the Site).

Two (2) historical potential PCAs identified on-site may contribute to an APEC:

- **PCA 28**: gasoline and associated products storage in fixed tanks; and
- **PCA 30**: importation of fill material of unknown quality

PCA 28 is associated with the historical presence of a heating oil AST at 390 Derry Road West. **PCA 30** is associated with the historical importation of fill materials at the Site.

This phase two CSM has been prepared based on information and data collected and reviewed to date as part of Fisher's Phase I ESA and Phase II ESA conducted at the Site. The phase two CSM provides a narrative, graphical, and tabulated description integrating information related to the phase two property's geologic and hydrogeologic conditions, APECs/PCAs, the presence and distribution CPCs, contaminant fate and transport, and potential exposure pathways. These components are described in the following sections.

SITE DESCRIPTION

The Site is located on the south side of Derry Road West, approximately 100 m northeast of the nearest major intersection of McLaughlin Road and Derry Road West. NAD 83 Datum for the centroid of the Site is 17-603767-4832402.

The Site is 'L' shaped and is bounded by residential buildings and a gasoline service station to the west, Derry Road West to the north, a residential building to the east, and residential buildings to the south. The Site has a total area of 2.34 hectares.

The legal description for 376 and 390 Derry Road West is Concession 1, West of Hurontario Street, Part of Lot 10. PIN for 376 Derry Road West is 13214-0058(LT) with assessment roll number 21-05-040-098-25200-0000. PIN for 390 Derry Road West is 13214-0078(LT) with assessment roll number 21-05-040-098-25100-0000.

GEOLOGICAL AND HYDROGEOLOGICAL SETTING

Site topography features gradual sloping in the west and south-west directions at the Site, with the highest point on-Site measured at 199.6 m asl at the north corner of 376 Derry Road West, and the lowest on-Site points measured at the south corners of both 376 and 390 Derry Road West lots. Surface water percolates towards the water table at the grass and gravel covered areas of the Site and surface runoff drains into catch basins located along Derry Road West.

Visual representations of the subsurface conditions encountered at the borehole locations are presented in the attached cross-sections on Figures D and E in Section 12. A description of the subsurface materials encountered are summarized below:

Fill Materials

Surface materials at borehole locates consisted of topsoil or gravel-cover, and the fill materials encountered consisted of brown and/or grey sandy silt that extended up to a depth of 2.13 m bgs.

Unit I (Unsaturated Zone)

Unit I of overburden consisted of light brown and grey or brown and light brown sandy silt till that extended up to a depth of 6.10 m bgs.

Unit II (Aquifer)

Unit II of overburden consisted of grey sandy silt till that extended up to a depth of 9.45 m bgs.

Unit III (Aquitard)

Unit III of overburden consisted of red weathered shale that was first encountered at a depth of 4.88 m bgs

The approximate depth to bedrock in the study area is 6.1 m bgs. According to Ontario Geological Survey's Bedrock Geology of Ontario map, bedrock geology at most of the Site and phase one study area is classified as: Queenston Formation consisting of shale, limestone, dolostone, with the southwest portion classified as: Georgian Bay Formation; Blue Mountain

Formation; Billings Formation; Collingwood Member; Eastview Member consisting of: shale, limestone, dolostone, siltstone. According to the Phase I ESA (2016), two (2) water well records listed on the MOECC's well records database, with coordinates located within the property boundaries, listed the bedrock as consisting of red shale, and first occurring at 20 feet bgs and 34 feet bgs.

Investigated Aquifer

Based on the visual examination of the soil samples, the groundwater appears to exist in the wet layer embedded in the grey sandy silt till, having a maximum thickness of 2.32 m. Based on the groundwater level measurements, the depth to the aquifer's water table were within the identified saturated zone. The local groundwater level appears to vary from 190.91 m asl to 194.25 m asl (6.78 m bgs to 5.40 m bgs) based on elevation measurements, which is approximately the top elevation of the first encountered aquifer indicating an unconfined condition. The sandy silt till matrix of the aquifer indicates a hydraulic conductivity range of approximately 10^{-4} to 10^{-5} cm/sec.

Based on the field measurements, the groundwater flow direction at the Site is southwest. The localized groundwater flow direction may be influenced by the presence of off-site underground utilities, building foundations, variations in vertical and horizontal stratigraphy, seasonal water level variations, depth of wells' screened intervals and/or well trauma. During rain events, snow melt, and the months of March to May, the groundwater levels are expected to rise and fluctuate on-site since the majority of the property is unpaved, which may increase the potential to facilitate the migration of contaminants, if any.

Investigation of this first encountered aquifer was deemed necessary due to the potential for direct discharge/migration of Metals, PHCs (F1-F4) and BTEX, and/or PAHs from the on-site fill materials of unknown quality, historical on-site presence of an AST, and the current off-site presence of USTs adjacent to the Site.

Horizontal hydraulic gradients

Horizontal hydraulic gradient is the slope of the water table or potentiometric surface. Distances between monitoring wells were measured on a scaled site plan with monitoring well locations and groundwater flow direction. To determine the horizontal hydraulic gradient all selected wells were completed in the same aquifer.

Horizontal hydraulic gradient was measured between wells MW1 and MW3 as the least distance apart and it was determined to be 0.0397. Horizontal hydraulic gradient was measured between wells MW1 and MW9 as the greatest distance apart and it was determined to be 0.0109. Average horizontal hydraulic gradient was 0.0253.

Vertical hydraulic gradient

Vertical hydraulic gradient is the difference in water head over the difference in wells' bottom elevation. Vertical hydraulic gradient was measured between wells MW1 and MW3 as the least distance apart and it was determined to be 1.287. Horizontal hydraulic gradient was measured between wells MW1 and MW9 as the greatest distance apart and it was determined to be 0.958. Average horizontal hydraulic gradient was 1.123.

Investigated Aquitard

Based on the type of PCAs and their associated CPCs as determined, the investigation of the aquitard was determined not to be a requirement; however the aquitard was encountered in all boreholes advanced. Based on the lithological description and the boreholes' distribution across the Site, the first encountered aquitard was at a depth of 4.88 m bgs. The aquitard comprises of red weathered shale and has an estimated hydraulic conductivity of 10^{-7} – 10^{-11} cm/sec. Considering the lower permeability of the aquitard, it is expected that, if CPCs would have escaped into the subsurface, a predominantly horizontal migration would have occurred on-site.

Site Condition

Properties located, in whole or in part, within 250 m of the boundaries of the Site are currently relying on municipal water as a source of drinking water and for domestic use. Both the local and regional municipality (City of Mississauga and Region of Peel) withdrew objections to Fisher's use of non-potable groundwater SCS (Table 3) in separate letters.

The applicable SCS for the Site was identified to be Table 3: Full Depth Generic SCS in a Potable Groundwater Condition, R/P/I Property Use for soil samples and All Types of Property Use for groundwater samples, medium-to-fine textured soil condition as contained in the MOECC's "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", April 15, 2011.

In accordance with Section 41 of Ontario Regulation 153/04, the Site is not an environmentally sensitive area. The Site is not located within an area of natural significance and it does not include lands within thirty (30) metres of an area of natural significance. Soil pH samples collected at the Site were within the acceptable range for the application of the applicable MOECC Table 3 SCS. The Site is not a shallow soil property as defined in Section 43.1 of Ontario Regulation 153/04.

6.10.1. Assessment of Potentially Contaminating Activities, Areas of Potential Environmental Concern, and Subsurface Structures

Two (2) historical potential PCAs were identified on-site and one (1) current PCA was identified off-site that may contribute to an APEC at the Site. Potential on-site PCAs include: **PCA 28:** gasoline and associated products storage in fixed tanks and **PCA 30:** importation of fill material of unknown quality. Off-site PCA include: **PCA 28:** gasoline and associated products storage in fixed tanks.

Based on the locations of the PCAs, two (2) APECs were identified:

APEC A – The APEC is associated with the actual and potential importation of fill materials at the Site during and/or following property development. All findings are associated with PCA-30: Importation of Fill Materials of Unknown Quality

The existing Phase II ESA at 390 Derry Road West (2013) revealed fill materials consisting of topsoil to weathered clayey silt, with sand and gravel, to a depth of 1.5 m bgs. In the same report, Boron (Hot-Water-Soluble) exceedance for applicable MOECC SCS for soil was encountered within the fill layer (0 to 0.78 m bgs) at the rear of the on-Site residential dwelling.

APEC B – The APEC is associated with potential use of a heating oil tank in the basement of existing dwelling at 390 Derry Road West, as evidenced by abandoned pipes observed during the Site visit. No fuel tanks were listed for the Site on any researched database. The finding is associated with PCA-28: Gasoline and Associated Products Storage in Fixed Tanks.

APEC C – The APEC is associated with two (2) off-Site currently operating fuel service stations to the east. The adjacent property east of the Site along Derry Road West, addressed 450 Derry Road West, based on observations made during the Site Visit, is utilized as a fuel service station with four (4) USTs. According to the ERIS Report, the property was listed on the Fuel Storage Tank database maintained by TSSA, under Suncor Energy Products Partnership and Petro Canada, for three (3) active gasoline and one active diesel UST, as of 2005.

The property addressed 7030 McLaughlin Road, approximately 145 m east of the Site, based on observations made during the Site Visit, is utilized as a fuel service station with three (3) USTs. According to the ERIS Report, the property was listed on the Fuel Storage Tank database maintained by TSSA, under Muhammad Arshad O/A Zam Zam ESSO and Sharon Esso, for three (3) active gasoline USTs, as of 2002. The property was also listed on the Ontario Spills database under Esso Petroleum Canada for a gasoline spill.

All relevant findings are associated with PCA-28: Gasoline and Associated Products Storage in Fixed Tanks.

Refer to the table below and to the attached Figures A and B for presentation of PCAs and APECs locations.

Table 7: APECs, PCAs and CPCs

APEC	Location of APEC On-Site	PCA	Location of PCA (On-Site or Off-Site)	CPCs/COCs	Media Potentially Impacted (Groundwater, Soil, and/or Sediment)
APEC A	All Site area	PCA-30: Importation of Fill Materials of Unknown Quality	On-site	Metals, PHCs (F1 to F4), VOCs II (BTEX), PAHs, Hot-Water-Soluble Boron, pH, EC, SAR	Soil and groundwater
APEC B	At the south and exterior portion of the residential dwelling at 390 Derry Road West	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks	Off-site	Metals, PHCs (F1 to F4), VOCs II (BTEX), PAHs	Soil and groundwater
APEC C	Along the west Site boundary within 390 Derry Road West	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks	Off-site	Metals, PHCs (F1 to F4), VOCs II (BTEX), PAHs	Soil and groundwater

The scope of work for the current Phase II ESA was prepared in order to assess the environmental quality of soil and groundwater at the identified APECs. The Phase II ESA investigation includes ten (10) boreholes advanced from September 20 to 22, 2016. Six (6) of the ten (10) boreholes were completed as groundwater monitoring wells and were sampled on October 6, 2016. Refer to the attached Figures B to C in Section 12 for borehole and monitoring wells locations. The boreholes were advanced within the identified APECs.

6.10.2. Identification, Source, Distribution and Migration of Contaminants of Potential Concern

Based on the soil and groundwater analytical results, and the depth to the groundwater table, temporal fluctuation in groundwater level may cause minor changes in contaminant levels and their migration.

As indicated in the PCAs and APECs assessment in Table 7 above, the analytical program of the Phase II ESA included the testing of soil and groundwater for Metals, PHCs (F1-F4) and BTEX, PAHs, Hot Water Soluble Boron, pH, EC, SAR and/or grain size distribution analysis. For the purpose of this phase two CSM, CPCs were identified by screening analytical results reported for the soil and groundwater samples collected at the Site against the MOECC Table 3: Full Depth Generic SCS in a Potable Groundwater Condition, R/P/I Property Use for soil samples and All Types of Property Use for groundwater samples, medium-to-fine textured soil condition as presented in the document “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act”, dated April 15, 2011.

The laboratory analytical results indicate that all parameters tested in all soil and groundwater samples were below the applicable MOECC Table 3 SCS, and soil samples were within acceptable range for pH. No distribution and migration of contaminants is expected, given there is no COC present on-Site.

6.10.3. Climatic or Meteorological Conditions which may influence Contaminant Distribution

In general, climatic or meteorological conditions have the potential to affect contaminant distribution. Two ways by which climatic or meteorological conditions may affect contaminant distribution include the downward leaching of contaminants by means of the infiltration of precipitation, and the migration of contaminants via groundwater and/or flow due to seasonal groundwater level fluctuations.

Based on the analytical results, no climactic and metrological conditions are expected to influence contaminant distribution.

6.10.4. Soil Vapour Intrusion into Surface and Subsurface Structures

Considering the concentrations of field screened vapour readings, impact to indoor air quality from soil vapour intrusion is not likely for any future development or for the current buildings and structures at the Site.

6.10.5. Graphic Representation of Phase Two Conceptual Site Model

The presentation of the phase two CSM makes reference to the following attached drawings:

Figure A: Site plan of the phase one study area that shows any existing buildings, water bodies located in whole or in part on the phase one study area, areas of natural significance located in whole or in part on the phase one study area, drinking water wells at the phase one property, roads, including names, within the phase one study area, uses of properties adjacent to the phase one property, and areas where any PCA has occurred with any tanks in such areas.

Figure B: Site plan of the Site with borehole/groundwater monitoring well locations, PCAs that may affect APECs on-site, transport pathways, and APECs.

Figure C: Site plan with contours of groundwater elevations and the interpreted groundwater flow direction.

Figure D: Cross-Section A-A' approximately perpendicular to the groundwater flow direction. This cross-section illustrates the stratigraphy, boreholes/monitoring wells locations and their depths and construction, depths of soil samples submitted for laboratory analysis, and groundwater table static level elevation.

Figure E: Cross-Section B-B' approximately parallel to the groundwater flow direction. This cross-section illustrates the stratigraphy, boreholes/monitoring wells locations and their depths and construction, depths of soil samples submitted for laboratory analysis, and groundwater table static level elevation.

Figure F: Human health CSM with no risk management.

Figure G: Ecological health CSM with no risk management.

Refer to **CSM Figures** section of the report.

6.10.6. Narrative Form of the Phase Two Conceptual Site Model

Table 8: Phase Two CSM

Areas where PCA have occurred in the phase one study area:	**PCA-30** (Importation of Fill Materials of Unknown Quality): On-Site; **PCA-28** (Gasoline and Associated Products Storage in Fixed Tanks): On-Site, 390 Derry Road West and 7030 McLaughlin Road.
Surface and subsurface structures that may affect contaminant distribution and transport:	On-Site underground utilities, including natural gas, hydro, water and sewer (storm/sanitary), were all located at the front of the residential dwellings and originated from Derry Road. Hydro service was supplied by overhead wires to both buildings. No natural gas service was supplied to the residential dwelling at 376 Derry Road West. No municipal water service was provided to the residential dwelling at 390 Derry Road West, which relied on water obtained from the on-Site concrete well. No utilities or underground trenches serviced the on-Site sheds.
Type and locations of samples taken as part of this Phase II ESA:	The Phase II ESA involved the drilling of ten (10) boreholes, six (6) of which were completed as groundwater monitoring wells. A total of eighteen (18) soil samples were collected from the ten (10) boreholes and were submitted to Fisher Environmental Laboratory and ALS (Waterloo) for Metals, PHCs (F1-F4) and BTEX, PAHs, Hot Water Soluble Boron, pH, EC, SAR and/or grain size distribution analysis. A total of seven (7) groundwater samples were collected from the installed groundwater monitoring wells and submitted to Fisher Environmental Laboratories for Metals, PHCs (F1-F4) and BTEX, and PAHs analysis. One (1) trip blank sample was submitted to Fisher Environmental Laboratories for BTEX analysis.
Geological and hydrogeological interpretations:	The fill materials encountered consisted of brown and/or grey sandy silt that extended up to a depth of 2.13 m bgs. The first encountered overburden aquifer consisted of a deposit of grey sandy silt till that extended up to a depth of 9.45 m bgs. The first encountered overburden aquitard consisted of a deposit of red weathered shale that was first encountered at a depth of 4.88 m bgs.Based on the field measurements, the groundwater flow direction at the Site is in a southwest direction. Based on the visual examination of the soil samples, the groundwater appears to exist in the wet layer embedded in the grey sandy silt till, having a maximum thickness of 2.32 m. Depth to the water table ranged from 5.40 m bgs to 6.78 m bgs. The sandy silt till deposit has an estimated hydraulic conductivity of 10^{-4} to 10^{-5} cm/sec. The aquitard comprises of red weathered shale and has an estimated hydraulic conductivity of 10^{-7} – 10^{-11} cm/sec. Considering the lower permeability of the aquitard, it is expected that, if CPCs would have escaped into the subsurface, a predominantly horizontal migration would have occurred on-site.

CPC and release mechanisms:	Based on the results of the analytical program, no CPC are carried forward as COCs in the soil or groundwater.
Transport pathways:	**T-1**: Off-Site underground utility mains along Derry Road West **T-2**: On-Site underground utility service lines to residential dwellings, between Derry Road West and the dwellings **T-3**: On-Site water line at 390 Derry Road West to residential dwelling from concrete well
Human and/or ecological receptors, and exposure pathway:	Current human receptors at the Site consist of contractors and visitors. Human receptors can be exposed to contaminated media directly through inhalation of vapours and/or dust, dermal contact, and/or inadvertent ingestion of soil. Considering that no CPCs in exceedance of the applicable MOECC Table 3 SCS were encountered at the Site in the soil, it is unlikely that these human receptors are at risk with respect to exposure to the tested CPCs. Human receptors can be exposed to the contaminated groundwater through dermal contact and/or inadvertent ingestion. Ecological receptors at the Site consist of vegetation, trees, soil invertebrates, and terrestrial and aerial invertebrates. Ecological receptors can be exposed to surface contaminated media directly through ingestion of contaminated vegetation, water, and prey; incidental ingestion of soil; or through physical contact or inhalation. However, inhalation and physical contact are considered to play minor roles in the exposure to surface contamination. Other exposure mechanisms may include: adsorption / desorption, atmospheric deposition, bioconcentration, degradation, diffusion, dilution, dispersion, evaporation, foliar fixation, gas/particulate partitioning, etc. Given that the soil is not impacted above the applicable MOECC Table 3 SCS, it is unlikely that these ecological receptors are at risk with respect to exposure to the tested CPCs in the soil. Ecological receptors are unlikely to be in contact with potentially groundwater based on the depth to the water table. No actual contamination was encountered in either media.
Uncertainty or absence of information	It is inferred that subsurface conditions at the Site approach the regional geological and hydrogeological conditions. Therefore, in the absence of other readily identifiable contaminant transport pathways from properties within the phase one study area to the Site, the actual contribution of natural (or anthropogenic) pathways to contaminant transport and distribution under the Site is uncertain and could affect the conclusions.

7. CONCLUSIONS

7.1. Location and Concentration of Contaminants of Concern at the Phase Two Property

Based on the sampling and analytical program conducted at the Site as part of the current Phase II ESA no CPCs, in soil or groundwater, are carried forward as a COC.

7.2. Subsurface Environmental Conditions at Phase Two Property when a Risk Assessment is to be undertaken

No RA is to be undertaken for the Site.

7.3. Compliance with Site Condition or Site Specific Standards as of Certification Date

The laboratory analytical results indicated that all submitted soil and groundwater samples for CPCs were below the applicable MOECC Table 3: Full Depth Generic SCS in a Potable Groundwater Condition, R/P/I Property Use for soil samples and All Types of Property Use for groundwater samples, medium-to-fine textured soil condition as contained in the MOECC's "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", April 15, 2011.

7.4. Signatures

Fisher carried out the present Phase II ESA at the request of 390 Derry Development Inc. and by signing below the QP confirms the findings and conclusions of this report.

Respectfully submitted,

David Fisher, P. Eng., C. Chem.
Principal
Fisher Environmental Ltd.

8. REFERENCES

- *Ontario Regulation 153/04 (Records of Site Condition – Part XV.1 of the Environmental Protection Ace), Part VII and Schedule D of the Amended Regulation;*
- *"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, Groundwater 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;*
- *ArcGIS Online;*
- *Google Earth;*
- *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;*
- *Phase One Environmental Site Assessment; 390 Derry Road West, Mississauga, Ontario, Terraprobe Inc., October 28, 2013;*
- *Phase Two Environmental Site Assessment; 390 Derry Road West, Mississauga, Ontario, Terraprobe Inc., October 28, 2013;*
- *Phase One Environmental Site Assessment, 376 and 390 Derry Road West, Mississauga, Ontario by Fisher Environmental Ltd, FE-P-16-7880-A.*

9. QUALIFICATIONS OF THE ASSESSOR

As a QP who conducts and supervises Phase II ESAs, Mr. David Fisher, president of Fisher, is a senior Managerial and Environmental Engineering Specialist with over thirty (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 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.

10. LIMITATIONS

This report was prepared for use by 390 Derry Development 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 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 that 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.

11. TABLES

Data Summary Tables

Table 1 – Monitoring Wells Construction & Groundwater Levels

Monitoring Well ID	Ground Elevation (m asl)	Well Depth (m bgs)	Well Construction below ground surface (bgs)	Groundwater Static Level May 24 and June 1, 2016 (m bgs)	LNAPL or DNAPL Thickness (m)	Ground Water Static Level Elevation, (m asl)
MW1	197.69	7.63	Riser: 0.00-4.63m, 2" ID PVC Screen: 4.63-7.63m, 20 slot, 2" ID PVC Bentonite: 0.00-4.00m, ¾" pellets Sandpack: 4.00-7.63m, #3 sand silica	6.78	ND	190.91
MW2	198.08	6.15	Riser: 0.00-3.15m, 2" ID PVC Screen: 3.15-6.15m, 20 slot, 2" ID PVC Bentonite: 0.00-2.50m, ¾" pellets Sandpack: 2.50-6.15m, #3 sand silica	4.77	ND	193.31
MW3	197.28	6.14	Riser: 0.00-3.14m, 2" ID PVC Screen: 3.14-6.14m, 20 slot, 2" ID PVC Bentonite: 0.00-2.54m, ¾" pellets Sandpack: 3.54-7.14m, #3 sand silica	4.98	ND	192.30
MW7	199.65	7.72	Riser: 0.00-4.72m, 2" ID PVC Screen: 4.72-10.72m, 20 slot, 2" ID PVC Bentonite: 0.00-4.10m, ¾" pellets Sandpack: 4.10-7.72m, #3 sand silica	5.40	ND	194.25
MW8	197.57	6.18	Riser: 0.00-3.18m, 2" ID PVC Screen: 3.18-6.18m, 20 slot, 2" ID PVC Bentonite: 0.00-2.60m, ¾" pellets Sandpack: 2.60-6.18m, #3 sand silica	5.03	ND	192.54
MW9	198.08	5.13	Riser: 0.00-2.13m, 2" ID PVC Screen: 2.13 -5.13 m, 20 slot, 2" ID PVC Bentonite: 0.00-1.60m, ¾" pellets Sandpack: 1.60-5.13m, #3 sand silica	4.40	ND	193.68

Notes:
Elevations shown here on are Geodetic and are based on benchmark: Catch Basin on Derry Road West (Elevation = 199.63 metres asl)
LNAPL and DNAPL – light or dense non-aqueous phase liquid measurements at or under the phase two property.
ND – Not Detected.

Table 2 – Summary of Soil Samples Submitted for Chemical Analysis

Sample I.D.	Sample Depth (m bgs)	Parameter Analyzed
MW1 16-4839-1	0.76-1.37	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX)
MW1 16-4839-2	6.10-6.71	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX), pH
MW2 16-4839-3	0-0.61	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX)
MW2 16-4839-4	4.57-5.18	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX)
MW3 16-4839-5	0-0.61	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX)
MW3 16-4839-6	3.81-4.42	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX)
BH4 16-4839-7	0-0.61	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX)
BH4 16-4839-8	0-0.61 Field Duplicate	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX)
BH4 16-4839-9	1.52-2.13	pH, EC, SAR, Grain Size
BH5 16-4839-10	0-0.61	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX)
BH6 16-4839-11	0-0.61	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX)
MW7 16-4839-12	0-0.61	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX)
MW7 16-4839-13	4.57-5.18	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX)
MW8 16-4839-14	0-0.61	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX)
MW9 16-4839-15	0-0.61	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX)
MW9 16-4839-16	0.76-1.37	pH, EC, SAR
BH10 16-4839-17	0-0.61	Metals (Incl. Hydride-Forming), PHC(F1-F4), PAH, VOC II (BTEX)
BH10 16-4839-18	3.05-3.66	pH, Grain Size
MW2 L1835145-1	0-0.61	Boron (Hot Water Extractable)
BH4 L1835145-2	0-0.61	Boron (Hot Water Extractable)
BH4 L1835145-3	0-0.61 Field Duplicate	Boron (Hot Water Extractable)
BH5 L1835145-4	0-0.61	Boron (Hot Water Extractable)
BH6 L1835145-5	0-0.61	Boron (Hot Water Extractable)
MW7 L1835145-6	0-0.61	Boron (Hot Water Extractable)
BH10 L1835145-7	0-0.61	Boron (Hot Water Extractable)

Table 3: Soil Quality Data – Metals Analysis

Sample Location			MW1	MW1	MW2	MW2	MW3
Laboratory ID			16-4839-1	16-4839-2	16-4839-3	16-4839-4	16-4839-5
Sample Depth (m)			0.76-1.37m	6.10-6.71m	0.00-0.61m	4.57-5.18m	0.00-0.61m
Sampling Date			20-Sep-16	20-Sep-16	20-Sep-16	20-Sep-16	20-Sep-16
Parameters	**2011 Table 3 SCS**	**RDL**					
Barium	670	5	44	17	47	30	62
Beryllium	8	2	<2	<2	<2	<2	<2
Boron	120	5	<5	<5	<5	5.6	<5
Cadmium	1.9	1	<1	<1	<1	<1	<1
Chromium	160	5	16	14	17	23	19
Cobalt	80	2	10	8.9	10	12	10
Copper	230	5	24	19	17	23	20
Lead	120	10	<10	<10	15	<10	23
Molybdenum	40	2	<2	<2	<2	<2	<2
Nickel	270	5	20	18	14	25	17
Silver	40	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	3.3	1	<1	<1	<1	<1	<1
Uranium	33	1	<1	<1	<1	<1	<1
Vanadium	86	10	22	20	24	23	31
Zinc	340	30	58	44	60	49	82

Notes:

Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/g (ppm) dry weight basis, unless otherwise noted.
ppm - means parts per million.
RDL - means report detection limit
2011 Table 2 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 2: Standards apply for full depth generic site condition standards in a potable ground water condition for Residential/Parkland/Institutional property use and medium and fine textured soil.

Sample Location			MW3	BH4	BH4 (Dupe)	BH5	BH6
Laboratory ID			16-4839-6	16-4839-7	16-4839-8	16-4839-10	16-4839-11
Sample Depth (m)			3.81-4.42m	0.00-0.61m	0.00-0.61m	0.00-0.61m	0.00-0.61m
Sampling Date			20-Sep-16	20-Sep-16	20-Sep-16	21-Sep-16	21-Sep-16
Parameters	**2011 Table 3 SCS**	**RDL**					
Barium	670	5	32	58	64	54	87
Beryllium	8	2	<2	<2	<2	<2	<2
Boron	120	5	5.5	<5	<5	<5	<5
Cadmium	1.9	1	<1	<1	<1	<1	<1
Chromium	160	5	20	16	18	15	21
Cobalt	80	2	12	8.5	9	9.5	7.5
Copper	230	5	20	20	12	15	19
Lead	120	10	<10	16	14	12	22
Molybdenum	40	2	<2	<2	<2	<2	<2
Nickel	270	5	23	14	12	18	16
Silver	40	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	3.3	1	<1	<1	<1	<1	<1
Uranium	33	1	<1	<1	1.2	<1	1.4
Vanadium	86	10	19	24	30	26	31
Zinc	340	30	53	62	45	48	67

Notes:

Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/g (ppm) dry weight basis, unless otherwise noted.
ppm - means parts per million.
RDL - means report detection limit.
2011 Table 2 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 2: Standards apply for full depth generic site condition standards in a potable ground water condition for Residential/Parkland/Institutional property use and medium and fine textured soil.

Sample Location			MW7	MW7	MW8	MW9	BH10
Laboratory ID			16-4839-12	16-4839-13	16-4839-14	16-4839-15	16-4839-17
Sample Depth (m)			0.00-0.61m	4.57-5.18m	0.00-0.61m	0.00-0.61m	0.00-0.61m
Sampling Date			21-Sep-16	21-Sep-16	21-Sep-16	21-Sep-16	22-Sep-16
Parameters	**2011 Table 3 SCS**	**RDL**					
Barium	670	5	45	44	58	58	36
Beryllium	8	2	<2	<2	<2	<2	<2
Boron	120	5	6	7.2	<5	<5	5
Cadmium	1.9	1	<1	<1	<1	<1	<1
Chromium	160	5	15	14	14	16	13
Cobalt	80	2	8.6	8.2	7.7	8.9	7.1
Copper	230	5	17	15	18	18	14
Lead	120	10	19	<10	12	19	15
Molybdenum	40	2	<2	<2	<2	<2	<2
Nickel	270	5	16	16	16	16	14
Silver	40	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	3.3	1	<1	<1	<1	<1	<1
Uranium	33	1	<1	1.2	<1	<1	<1
Vanadium	86	10	25	21	36	26	23
Zinc	340	30	73	44	47	68	57

Notes:

Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/g (ppm) dry weight basis, unless otherwise noted.
ppm - means parts per million.
RDL - means report detection limit.
2011 Table 2 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 2: Standards apply for full depth generic site condition standards in a potable ground water condition for Residential/Parkland/Institutional property use and medium and fine textured soil.

Table 4: Soil Quality Data – Hydride-Forming Metals Analysis

Sample Location			MW1	MW1	MW2	MW2	MW3
Laboratory ID			16-4839-1	16-4839-2	16-4839-3	16-4839-4	16-4839-5
Sample Depth (m)			0.76-1.37m	6.10-6.71m	0.00-0.61m	4.57-5.18m	0.00-0.61m
Sampling Date			20-Sep-16	20-Sep-16	20-Sep-16	20-Sep-16	20-Sep-16
Parameters	2011 Table 3 SCS	RDL					
Antimony	7.5	1	<1	<1	<1	<1	<1
Arsenic	18	1	<1	<1	<1	<1	<1
Selenium	2.4	1	<1	<1	<1	<1	<1

Notes:

Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/g (ppm) dry weight basis, unless otherwise noted.
ppm - means parts per million.
RDL - means report detection limit
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for Industrial/Commercial/Community property use and coarse textured soil.

Sample Location			MW3	BH4	BH4 (Dupe)	BH5	BH6
Laboratory ID			16-4839-6	16-4839-7	16-4839-8	16-4839-10	16-4839-11
Sample Depth (m)			3.81-4.42m	0.00-0.61m	0.00-0.61m	0.00-0.61m	0.00-0.61m
Sampling Date			20-Sep-16	20-Sep-16	20-Sep-16	21-Sep-16	21-Sep-16
Parameters	2011 Table 3 SCS	RDL					
Antimony	7.5	1	<1	<1	<1	<1	<1
Arsenic	18	1	<1	1.9	<1	<1	1.1
Selenium	2.4	1	<1	<1	<1	<1	<1

Notes:

Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/g (ppm) dry weight basis, unless otherwise noted.
ppm - means parts per million.
RDL - means report detection limit.
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for Industrial/Commercial/Community property use and coarse textured soil.

Sample Location			MW7	MW7	MW8	MW9	BH10
Laboratory ID			16-4839-12	16-4839-13	16-4839-14	16-4839-15	16-4839-17
Sample Depth (m)			0.00-0.61m	4.57-5.18m	0.00-0.61m	0.00-0.61m	0.00-0.61m
Sampling Date			21-Sep-16	21-Sep-16	21-Sep-16	21-Sep-16	22-Sep-16
Parameters	2011 Table 3 SCS	RDL					
Antimony	7.5	1	<1	<1	<1	<1	<1
Arsenic	18	1	<1	<1	<1	1.5	<1
Selenium	2.4	1	<1	<1	<1	<1	<1

Notes:

Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/g (ppm) dry weight basis, unless otherwise noted.
ppm - means parts per million.
RDL - means report detection limit.
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for Industrial/Commercial/Community property use and coarse textured soil.

Table 5: Soil Quality Data – PHCs (F1-F4) and BTEX Analysis

Sample Location			MW1	MW1	MW2	MW2	MW3
Laboratory ID			16-4839-1	16-4839-2	16-4839-3	16-4839-4	16-4839-5
Sample Depth (m)			0.76-1.37m	6.10-6.71m	0.00-0.61m	4.57-5.18m	0.00-0.61m
Sampling Date			20-Sep-16	20-Sep-16	20-Sep-16	20-Sep-16	20-Sep-16
Parameters	2011 Table 3 SCS	RDL					
BTEX in Soil							
Benzene	0.17	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	6	0.05	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	1.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes	25	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
PHCs (F1-F4) in Soil							
$F1_{-BTEX}$ (C_6 - C_{10})	65	10	<10	<10	<10	<10	<10
F2 (C_{10} - C_{16})	150	10	<10	<10	<10	<10	<10
F3 (C_{16} - C_{34})	1,300	50	<50	<50	<50	<50	<50
F4 (C_{34}-C_{50})	5,600	50	<50	<50	<50	<50	<50

Notes:
Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/g (ppm) dry weight basis, unless otherwise noted.
ppm - means parts per million.
RDL - means report detection limit
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for Residential/Parkland/Institutional property use and medium and fine textured soil.

Sample Location			MW3	BH4	BH4 (Dupe)	BH5	BH6
Laboratory ID			16-4839-6	16-4839-7	16-4839-8	16-4839-10	16-4839-11
Sample Depth (m)			3.81-4.42m	0.00-0.61m	0.00-0.61m	0.00-0.61m	0.00-0.61m
Sampling Date			20-Sep-16	20-Sep-16	20-Sep-16	21-Sep-16	21-Sep-16
Parameters	2011 Table 3 SCS	RDL					
BTEX in Soil							
Benzene	0.17	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	6	0.05	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	1.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes	25	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
PHCs (F1-F4) in Soil							
$F1_{-BTEX}$ (C_6 - C_{10})	55	10	<10	<10	<10	<10	<10
F2 (C_{10} - C_{16})	230	10	<10	<10	<10	<10	<10
F3 (C_{16} - C_{34})	1,700	50	<50	<50	<50	<50	<50
F4 (C_{34}-C_{50})	3,300	50	<50	<50	<50	<50	<50

Notes:
Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/g (ppm) dry weight basis, unless otherwise noted.
ppm - means parts per million.
RDL - means report detection limit
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for Residential/Parkland/Institutional property use and medium and fine textured soil.

Sample Location			MW7	MW7	MW8	MW9	BH10
Laboratory ID			16-4839-12	16-4839-13	16-4839-14	16-4839-15	16-4839-17
Sample Depth (m)			0.00-0.61m	4.57-5.18m	0.00-0.61m	0.00-0.61m	0.00-0.61m
Sampling Date			21-Sep-16	21-Sep-16	21-Sep-16	21-Sep-16	22-Sep-16
Parameters	2011 Table 3 SCS	RDL					
BTEX in Soil							
Benzene	0.17	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	6	0.05	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	1.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes	25	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
PHCs (F1-F4) in Soil							
$F1_{-BTEX}$ (C_6 - C_{10})	55	10	<10	<10	<10	<10	<10
F2 (C_{10} - C_{16})	230	10	<10	<10	<10	<10	<10
F3 (C_{16} - C_{34})	1,700	50	<50	50	<50	<50	<50
F4 (C_{34}-C_{50})	3,300	50	<50	<50	<50	<50	<50

Notes:
Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/g (ppm) dry weight basis, unless otherwise noted.
ppm - means parts per million.
RDL - means report detection limit
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for Residential/Parkland/Institutional property use and medium and fine textured soil.

Table 6: Soil Quality Data – PAHs Analysis

Sample Location			MW1	MW1	MW2	MW2	MW3
Laboratory ID			16-4839-1	16-4839-2	16-4839-3	16-4839-4	16-4839-5
Sample Depth (m)			0.76-1.37m	6.10-6.71m	0.00-0.61m	4.57-5.18m	0.00-0.61m
Sampling Date			20-Sep-16	20-Sep-16	20-Sep-16	20-Sep-16	20-Sep-16
Parameters	2011 Table 3 SCS	RDL					
Naphthalene	0.75	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	3.4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	0.17	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	58	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	69	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	7.8	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	0.74	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.69	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	78	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo [a] anthracene	0.63	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	7.8	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo [b] fluoranthene	0.78	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo [k] fluoranthene	0.78	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo [a] pyrene	0.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno [1,2,3-cd] pyrene	0.48	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo [a,h] anthracene	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo [g,h,i] perylene	7.8	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Notes:

*Parameter is the sum of 1- and 2- methylnaphthalene

Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/g (ppm) dry weight basis, unless otherwise noted.
ppm - means parts per million.
RDL - means report detection limit.
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for Residential/Parkland/Institutional property use and medium and fine textured soil.

Sample Location			MW3	BH4	BH4 (Dupe)	BH5	BH6
Laboratory ID			16-4839-6	16-4839-7	16-4839-8	16-4839-10	16-4839-11
Sample Depth (m)			3.81-4.42m	0.00-0.61m	0.00-0.61m	0.00-0.61m	0.00-0.61m
Sampling Date			20-Sep-16	20-Sep-16	20-Sep-16	21-Sep-16	21-Sep-16
Parameters	2011 Table 3 SCS	RDL					
Naphthalene	0.75	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	3.4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	0.17	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	58	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	69	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	7.8	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	0.74	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.69	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	78	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo [a] anthracene	0.63	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	7.8	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo [b] fluoranthene	0.78	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo [k] fluoranthene	0.78	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo [a] pyrene	0.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno [1,2,3-cd] pyrene	0.48	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo [a,h] anthracene	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo [g,h,i] perylene	7.8	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Notes:

*Parameter is the sum of 1- and 2- methylnaphthalene

Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/g (ppm) dry weight basis, unless otherwise noted.
ppm - means parts per million.
RDL - means report detection limit.
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for Residential/Parkland/Institutional property use and medium and fine textured soil.

Sample Location			MW7	MW7	MW8	MW9	BH10
Laboratory ID			16-4839-12	16-4839-13	16-4839-14	16-4839-15	16-4839-17
Sample Depth (m)			0.00-0.61m	4.57-5.18m	0.00-0.61m	0.00-0.61m	0.00-0.61m
Sampling Date			21-Sep-16	21-Sep-16	21-Sep-16	21-Sep-16	22-Sep-16
Parameters	**2011 Table 3 SCS**	**RDL**					
Naphthalene	0.75	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	3.4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	0.17	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	29	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	69	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	7.8	0.05	<0.05	<0.05	<0.05	<0.05	0.15
Anthracene	0.74	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.69	0.05	0.09	<0.05	0.11	<0.05	0.25
Pyrene	78	0.05	0.07	<0.05	0.11	<0.05	0.2
Benzo [a] anthracene	0.63	0.05	<0.05	<0.05	0.08	<0.05	0.11
Chrysene	7.8	0.05	0.05	<0.05	0.1	<0.05	0.11
Benzo [b] fluoranthene	0.78	0.05	0.06	<0.05	0.05	<0.05	0.11
Benzo [k] fluoranthene	0.78	0.05	0.07	<0.05	0.06	<0.05	0.11
Benzo [a] pyrene	0.3	0.05	0.07	<0.05	0.06	<0.05	0.11
Indeno [1,2,3-cd] pyrene	0.48	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo [a,h] anthracene	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo [g,h,i] perylene	7.8	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Notes:

*Parameter is the sum of 1- and 2- methylnaphthalene

Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/g (ppm) dry weight basis, unless otherwise noted.
ppm - means parts per million.
RDL - means report detection limit.
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for Residential/Parkland/Institutional property use and medium and fine textured soil.

Table 7: Soil Quality Data – Other Regulated Parameters Analysis

Sample Location			MW1	BH4	MW9	BH10	
Laboratory ID			16-4839-2	16-4839-9	16-4839-16	16-4839-18	
Sample Depth (m)			6.10-6.71m	1.52-2.13m	0.76-1.37m	3.05-3.66m	
Sampling Date			20-Sep-16	20-Sep-16	21-Sep-16	22-Sep-16	
Parameters	**2011 Table 3 SCS**	**RDL**					
pH *(no unit)*	5-9*	NA	7.92	7.6	7.39	7.55	
EC *(mS/cm)*	0.7	0.005		0.48	0.22		
SAR *(no unit)*	5	NA		0.53	0.29		

Notes:
* Surface Soil pH value from 5 – 9; Subsurface Soil pH value from 5 – 11.
Bold – indicates exceedence of applicable MOE SCS.
RDL - means report detection limit.
NA - means not applicable.
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for Residential/Parkland/Institutional property use and medium to fine textured soil.

Sample Location			MW2	BH4	BH4 (Dupe)	BH5	BH6
Laboratory ID			16-4839-3	16-4839-7	16-4839-8	16-4839-10	16-4839-11
Sample Depth (m)			0.00-0.61m	0.00-0.61m	0.00-0.61m	0.00-0.61m	0.00-0.61m
Sampling Date			20-Sep-16	20-Sep-16	20-Sep-16	21-Sep-16	21-Sep-16
Parameters	**2011 Table 3 SCS**	**RDL**					
Boron (Hot Water Ext.)	1.5	0.1	0.75	0.4	0.16	0.19	0.84

Notes:
Bold – indicates exceedence of applicable MOE SCS.
RDL - means report detection limit.
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for Residential/Parkland/Institutional property use and medium to fine textured soil.

Sample Location			MW7	BH10			
Laboratory ID			16-4839-12	16-4839-17			
Sample Depth (m)			0.00-0.61m	0.00-0.61m			
Sampling Date			21-Sep-16	22-Sep-16			
Parameters	**2011 Table 3 SCS**	**RDL**					
Boron (Hot Water Ext.)	1.5	0.1	0.53	0.52			

Notes:
Bold – indicates exceedence of applicable MOE SCS.
RDL - means report detection limit.
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for Residential/Parkland/Institutional property use and medium to fine textured soil.

Table 8 – Summary of Groundwater Samples Submitted for Chemical Analysis

Well I.D	Sample I.D.	Parameter Analyzed
MW1	16-4947-1	Metals (Incl. Hydride-Forming), PHC(F1-F4), VOC II(BTEX)
MW2	16-4947-2	Metals (Incl. Hydride-Forming), PHC(F1-F4), VOC II(BTEX)
MW3	16-4947-3	Metals (Incl. Hydride-Forming), VOC II(BTEX)
MW7	16-4947-4	Metals (Incl. Hydride-Forming), PHC(F1-F4), VOC II(BTEX)
MW7 Field Duplicate	16-4947-5	Metals (Incl. Hydride-Forming), PHC(F1-F4), VOC II(BTEX)
MW8	16-4947-6	Metals (Incl. Hydride-Forming), PHC(F1-F4), VOC II(BTEX)
MW9	16-4947-7	Metals (Incl. Hydride-Forming), VOC II(BTEX)
N/A	16-4947-8	VOC II(BTEX)

Table 9: Groundwater Quality Data – Metals Analysis

Sample Location			MW1	MW2	MW3	MW7	MW7 (Dupe)
Laboratory ID			16-4947-1	16-4947-2	16-4947-3	16-4947-4	16-4947-5
Sampling Date			6-Oct-16	6-Oct-16	6-Oct-16	6-Oct-16	6-Oct-16
Parameters	2011 Table 3 SCS	RDL					
Barium	29,000	2	65	59	47	79	71
Beryllium	67	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	45,000	10	663	333	783	631	728
Cadmium	2.7	1	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	810	10	13	<10	11	<10	<10
Cobalt	66	1	<1	<1	<1	<1	<1
Copper	87	5	<5	<5	<5	<5	<5
Lead	25	2.5	<1	<1	<1	<1	<1
Molybdenum	9,200	0.5	45	44	56	53	52
Nickel	490	1	5.4	3	2.7	1.5	1.3
Silver	1.5	1	<0.3	<0.3	<0.3	<0.3	<0.3
Thallium	510	1	<0.5	<0.5	<0.5	<0.5	<0.5
Uranium	420	2	32	21	28	6.8	7.1
Vanadium	250	0.5	4.4	3.6	4.8	3.4	2.5
Zinc	1,100	5	5.7	<5	5.7	<5	6.8

Notes:

Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/L (ppb), unless otherwise noted.
ppb - means parts per billion.
RDL - means report detection limit
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for all types of property use, medium to fine textured soil condition.

Sample Location			MW8	MW9			
Laboratory ID			16-4947-6	16-4947-7			
Sampling Date			6-Oct-16	6-Oct-16			
Parameters	2011 Table 3 SCS	RDL					
Barium	29,000	2	93	63			
Beryllium	67	0.5	<0.5	<0.5			
Boron	45,000	10	473	709			
Cadmium	2.7	1	<0.5	<0.5			
Chromium	810	10	<10	<10			
Cobalt	66	1	1	<1			
Copper	87	5	<5	<5			
Lead	25	2.5	<1	<1			
Molybdenum	9,200	0.5	56	51			
Nickel	490	1	5.4	2.1			
Silver	1.5	1	<0.3	<0.3			
Thallium	510	1	<0.5	<0.5			
Uranium	420	2	24	17			
Vanadium	250	0.5	2.6	3.2			
Zinc	1,100	5	<5	<5			

Notes:

Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/L (ppb), unless otherwise noted.
ppb - means parts per billion.
RDL - means report detection limit
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for all types of property use, medium to fine textured soil condition.

Table 10: Groundwater Quality Data – Hydride-Forming Metals Analysis

Sample Location			MW1	MW2	MW3	MW7	MW7 (Dupe)
Laboratory ID			16-4947-1	16-4947-2	16-4947-3	16-4947-4	16-4947-5
Sampling Date			6-Oct-16	6-Oct-16	6-Oct-16	6-Oct-16	6-Oct-16
Parameters	**2011 Table 2 SCS**	**RDL**					
Antimony	6	0.5	0.58	0.67	1.1	1	0.88
Arsenic	25	1	6.5	5.2	3	3.6	5.4
Selenium	10	5	<5	<5	<5	<5	<5

Notes:

Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/L (ppb), unless otherwise noted.
ppb - means parts per billion.
RDL - means report detection limit
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for all types of property use, medium to fine textured soil condition.

Sample Location			MW8	MW9			
Laboratory ID			16-4947-6	16-4947-7			
Sampling Date			6-Oct-16	6-Oct-16			
Parameters	**2011 Table 3 SCS**	**RDL**					
Antimony	20,000	0.5	<0.5	0.52			
Arsenic	1,900	1	<1	9.4			
Selenium	63	5	<5	<5			

Notes:

Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/L (ppb), unless otherwise noted.
ppb - means parts per billion.
RDL - means report detection limit
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for all types of property use, medium to fine textured soil condition.

Table 11: Groundwater Quality Data – PHCs (F1-F4) and BTEX Analysis

Sample Location			MW1	MW2	MW7	MW7 (Dupe)	MW8
Laboratory ID			16-4947-1	16-4947-2	16-4947-4	16-4947-5	16-4947-6
Sampling Date			6-Oct-16	6-Oct-16	6-Oct-16	6-Oct-16	6-Oct-16
Parameters	**2011 Table 3 SCS**	**RDL**					
BTEX in Water							
Benzene	430	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	18000	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	2300	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes	4200	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
PHCs (F1-F4) in Water							
$F1_{-BTEX}$ (C_6 - C_{10})	750	25	<25	<25	<25	<25	<25
F2 (C_{10} - C_{16})	150	100	<100	<100	<100	<100	<100
F3 (C_{16} - C_{34})	500	100	<100	<100	<100	<100	<100
F4 (C_{34} - C_{50})	500	100	<100	<100	<100	<100	<100

Notes:
Bold – indicates exceedence of applicable MOE SCS
All values reported in µg/L (ppb), unless otherwise noted.
ppb - means parts per billion.
RDL - means report detection limit
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for all types of property use, medium to fine textured soil condition.

Sample Location			MW3*	MW9*	VOC Blank		
Laboratory ID			16-4947-3	16-4947-7	16-4947-8		
Sampling Date			6-Oct-16	6-Oct-16			
Parameters	**2011 Table 3 SCS**	**RDL**					
BTEX in Water							
Benzene	430	0.5	<0.5	<0.5	<0.5		
Toluene	18000	0.5	<0.5	<0.5	<0.5		
Ethylbenzene	2300	0.5	<0.5	<0.5	<0.5		
Xylenes	4200	0.5	<0.5	<0.5	<0.5		
PHCs (F1-F4) in Water							
$F1_{-BTEX}$ (C_6 - C_{10})	750	25					
F2 (C_{10} - C_{16})	150	100					
F3 (C_{16} - C_{34})	500	100					
F4 (C_{34} - C_{50})	500	100					

Notes:
Bold – indicates exceedence of applicable MOE SCS
* Groundwater in well not sufficient to sample PHC (F2-F4)
All values reported in µg/L (ppb), unless otherwise noted.
ppb - means parts per billion.
RDL - means report detection limit
2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.
Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for all types of property use, medium to fine textured soil condition.

Table 12: Groundwater Quality Data – PAHs Analysis

Sample Location			MW1	MW2	MW7	MW7 (Dupe)	MW8
Laboratory ID			16-4947-1	16-4947-2	16-4947-4	16-4947-5	16-4947-6
Sampling Date			6-Oct-16	6-Oct-16	6-Oct-16	6-Oct-16	6-Oct-16
Parameters	2011 Table 3 SCS	RDL					
Naphthalene	6400	2	<2	<2	<2	<2	<2
2-Methylnaphthalene	1800	2	<1	<1	<1	<1	<1
1-Methylnaphthalene		2	<1	<1	<1	<1	<1
Acenaphthylene	1.8	1	<1	<1	<1	<1	<1
Acenaphthene	1700	1	<1	<1	<1	<1	<1
Fluorene	400	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	580	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	2.4	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	130	0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Pyrene	68	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo [a] anthracene	4.7	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chrysene	1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo [b] fluoranthene	0.75	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo [k] fluoranthene	0.4	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo [a] pyrene	0.81	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno [1,2,3-cd] pyrene	0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dibenzo [a,h] anthracene	0.52	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	<0.2

Notes:

*Parameter is the sum of 1- and 2- methylnaphthalene

Bold – indicates exceedence of applicable MOE SCS

All values reported in µg/L (ppb), unless otherwise noted.

ppb - means parts per billion.

RDL - means report detection limit

2011 Table 3 (SCS) - The Site Condition Standards (SCS) are defined in "Soil, Ground Water and Sediment Standards for Use under Part XV.21 of the Environmental protection Act ", MOE, April 15, 2011.

Table 3: Standards apply for full depth generic site condition standards in a non-potable ground water condition for Industrial/Commercial/Community property use and coarse textured soil.

12. FIGURES

Site Conditions Figures

Figure 1: Site Location Map

Figure 2: Topographical Map

Figure 3: Geological Map – Surficial

Figure 4: Geological Map – Bedrock

CSM Figures

Figure A: Site plan of the phase one study area that shows any existing buildings, water bodies located in whole or in part on the phase one study area, areas of natural significance located in whole or in part on the phase one study area, drinking water wells at the phase one property, roads, including names, within the phase one study area, uses of properties adjacent to the phase one property, and areas where any PCA has occurred with any tanks in such areas.

Figure B: Site plan of the Site with borehole/groundwater monitoring well locations, PCAs that may affect APECs on-site, transport pathways, and APECs.

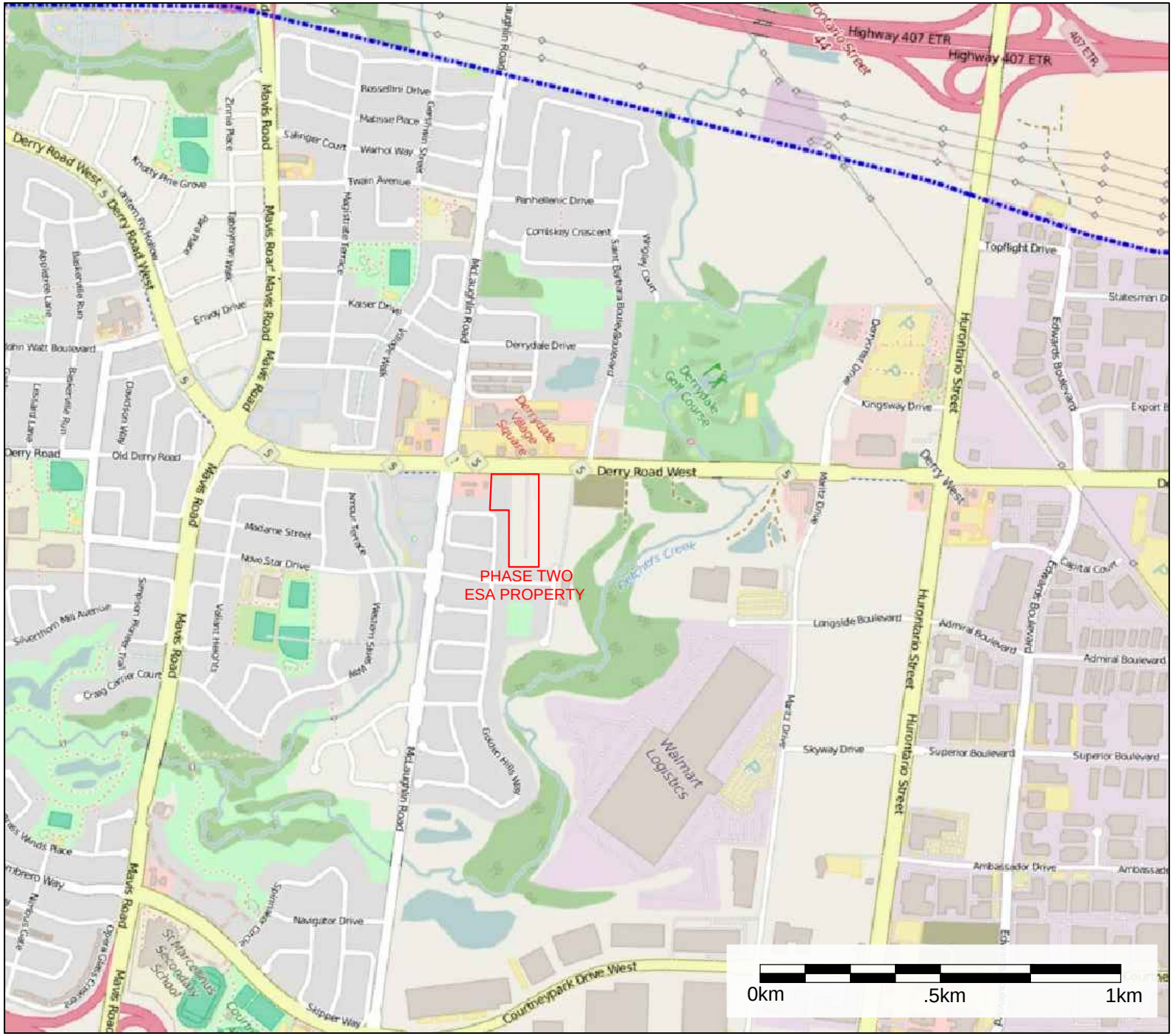
Figure C: Site plan with contours of groundwater elevations and the interpreted groundwater flow direction.

Figure D: Cross-Section A-A' approximately perpendicular to the groundwater flow direction. This cross-section illustrates the stratigraphy, boreholes/monitoring wells locations and their depths and construction, depths of soil samples submitted for laboratory analysis, and groundwater table static level elevation.

Figure E: Cross-Section B-B' approximately parallel to the groundwater flow direction. This cross-section illustrates the stratigraphy, boreholes/monitoring wells locations and their depths and construction, depths of soil samples submitted for laboratory analysis, and groundwater table static level elevation.

Figure F: Human health CSM with no risk management.

Figure G: Ecological health CSM with no risk management.



Fisher Environmental Ltd.

400 Esna Park Dr., #15
Markham, Ontario
L3R 3K2

Tel: 905 475-7755
Fax: 905 475-7718

KEY PLAN

N

LEGEND

Site marked as red polygon

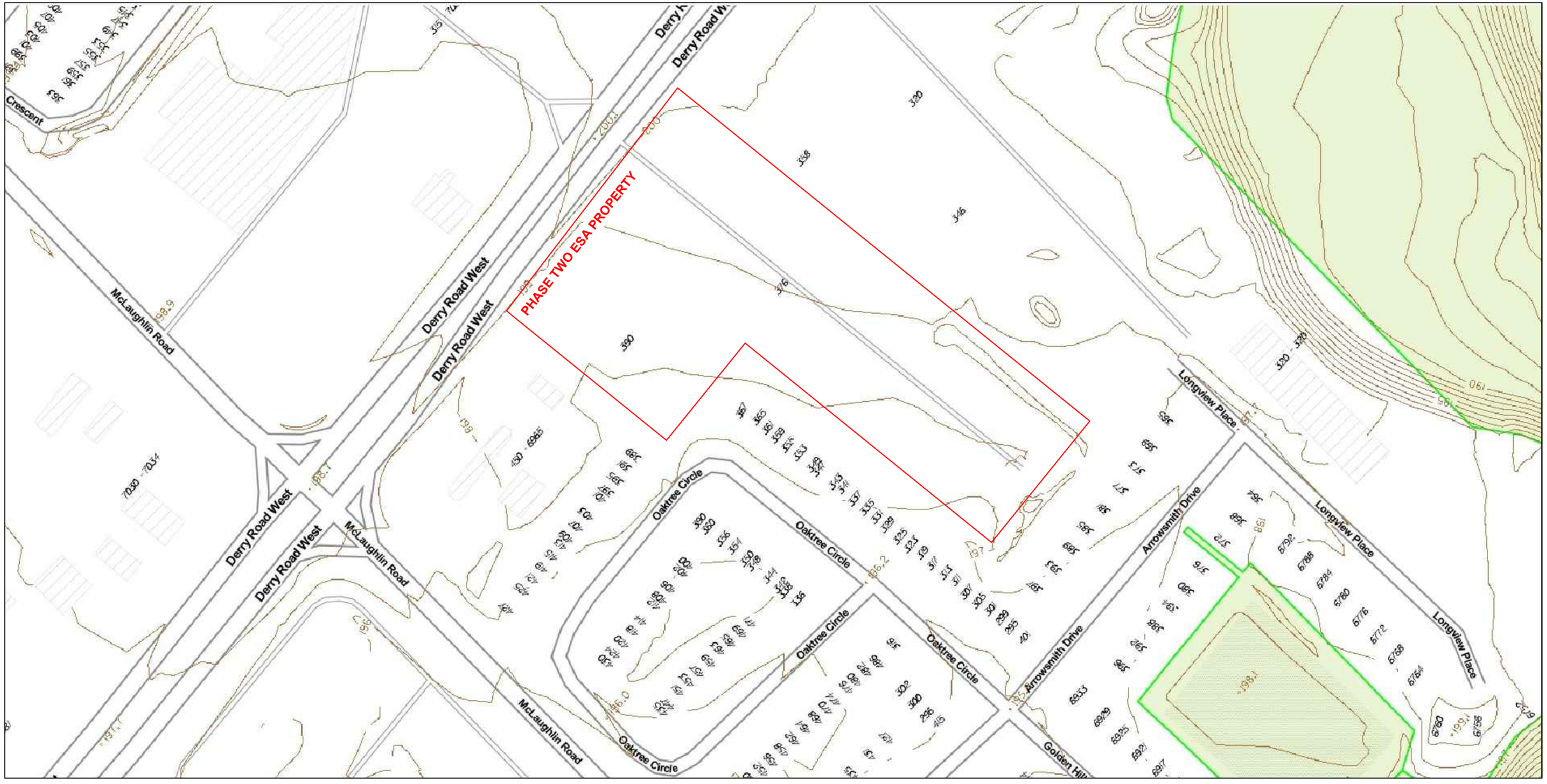
PROJECT NAME AND ADDRESS

Phase Two Environmental Site Assessment

376-390 Derry Road West, Mississauga, ON

Figure 1:
Site Location Map

PROJECT NO.	SHEET NO.
FE-P 16-7880-B	1
DATE: November 2016	
SCALE: AS SHOWN	



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KEY PLAN

N

LEGEND

Site marked as red polygon

Source:
ArcGIS Online

Figure 2:

Topography Map

PROJECT NAME AND ADDRESS

Phase Two Environmental Site Assessment

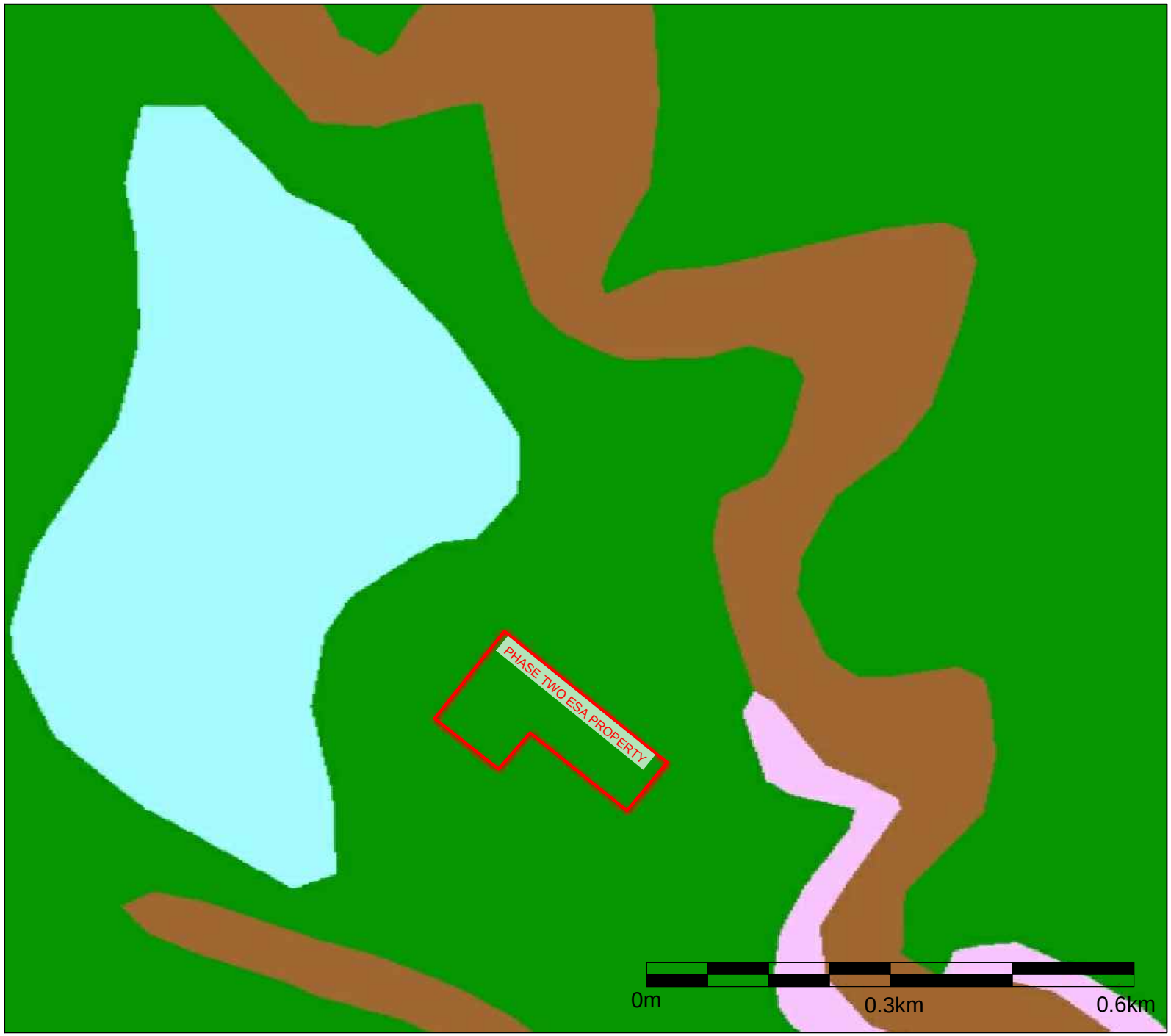
376-390 Derry Road West, Mississauga, ON

PROJECT NO.
FE-P 16-7880-B

DATE
November 2016

SCALE
AS SHOWN

SHEET NO.
3



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Site marked as red polygon

5d: Till
Clay to silt-textured (derived from glaciolacustrine deposits or shale)

8b: Fine-textured Glaciolacustrine Deposits
Silt and clay, minor sand and gravel

19: Modern Alluvial Deposits
Clay, silt, sand, gravel, may contain organic remains

3: Paleozoic Bedrock

Source:
Ontario Geological Survey
Google Earth Layer

PROJECT NAME AND ADDRESS

Phase Two Environmental Site Assessment

376-390 Derry Road West, Mississauga, ON

Figure 3:
Surficial Geology Map

PROJECT NO.	SHEET NO.
FE-P 16-7780-B	4
DATE: November 2016	
SCALE: AS SHOWN	

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N

LEGEND

Phase Two ESA Property

54a: Limestone, dolostone, shale, arkose, sandstone

Ottawa Group; Simcoe Group; Shadow Lake Formation

Source:
Ontario Geological Survey
Google Earth Layer

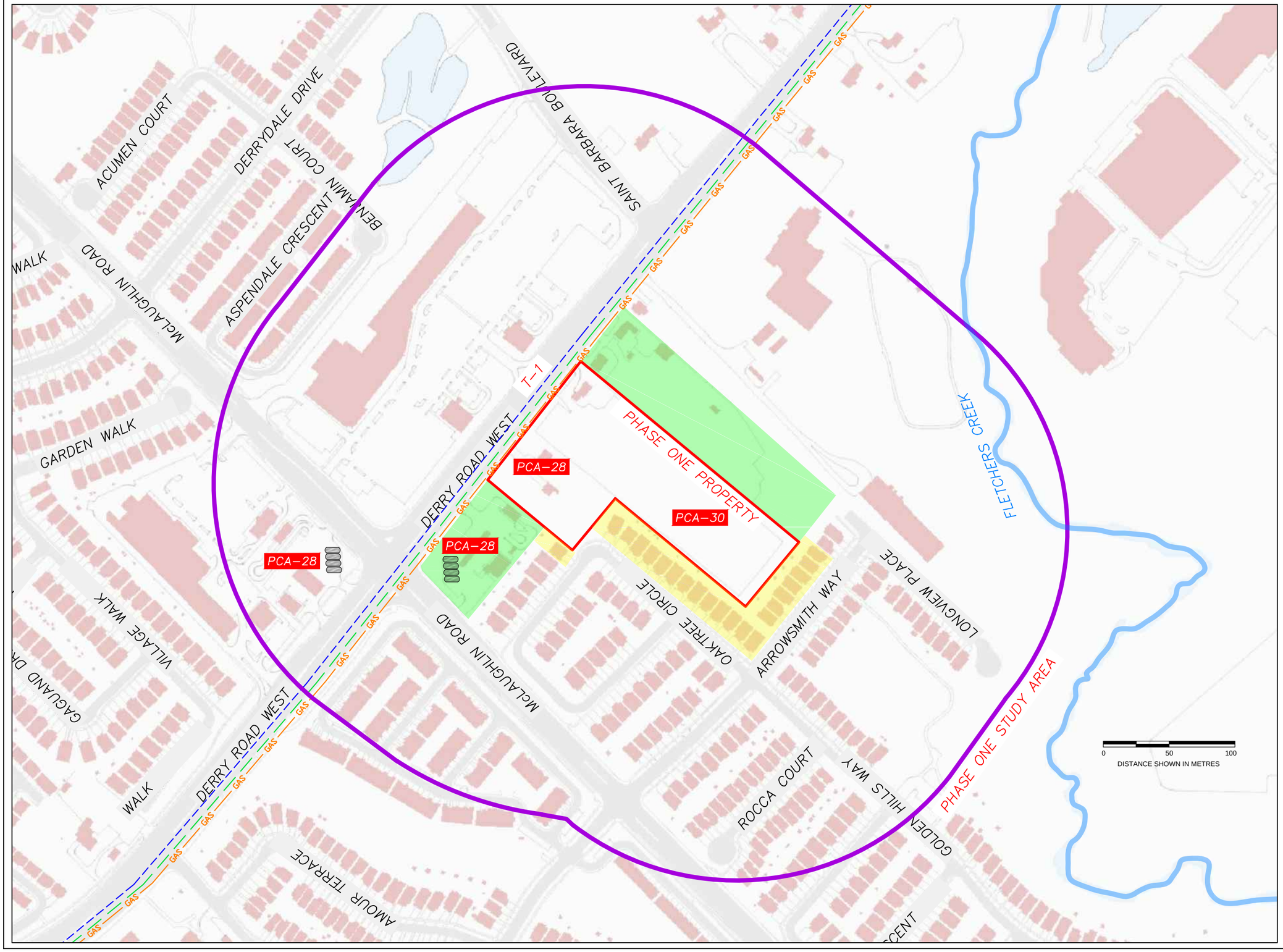
PROJECT NAME AND ADDRESS

Phase Two Environmental Site Assessment

376-390 Derry Road West, Mississauga, ON

Figure 4:
Bedrock Geology Map

PROJECT NO.	SHEET NO.
FE-P 16-7780-B	5
DATE: November 2016	
SCALE: AS SHOWN	



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KEY PLAN

N

LEGEND

- PHASE ONE PROPERTY BOUNDARY
- PHASE ONE STUDY AREA
- T-1 — TRANSPORT PATHWAY
- PCA-30 — POTENTIALLY CONTAMINATING ACTIVITY
- UNDERGROUND FUEL STORAGE TANK

ADJACENT PROPERTY USE

- RESIDENTIAL
- COMMERCIAL

UNDERGROUND UTILITIES

- GAS — NATURAL GAS SERVICE
- POTABLE WATER SERVICE
- STORM/SANITARY SEWER SERVICE

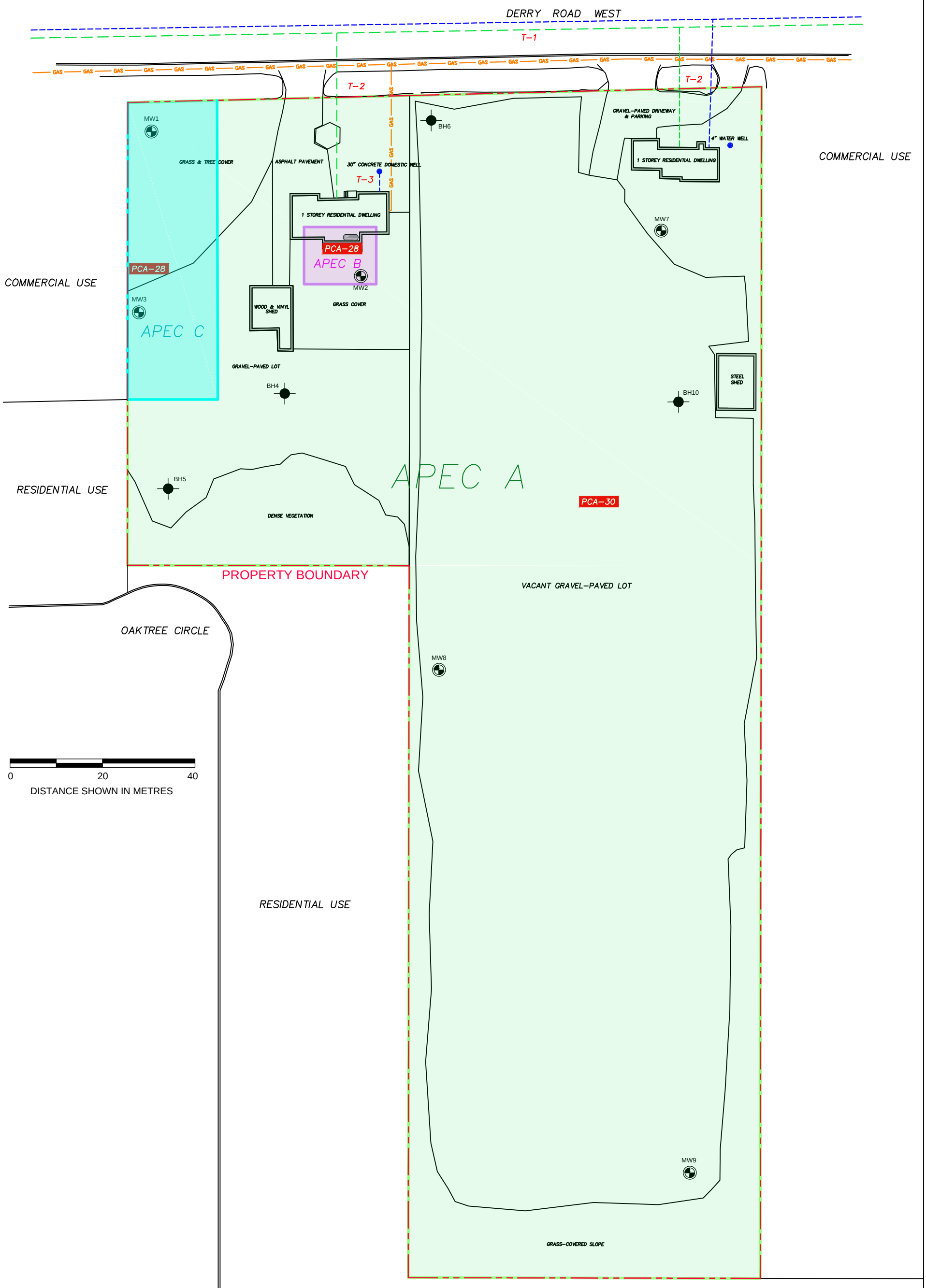
PROJECT NAME AND ADDRESS

Phase II ESA

376, 390 Derry Road West,
Mississauga, Ontario

FIGURE A:
Site plan of the phase one study area that shows any existing buildings, water bodies located in whole or in part on the phase one study area, areas of natural significance located in whole or in part on the phase one study area, drinking water wells at the phase one property, roads, including names, within the phase one study area, uses of properties adjacent to the phase one property, and areas where any PCA has occurred with any tanks in such areas.

PROJECT NO.	16-7880-B
DATE	OCTOBER 2016
SCALE	AS SHOWN



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KEY PLAN

LEGEND

- T–1 TRANSPORT PATHWAY
- PCA–30 POTENTIALLY CONTAMINATING ACTIVITY
- APEC A AREA OF POTENTIAL ENVIRONMENTAL CONCERN
- ABOVEGROUND FUEL STORAGE TANK (POTENTIAL)
- GROUNDWATER MONITORING WELL
- BURIED NATURAL GAS SERVICE
- BURIED POTABLE WATER SERVICE
- BURIED STORM/SANITARY SEWER SERVICE
- BOREHOLE

PROJECT NAME AND ADDRESS

Phase II ESA

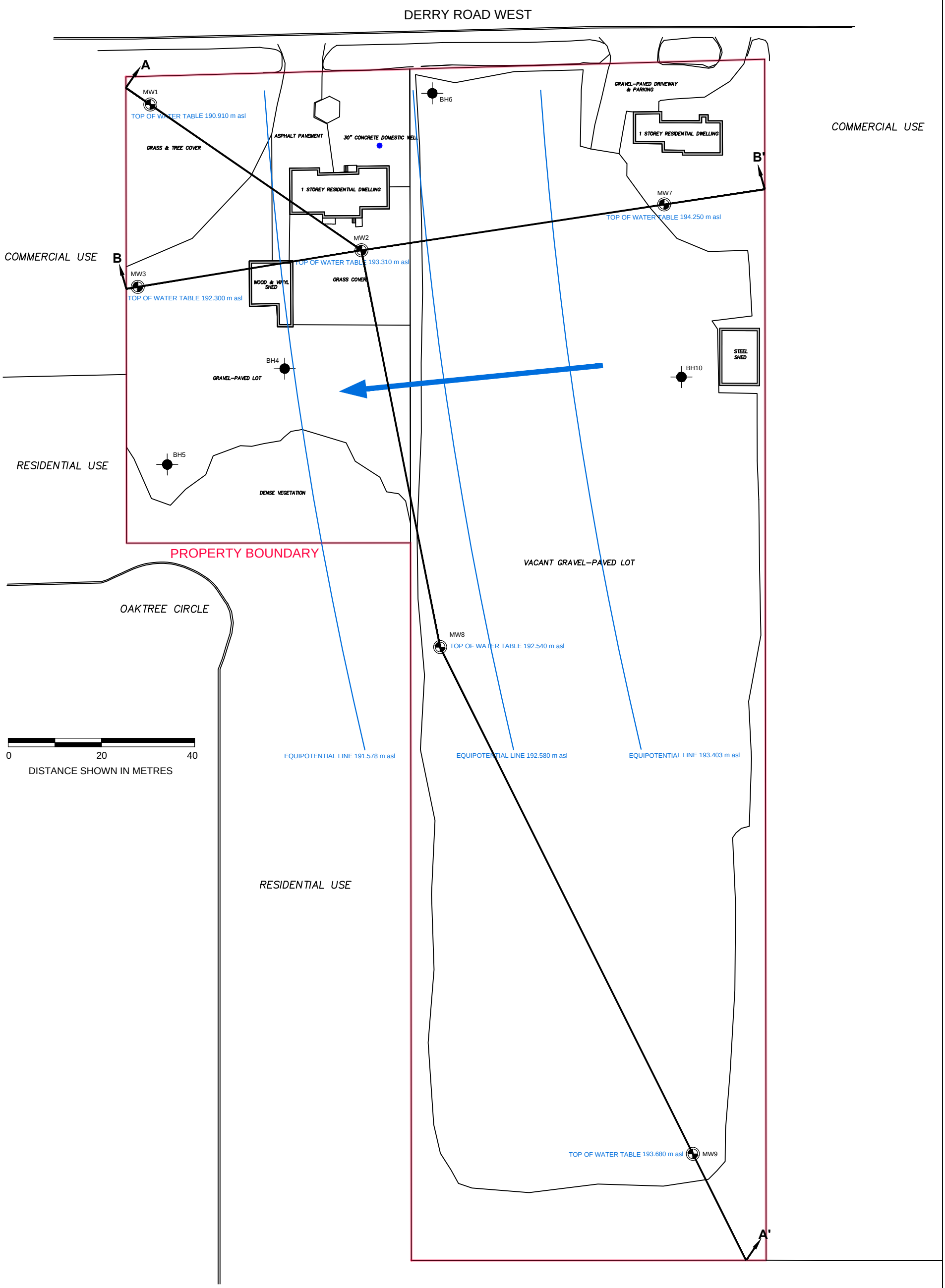
376, 390 Derry Road West,
Mississauga, Ontario

PROJECT NO. 16-7880-B

DATE OCTOBER 2016

SCALE AS SHOWN

FIGURE B:
Site plan of the Site with borehole/groundwater monitoring well locations, PCAs that may affect APECs on-site, transport pathways, and APECs.



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KEY PLAN

LEGEND

- GROUNDWATER MONITORING WELL
- BOREHOLE
- GROUNDWATER FLOW DIRECTION

PROJECT NAME AND ADDRESS

Phase II ESA

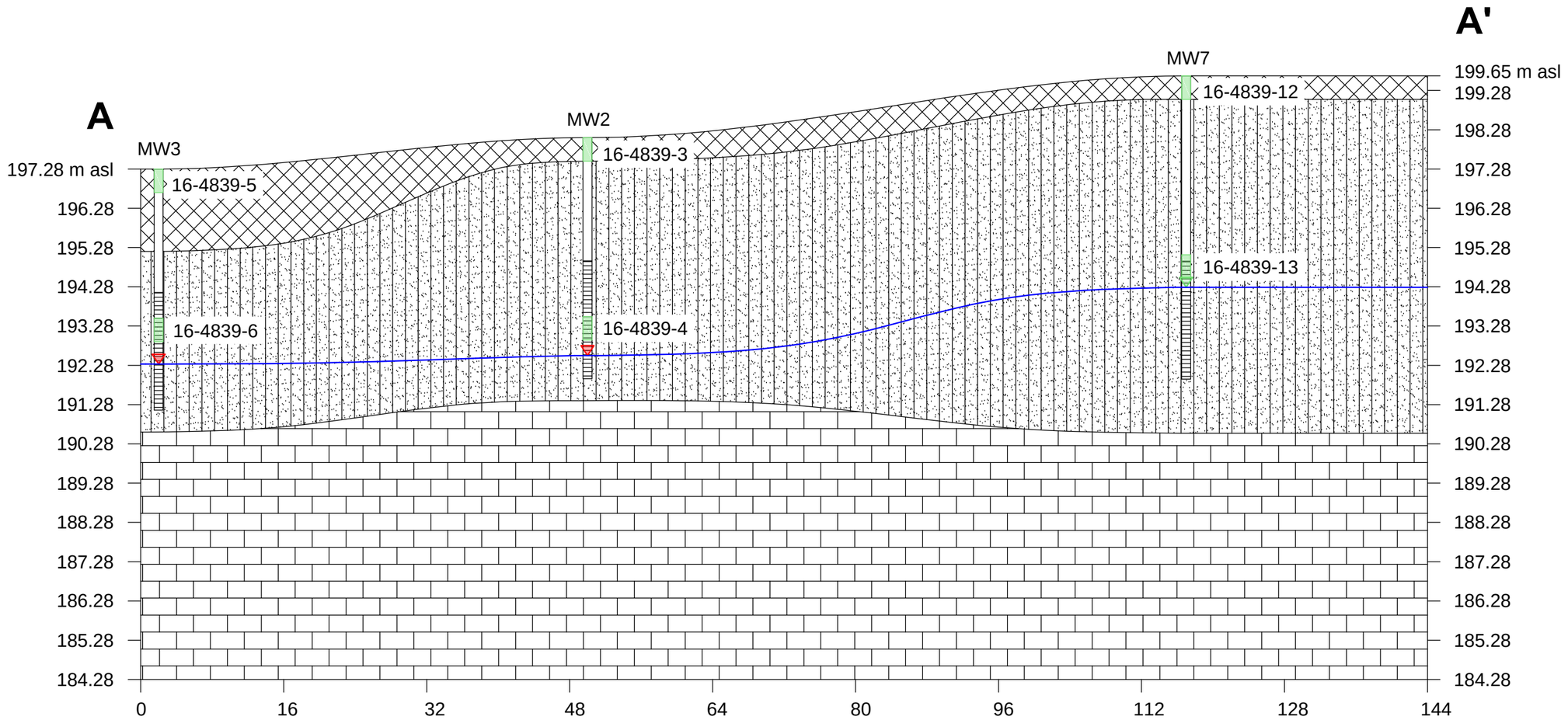
376, 390 Derry Road West,
Mississauga, Ontario

PROJECT NO.
16-7880-B

DATE
OCTOBER 2016

SCALE
AS SHOWN

FIGURE C:
Site plan with contours of groundwater elevations and the interpreted groundwater flow direction.



HORIZONTAL SCALE SHOWN IN METRES

VERTICAL SCALE SHOWN IN METRES

APPROXIMATE DEPTH TO BEDROCK IS 6.1 M BGS

Fisher Environmental Ltd.

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Markham, Ontario
L3R 3K2

Tel: 905 475-7755
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LEGEND

- SOIL SAMPLE WITHIN STANDARDS
- SOIL SAMPLE EXCEEDING STANDARDS
- GROUNDWATER STATIC LEVEL AND GROUNDWATER SAMPLE WITHIN STANDARDS
- GROUNDWATER STATIC LEVEL AND GROUNDWATER SAMPLE EXCEEDING STANDARDS
- FILL MATERIAL
- SILT
- SAND
- SHALE

PROJECT NAME AND ADDRESS

PHASE II ESA

376, 390 DERRY ROAD WEST,
MISSISSAUGA, ON

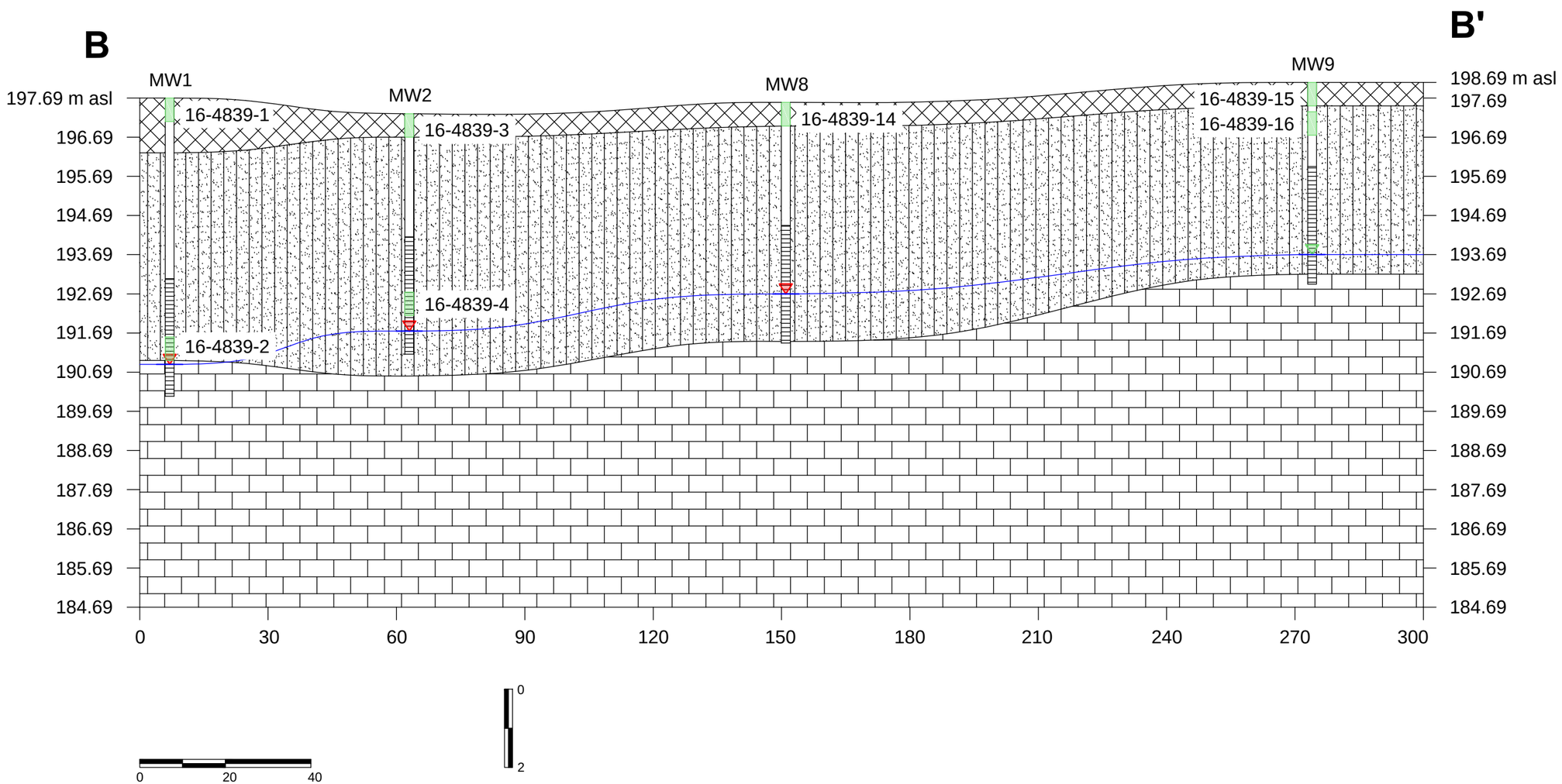
PROJECT NO.
16-7880-B

DATE
OCTOBER 2016

SCALE
AS SHOWN

FIGURE D

Cross-Section A-A' approximately perpendicular to the groundwater flow direction. This cross-section illustrates the stratigraphy, boreholes/monitoring wells locations and their depths and construction, depths of soil samples submitted for laboratory analysis, and groundwater table static level elevation.



HORIZONTAL SCALE SHOWN IN METRES

VERTICAL SCALE SHOWN IN METRES

APPROXIMATE DEPTH TO BEDROCK IS 6.1 M BGS

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LEGEND

- SOIL SAMPLE WITHIN STANDARDS
- SOIL SAMPLE EXCEEDING STANDARDS
- GROUNDWATER STATIC LEVEL AND GROUNDWATER SAMPLE WITHIN STANDARDS
- GROUNDWATER STATIC LEVEL AND GROUNDWATER SAMPLE EXCEEDING STANDARDS
- FILL MATERIAL
- SILT
- SAND
- SHALE

PROJECT NAME AND ADDRESS

PHASE II ESA

376, 390 DERRY ROAD WEST,
MISSISSAUGA, ON

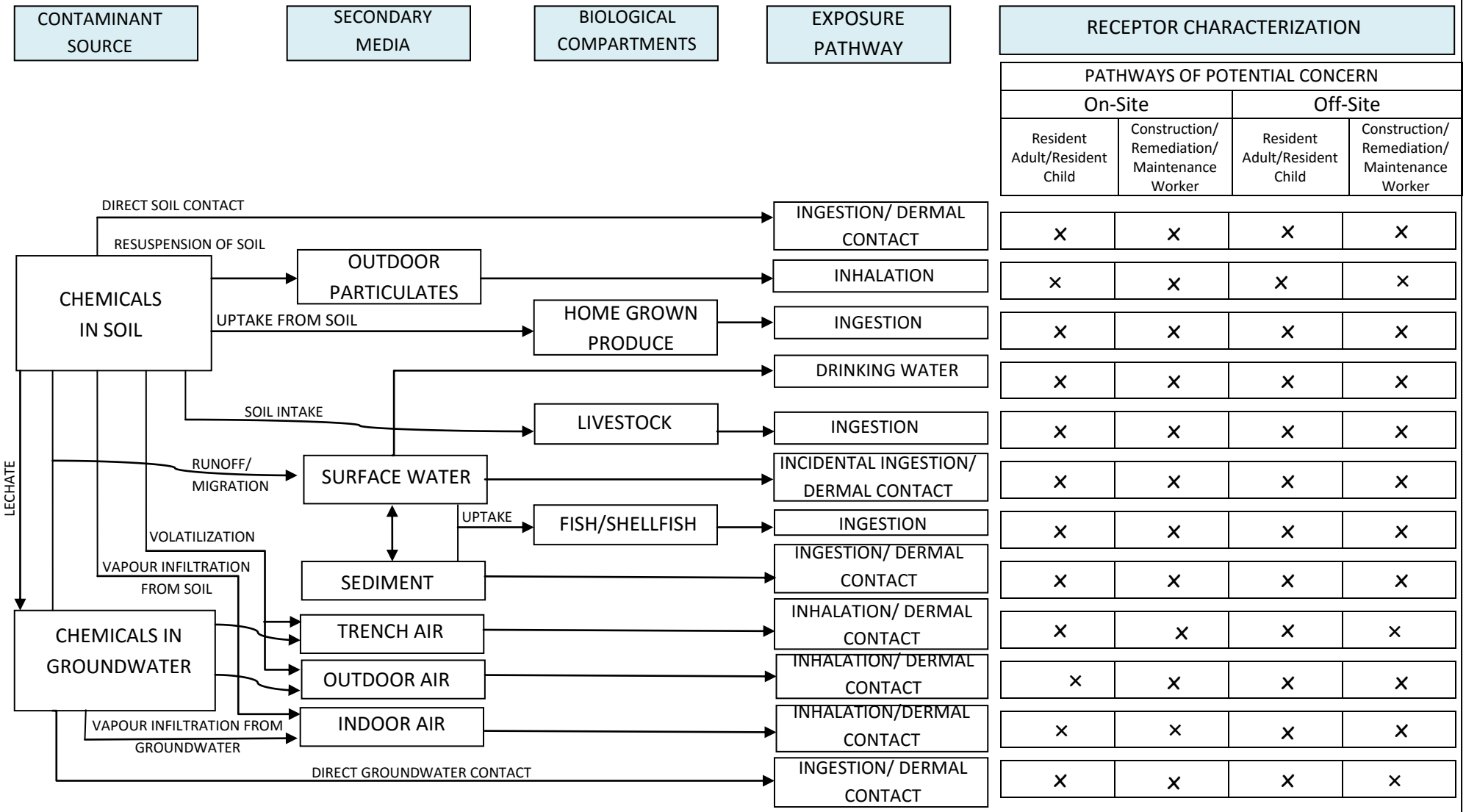
PROJECT NO.
FE-P 16-7880-B

DATE
OCTOBER 2016

SCALE
AS SHOWN

FIGURE E

Cross-Section B-B' approximately parallel to the groundwater flow direction. This cross-section illustrates the stratigraphy, boreholes/monitoring wells locations and their depths and construction, depths of soil samples submitted for laboratory analysis, and groundwater table static level elevation.

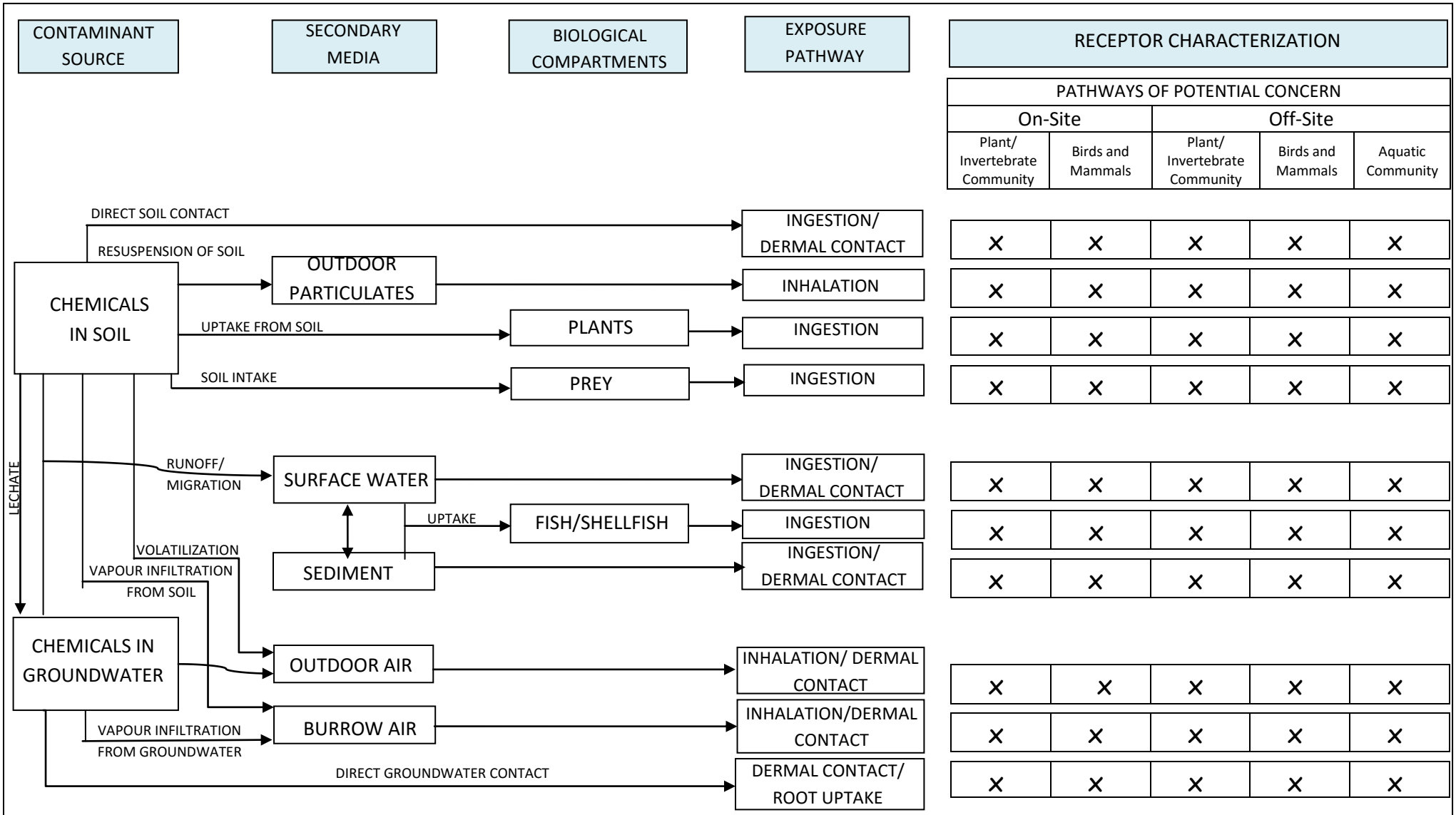


RECEPTOR CHARACTERIZATION			
PATHWAYS OF POTENTIAL CONCERN			
On-Site		Off-Site	
Resident Adult/Resident Child	Construction/ Remediation/ Maintenance Worker	Resident Adult/Resident Child	Construction/ Remediation/ Maintenance Worker
×	×	×	×
×	×	×	×
×	×	×	×
×	×	×	×
×	×	×	×
×	×	×	×
×	×	×	×
×	×	×	×
×	×	×	×
×	×	×	×
×	×	×	×

✓ = complete pathway (without risk management)

× = incomplete pathway

376-390 Derry Rd. W., Mississauga, ON		
Human Health Conceptual Site Model without Risk Management Measures		
FE-P 16-7880-B	February 2017	Figure: F



✓ = complete pathway (without risk management)

0 = pathway considered insignificant and /or lacks sufficient information for evaluation

× = incomplete pathway

376-390 Derry Rd. W., Mississauga, ON		
Ecological Conceptual Site Model without Risk Management Measures		
FE-P 16-7880-B	February 2017	Figure: G

13. APPENDICES

APPENDIX A – SAMPLING AND ANALYSIS PLAN

FISHER ENVIRONMENTAL LTD.

ENGINEERING

Professional Engineers Ontario

LABORATORY

CALA
Canadian Association for Laboratory Accreditation Inc.

Sampling and Analysis Plan

379, 390 Derry Road West, Mississauga, Ontario

Project No. FE-P 16-7880-B

19 September, 2016

400 Esna Park Drive, Unit 15
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www.fisherenvironmental.com

TABLE OF CONTENTS

1. INTRODUCTION

The following document is a Sampling and Analysis Plan for fieldwork proposed at 379 and 390 Derry Road West, Mississauga, Ontario (the Site). This plan has been prepared in compliance with Ontario Regulation 153/04, as amended. This regulation requires a Sampling and Analysis Plan that includes a quality assurance and quality control (QA/QC) program, data quality objectives, standard operating procedures, and a description of physical constraints that limit the ability to conduct sampling and analysis.

2. PROBLEM DEFINITION AND BACKGROUND

The 2.34 ha Site is located on the south side of Derry Road West, approximately 100 m northeast of the nearest major intersection of McLaughlin Road and Derry Road West. North American Datum 1983 for the centroid of the Site is 17-603767-4832402.

The Site is 'L' shaped and is bounded by residential buildings and a gasoline service station to the west, Derry Road West to the north, a residential building to the east, and residential buildings to the south. The Site has an area of 23,448 m^2.

No current operations representing PCAs were identified at the phase two property. 376 Derry Road West consists of a one (1) storey frame dwelling utilized for religious gathering purposes and a metal barn utilized for miscellaneous storage. The majority of the property is dirt and gravel covered and utilized for vehicle storage and parking. 390 Derry Road West consists of a one (1) storey brick dwelling that is abandoned and a metal garage that is unoccupied. The remainder of the property is dirt and gravel covered or grass covered.

The records review, interviews and Site reconnaissance conducted as part of the Phase One Environmental Site Assessment (Phase I ESA) conducted by Fisher (Project 16-7880-A) have identified PCAs at the Site and within the phase one study area that may contribute to Areas of Potential Environmental Concern (APECs) at the Site. This conclusion is supported by a combination of factors, namely the distance and up-gradient nature of off-Site Potentially Contaminating Activities (PCAs) identified at neighbouring fuel service stations, potential on-Site historic heating oil use, on-Site importation of fill materials of unknown quality, and the geological and hydrogeological conditions in the area.

The findings from the previous investigation have identified APECs and associated PCAs at the Site, as noted below:

TABLE 1: Description of APECs and PCAs

Location of APEC	PCA	Recommended Course of Action
APEC A – All Site area	PCA-30: Importation of Fill Materials of Unknown Quality	Drill ten (10) boreholes up to 9.0 m below grade, into the first encountered aquifer, install groundwater monitoring wells in six (6) of them, and collect soil and groundwater samples for analysis of Metals, Petroleum Hydrocarbons Fractions 1-4 (PHCs (F1 to F4)), Volatile Organic Compounds (VOCs) II Benzene, Toluene, Ethylbenzene, Xylene (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs), Hot-Water-Soluble Boron, pH, Electrical Conductivity (EC), Sodium Adsorption Ratio (SAR).
APEC B – At the south and exterior portion of the residential dwelling at 390 Derry Road West	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks	Drill one (1) borehole up to 9.0 m below grade, install a monitoring well and collect soil and groundwater samples for analysis of Metals, PHCs (F1 to F4), VOCs II (BTEX), PAHs.
APEC C – Along the west Site boundary within 390 Derry Road West	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks	Drill two (2) boreholes up to 9.0 m below grade, into the first encountered aquifer, install groundwater monitoring wells in, and collect soil and groundwater samples for analysis of Metals, PHCs (F1 to F4), VOCs II (BTEX), PAHs.

The boreholes and monitoring wells investigation is to explore the presence or absence of Contaminants of Potential Concern (CPCs) in the soil and/or groundwater at the Site.

3. OBJECTIVES

The specific objectives of the work are to assess CPCs at the Site, such as: Metals, PHCs (F1-F4), VOCs, BTEX, PAHs, and Hot-Water-Soluble Boron in soil and groundwater samples. Soil samples will also be analyzed for pH, EC, and/or SAR. The overall objective for the work is conducted in support of a liability assessment for a proposed acquisition and redevelopment of the site and for the potential filing of a Record of Site Condition (RSC) for the Site.

4. WORK PROPOSED

To meet the objectives noted above, the work should generally consist of the following:

1. Advance a total of ten (10) boreholes, including six (6) groundwater monitoring wells to approximately 9.0 m below ground surface (bgs) to assess the soil and groundwater conditions and to collect soil and groundwater samples. Specifically, boreholes and groundwater monitoring wells will be advanced within the APECs defined in the Phase I ESA and to fill data gaps from the previous subsurface investigation by Terraprobe (project 13-13-3061, October 2013) at the Site;

2. Collection and submission to the laboratory of soil samples for analysis of Metals, PHCs (F1-F4), VOCs, BTEX, PAHs, Hot-Water-Soluble Boron, pH, EC, and/or SAR parameters.

3. Sampling of the groundwater in the newly installed groundwater monitoring wells and submission to the laboratory for analysis of Metals, PHC (F1-F4), VOCs, BTEX, and/or PAH parameters.

4.1. Rationale

Proposed investigative locations will be chosen to address the identified APECs at the Site. Fisher Environmental Limited (Fisher) proposes to advance boreholes and install groundwater monitoring wells within the APECs defined in the Phase I ESA. CPCs in soil and groundwater include Metals, PHCs (F1-F4), VOCs, BTEX, PAHs, and Hot-Water-Soluble Boron in soil and groundwater samples. Soil samples will also be analyzed for pH, EC, and/or SAR.

4.2. General Considerations

Considerations regarding the investigation's design (i.e., soil and groundwater sampling locations and the type and frequency of analysis) are based on the objectives and field observations. The following are the general parameters used in the design of the fieldwork:

1. The soil and groundwater sampling plan design is initially based on the information provided by the Phase I ESA and/or previous available reports, and it can be adjusted as the site investigation progressed and the subsurface conditions are revealed by boreholes drilling.

2. A combination of stratified random sampling and judgment sampling is used to identify the areas that are likely to be contaminated, or likely to have differences in contaminant concentrations or in variability.

3. Soil horizons displaying different properties are sampled separately, ensuring that samples from particular depth increments are not mixed with soil from other depths.

4. The media to be sampled includes soil and groundwater.

5. Soil sampling is conducted through the full depth of boreholes. A minimum of one (1) sample is collected for screening from every 0.61 or 1.52 m of vertical borehole. The number of samples analyzed is defined by the objectives of the Phase II ESA and Fisher's budget agreed upon by our client. In general, a minimum of one (1) soil sample is analyzed per borehole, with sampling depth depending on the type of expected CPCs, transport pathways, stratigraphy and field screening indications.

6. Groundwater sampling is conducted at least once following wells' development. Additional sampling may be conducted as required based on results and objectives. Sample analysis will be selected based on the objectives of the investigation point.

7. Water levels will be obtained from each well before the sampling activities start.

5. QUALITY ASSURANCE/QUALITY CONTROL PROGRAM

The QA/QC program discussed below is based on sections recommended by the Environmental Protection Act (EPA).

5.1. Project/Task Organization

The project is being implemented by Fisher. The final decision for any matter related to the project is with Fisher, also the principal data user.

The following people have been assigned roles within the QA/QC program.

- Fisher Project Manager — Mr. Marius Voinea, P.Geo. and Mr. David Fisher, P.Eng.
- Fisher QA Manager — Mr. Arij Alam, M.Env.Sc.
- Fisher Field Team Leader — Mr. Kerry Tam, M.Env.Sc
- Fisher Data Entry — Ms. Sita Ng
- Fisher Data Verification — Mr. Walter Wang

5.2. Quality Objectives and Criteria

The data quality objectives are to: characterize the subsurface through logging and screening soils in the field and sampling; collect representative soil samples, collect samples that are representative of the groundwater and collect data that accurately represents hydrogeological conditions (i.e., water levels).

The criteria for assessing this will be:

- Compliance to this QA/QC program;
- Adherence to Fisher's Standard Field Procedures;
- Reproducibility of water levels and laboratory analysis from samples over time; and
- Evaluation of QA/QC sample analysis against Fisher's standards.

5.3. Special Training/Certifications

The training and certifications required for the work includes:

- Supervision of the work by a qualified professional for Phase II ESA work as defined by Ontario Regulation 153/04. In this case, work will be supervised by a Professional Engineer or Professional Geoscientist; and
- Fisher employee training for the various operations required.

Fisher training is documented in Fisher's internal training records. Mr. Marius Voinea and Mr. David Fisher, of Fisher, will supervise the work and is a Professional Geoscientist and Professional Engineer, respectively, in Ontario and are Qualified Persons as defined by the regulation.

5.4. Documentation and Records

The Sampling and Analysis Plan is to be distributed to project staff.

The raw data from the fieldwork will be filed for reference in paper and electronically. As required, data will be tabulated and/or transferred to logs and presented in appendices. Any work outside of the standard procedures, delays or findings outside of the norm (i.e., odours, staining and excess solids in groundwater samples) will be noted on the field notes.

The data obtained as part of this program includes:

1. Field notes and field forms;
2. Chain of Custody from sample submissions;
3. Laboratory confirmation of analysis requested;
4. Tabulated and verified field data;
5. Borehole logs and figures;
6. Wells sampling data log sheets;

7. Fisher data review forms; and

8. Certificates of analysis from the laboratory.

6. STANDARD OPERATING PROCEDURES

General

Prior to commencing any field activities, borehole locations must be cleared for underground utilities through the services of a private utility locates company as well as public utility locates services.

Drilling is to be conducted utilizing equipment adequate to access borehole locations, suit soil conditions and Phase II ESA objectives. Fisher personnel must log the subsurface conditions encountered within each of the boreholes at the time of the field work. Soils samples from within the boreholes should be recovered at regular depth intervals by driving a split spoon sampler using standard sampling procedures in accordance with ASTM D1586. Soil samples must be visually assessed and tested in the field for headspace vapour readings using a 10.6 eV lamp Mini Rae 2000 Photoionization Detector (PID) calibrated to 100 parts per million (ppm) Isobutylene.

A minimum of one (1) soil sample recovered from each of the advanced boreholes must be submitted to a laboratory accredited to test the samples in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the EPA, published by the Ministry of the Environment and Climate Change (MOECC) on March 9, 2004, and amended as of July 1, 2011. Where field observations suggest that impacts are present in a soil sample, a second deeper soil sample should be submitted from that borehole for laboratory analysis.

Soil samples representative of imported fill materials should be at minimum analyzed for Inorganic Parameters, Metals, PHCs (F1-F4), PAHs, pH, EC, and/or SAR to evaluate CPCs in the fill material. The native soil samples must be analyzed for CPCs associated with the identified PCAs.

The groundwater conditions, where encountered, must be recorded at the time of boreholes' drilling and at completion of each borehole. Generally, if groundwater impacts are suspected, at least three (3) groundwater monitoring wells must be installed at the Site. If VOCs impacts are suspected, the construction of the wells should be of 52 mm inside diameter Polyvinyl Chloride (PVC) pipe to allow for the use of submersible sampling pumps, otherwise the casing/screen diameter should be selected based on the drilling method. The portion below and intersecting the groundwater table should be constructed of a similar diameter machine-slotted screen to permit future measurement of water levels and the collection of groundwater samples.

Each installed well must be monitored to determine the depth to the groundwater table, presence/absence of free phase product within the groundwater monitoring well and subsurface vapour concentrations. Prior to sampling, the installed groundwater monitoring wells must be developed to remove any water or fluids used during boreholes drilling, and any fine grained material from around the screened interval, by pumping out up to ten (10) well casing volumes of groundwater using dedicated Low-Density Polyethylene (LDPE) tubing and a submersible pump. After each well development operation, the submersible pump must be washed with Alconox® and rinsed with distilled water. The development and sampling methodology followed at each of the installed groundwater monitoring well locations must be in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the EPA, specifically using a Low Flow Purging and Sampling procedure (USEPA EQASOP-GW 001). The pumping rate may vary until the water level has stabilized to ensure the sampling of “fresh” formation water. Indicator field parameters such as Temperature, pH, Specific Conductance, Oxidation/Reduction Potential (ORP), Dissolved Oxygen (DO) and Turbidity must be measured during purging activities at each well. Once the indicator field parameters have stabilized, groundwater samples should be taken upstream of the flow-through cell (to prevent cross-contamination).

Groundwater samples must be collected at each installed monitoring well and submitted to a laboratory accredited to test the samples in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the EPA, published by the MOECC on March 9, 2004, and amended as of July 1, 2011. The groundwater samples must be analyzed for CPCs associated with the identified PCAs.

QA/QC samples must be collected and analyzed during the field program as follows:

- At least one (1) field duplicate sample shall be submitted for laboratory analysis for every ten (10) soil samples submitted for analysis;
- Where groundwater samples are to be analyzed for VOCs, one (1) trip blank sample shall be submitted for analysis with each sampling event and at least one (1) field duplicate.

a. Borehole Drilling

Hollow stem or solid stem auger drilling procedure, or push probe technology, can be used when advancing boreholes into the surface and intermediate overburden depths, having prior knowledge of fairly consolidated soils. Each auger section is typically 1.52 m (5 ft) in length and has a 114.3 mm (4.5 inch) outside diameter. The solid stem augers must be advanced to the required sampling depth, spun to remove all soil cuttings from within the borehole and then removed to make room for the split spoon sampler.

To minimize cross-contamination, the augers must be cleaned with a high-pressure washer containing Alconox®, then rinsed with distilled water prior to moving to the next borehole location. During the drilling program, the split spoon samplers must be cleaned with municipal water containing Alconox® using a scrub brush, then rinsed with distilled water between samples.

Soil residues resulted from drilling and sampling should initially be containerized on-site until their quality is assessed against the applicable MOECC Site Condition Standards (SCS). Should exceedances of these standards be determined, a composite soil residue sample must be analyzed for leachate quality criteria prior to removal from the Site to determine whether the soils are hazardous or non-hazardous with respect to disposal procedures/locations. Transportation and disposal of impacted soil residues must be conducted by/to an MOECC-licensed carrier/receiving facility. If soil analyses indicate compliance with the applicable MOECC SCS, soil residues shall be removed from the Site and stored in containers labeled for specific property uses, prior to disposal to a landfill that accepts clean fill.

b. Soil Sampling

Soil sampling at the Site should be conducted as outlined in the Sampling and Analysis Plan designed on the basis of the information obtained from the Phase I ESA and the Phase One Conceptual Site Models (CSMs).

Discrete Soil Sampling Equipment

Soil samples must be collected during the boreholes drilling program by means of either: a spoon sampler driven into subsoil by a standard size, 65 kg hammer, falling 760 mm, or by vibration, recording soil samples at a maximum of 0.76 m (2.5 ft) intervals and at stratigraphic boundaries or a direct push disposable sleeve sampling method by means of applying static weight and hammer percussion to a rod string in order to advance the probing and sampling rods into the subsurface and collecting soil samples at 0.90 m (3 ft) intervals and at stratigraphic boundaries, up to the completion depths suitable to achieve the Phase II ESA objectives.

At the time of sampling, the barrel sampler is fitted to the sampling rods and lowered into the borehole. The dead weight of the sampler, rods, anvil, and drive weight are left to rest on the bottom of the borehole. The spoon sampler is driven in the soil by imparting recurring blows with the standard size hammer, or by vibration. Once the entire length of the sampler had been advanced, or once sampler refusal was encountered, the sampler is returned to the surface and opened.

Subsurface conditions encountered in the boreholes, including soil type, moisture content, soil colour and visual indications of environmental impacts, if applicable, must be logged at the time of the field program. A representative portion of each recovered soil sample must immediately be placed in laboratory supplied sample containers. The remaining portion of the soil sample must be placed into a re-sealable bag to be used for field screening of combustible soil vapour concentrations. New disposable latex gloves and a cleaned stainless steel spatula must be used during each sampling event to remove the soil cores from the sampler and to transfer the samples into the laboratory supplied containers. Hermetic samplers are an acceptable alternative for sampling of soil to be tested for BTEX, PHC (F1), and VOCs.

c. Field Screening Measurements

Soil samples must be screened in the field using a MiniRae 2000 PID. PIDs are used for applications where high sensitivity is needed to monitor ppm levels of VOCs. The MiniRae 2000 PID has a measurement accuracy range of ±2 ppm or 10% of reading between 0 – 2000 ppm, and ±20% of reading for >2000 ppm. It has an internally integrated pump with a flow rate of 450-550 cc/min. Work humidity conditions are from 0% to 95% relative humidity (non-condensing). The MiniRae 2000 is equipped with a 10 inch hydrophobic probe. The probe includes a replaceable water trap filter disk that prevents particulates and water from entering the instruments flow system.

Calibration consists of exposing the instrument to gas samples of known concentration. The combustible and toxic gas samples should have concentrations in approximately the middle of the detection range. The PID is calibrated to an isobutylene standard.

The MiniRae 2000 must be calibrated in the field at the beginning of work each day. The calibration records must be recorded each time the MiniRae 2000 was calibrated. This information is useful for establishing a calibration interval and keeping track of individual instrument performance. Each of the recovered soil samples must be visually classified and screened in the field for headspace vapour concentration (combustible soil vapour and total organic vapour) using the MiniRae 2000. Selection of samples to be submitted for laboratory analysis should be based on the headspace vapour concentration and/or physical evidence of odours/staining. If no odours/staining are noted in the soil samples, the samples with the highest field screening measurement (i.e. highest headspace vapour concentration) or at depths in which certain CPCs were likely expected should be selected for laboratory analysis. In addition, if odours/staining are noted in the soil sample or soil headspace vapour concentrations are elevated, additional soil samples should be selected from below the anticipated impacted zone for laboratory analysis, for vertical delineation purposes. Soil vapour concentrations readings taken during the soil sampling must be included in the logs of boreholes.

The depth to groundwater and the presence or absence of non-aqueous phase liquids (NAPL) must be measured in all groundwater monitoring wells using a Solinst Oil/Water Interface probe, model 122 (interface meter). The sensor accuracy is 1.0 mm. The manufacturer recommends annual calibration of the interface probe.

d. Monitoring Well Installation and Development

Groundwater monitoring wells installed at the Site should comprise flush-threaded, Schedule 40, PVC riser. The portion below and intersecting the groundwater table should be constructed of a similar diameter machine-slotted 0.25 mm (10 slot) screen.

Groundwater monitoring wells should be constructed using the following procedure:

- The end cap is threaded onto the bottom of the well screen and the well screen is lowered to the bottom of the open borehole by threading together the necessary number of well screen and riser lengths;
- The groundwater monitoring well materials are lowered into the open borehole after the bottom of the borehole has been cleaned, and all the soil/bedrock cuttings and augers were removed;
- The primary filter pack material consists of Type 2 silica sand. The size of the filter pack material should be selected based on the texture of the formation in which the well is screened and the slot size of the well screen. The filter pack is installed in the annulus between the borehole and the well screen by hand-pouring from the surface;
- The annular space is backfilled with Type 2 silica sand from the bottom of the well to approximately 0.61 m above the top of the screen;
- A bentonite seal is installed from the top of the filter pack to 0.30 m below grade in each of the boreholes. Unprocessed 9.5 mm (3/8 in.) diameter granular bentonite (HolePlug®) is installed in lifts of 0.15 m to 0.30 m.
- All of the monitoring wells are finished at 0.10 m below grade, are fitted with steel flush-mount or aboveground protectors, and must be locked to prevent tampering. The construction details for each groundwater monitoring well must be presented in the Log of Boreholes.

To minimize the potential for cross-contamination during the groundwater monitoring well installation, the following actions must be completed:

- The wells are designed and assembled following the completion of the drilling activities. The project manager and field personnel must review the soil stratigraphy observed in each borehole to ensure that the proposed groundwater monitoring well screen does not present a significant pathway for the vertical migration of chemicals (i.e. does not cross any underlying confining layers);
- The presence of the bentonite seal reduces the likelihood of any water impacts from the surface reaching the monitoring well annulus;
- Only new well materials must be used; these materials are factory-cleaned and delivered to the Site wrapped in plastic;
- New latex or nitrile gloves must be worn when handling well screen and riser materials;
- No PVC cements, solvents or lubricants should be used in the construction of wells; and

- The top of the well casing must be covered using a PVC slip cap or a J-Plug to prevent filter pack sand or bentonite backfill material from entering the well pipe during the well installation activities.

Prior to sampling, the installed monitoring wells must be developed to remove any water and/or drilling fluids added during drilling/installation, and any fine grained material from around the screened interval, by purging up to ten (10) well casing volumes of groundwater using dedicated LDPE tubing and a submersible pump. The volume of fluid evacuated from each well is measured using a calibrated bucket and the volumes are recorded on standard field forms.

Development is intended to establish good hydraulic connection between the well screen and the surrounding aquifer material, so that any future samples collected at the groundwater monitoring well can be considered representative of the subsurface conditions.

e. Field Measurement of Water Quality Parameters

Groundwater sampling in the installed groundwater monitoring wells should be conducted using the Low Flow Purging and Sampling procedure (USEPA EQASOP-GW 001), by means of a Horiba U-52 Flow-Through Cell equipped with sensors that simultaneously measure indicator field parameters such as Temperature, pH, Specific Conductance, ORP, DO, and Turbidity.

Measurement principle, range, resolution, repeatability and accuracy for each of the sensors incorporated in the Horiba U-52 Flow-Through Cell are presented in the following table:

Table 1: Horiba U-52 Flow –Through Cell Parameters

Sensor	Measurement Principle	Range	Resolution	Repeatability	Accuracy
pH	Glass electrode method	0 to 14	0.01	±0.05	±0.1
DO	Polarographic method	0 to 50.0 mg/L	0.01 mg/L	±0.1 mg/L	0 to 20 mg/L: ±0.2 mg/L 20 to 50 mg/L: ±0.5 mg/L
Specific Conductivity	4 AC electrode method	0 to 10 S/m (0 to 100 mS/cm)	0.000 to 0.999 mS/cm: 0.001 1.00 to 9.99 mD/cm: 0.01 10.0 to 99.9 mS/cm: 0.1 0.0 to 99.9 mS/m: 0.1 0.100 to 0.999 S/m: 0.001 1.00 to 9.99 S/m: 0.01	±0.05% F.S.	±1% F.S. (Median of two-point calibration)
Temperature	Thermistor method	-10 to -55°C	0.01°C	±0.10°C (at calibration point)	JIS class B platinum thermometer sensor (±0.3 + 0.005 / 1°C)

Turbidity	LED transmitting light source, 30° forward scattering method	0 to 800 NTU	0.1 NTU	±5% (reading) or ±0.5 NTU whichever is greater	±5% (reading) or ±1 NTU whichever is greater
ORP	Platinum electrode method	-2000 mV to +2000 mV	1 mV	±5 mV	±15 mV

The measurement of Indicator Field Parameters is to be conducted in accordance with the following procedure:

- 5/8 inch outer diameter LDPE tubing is attached to a submersible pump placed at a depth corresponding to the middle of the screened interval of each groundwater monitoring well, if plausible, and groundwater is pumped at variable flow rates.
- After the water level has stabilized, the flow-through-cell is connected to the LDPE tubing through a "T" connector to monitor the indicator field parameters. When excessive turbidity is encountered with the pump startup, the well is purged for a while without connecting up the flow-through-cell, in order to minimize particulate buildup in the cell. Water level drawdown measurements are made using a Solinst Water Interface probe.
- During well purging, indicator field parameters (turbidity, temperature, specific conductance, pH, ORP, DO) are monitored at a frequency of three (3) to (five) minute intervals, if the pump's flow rate was able to "turn over" at least one flow-through-cell volume between measurements (for a 250 mL flow-through-cell with a flow rate of 50 mL/min., the monitoring frequency is every five (5) minutes.)
- Purging is considered complete and sampling should begin when all the above indicator field parameters have stabilized. Stabilization is considered to be achieved when three consecutive readings are within the following limits:
  - Turbidity (10% for values greater than 5 NTU; if three (3) Turbidity values are less than 5 NTU, consider the values as stabilized),
  - DO (10% for values greater than 0.5 mg/L, if three (3) DO values are less than 0.5 mg/L, consider the values as stabilized),
  - Specific Conductance (3%),
  - Temperature (3%),
  - pH (± 0.1 unit),
  - ORP (± 10 milliVolts).
- A transparent flow-through-cell should be used, allowing field personnel to watch for particulate build-up within the cell. This build-up may affect indicator field parameter values measured within the cell.

The Horiba U-52 unit must be calibrated prior to arriving on the Site for the first time. The calibration records must be recorded each time the Horiba U-52 is calibrated.

f. Groundwater Sampling Program

Low flow sampling procedure

Groundwater sampling in the installed groundwater monitoring wells is to be conducted using the low flow sampling procedure (USEPA EQASOP-GW 001). The Flow-Through Cell is connected through a 5/8 inch outer diameter HDPE tubing to a submersible pump placed at a depth corresponding to the middle of the screened interval, if plausible, of each groundwater monitoring well.

The sampling of groundwater in the wells should be conducted in accordance with the following procedure:

- The static groundwater level in the well is measured before installing the pump. The initial water level is recorded on the data log sheet.
- The pump, tubing and electrical lines are lowered slowly (to minimize disturbance) into the well to the appropriate depth.
- The pump intake is kept at least two (2) feet above the bottom of the well, if plausible, to minimize mobilization of particulates present in the bottom of the well.
- Pump tubing lengths above the top of well casing are kept as short as possible to minimize heating the groundwater in the tubing by exposure to sun light and ambient air temperatures. Heating may cause the groundwater to degas, which is unacceptable for the collection of samples for VOCs and dissolved gases analysis.
- Before starting the pump, water level in the well is measured.
- From the time the pump started, purging continues until the time the samples are collected. The purged water is discharged into a graduated bucket to determine the total volume of groundwater purged. This information is recorded on the data log sheet.
- The pump is started at low speed and the speed is slowly increased until discharge occurs. Water level is checked.
- Pump speed is adjusted until there is little or no water level drawdown. If the minimal drawdown that has been achieved exceeds 0.3 feet, but remains stable, purging can continue. The water level and pumping rate are monitored and recorded every three (3) to five (5) minutes during purging. Pumping rate adjustments are recorded (both time and flow rate). Pumping rates are, as needed, reduced to the minimum capabilities of the pump to ensure stabilization of the water level. Adjustments should be made in the first fifteen (15) minutes of pumping in order to help minimize purging time. During pump start-up, drawdown may exceed the 0.3 feet target and then "recovers" somewhat as pump flow adjustments are made. The volume of water between the initial water level and the stabilized water level is calculated and added to the volume of the water which occupied the pump's tubing. This combined volume of water must be purged from the well after the water level has stabilized before samples are collected.

- The flow rate used to achieve a stable pumping level should remain fairly constant while monitoring the indicator parameters for stabilization and while collecting the samples.

Collection of Groundwater Samples

When samples are collected for laboratory analyses, the pump's tubing must be disconnected from the "T" connector with a valve and the flow-through-cell. The samples must be collected directly from the pump's tubing. VOC samples must be collected first and directly into pre-preserved sample containers. All sample containers are filled by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence. During purging and sampling, the pump tubing should remain filled with water to avoid aeration of the groundwater. 3/8 inch (inside diameter) tubing may be used to help ensure that the sample tubing remains water filled.

Pre-preserved sample containers must be used, as required by analytical methods. As determination of filtered metal concentrations is a sampling objective, filtered groundwater samples are collected using the same low flow procedures. An in-line filter (transparent housing) should be used, and the filter size must be 0.45 µm. The filter should be pre-rinsed with groundwater prior to sample collection. The filter should be free of air bubbles before samples are collected.

Each collected sample must be labeled. Samples requiring cooling must be placed into a cooler with ice and/or ice packs during storage and transportation to the laboratory. Sampling should progress at the Site from the well that is expected to be least contaminated to the well that is expected to be most contaminated to minimize the potential for cross-contamination.

The monitoring equipment must be decontaminated between each well. Dedicated sampling LDPE tubing must be used for each monitoring well.

g. Sample Handling and Custody

Sample handling will be conducted according to Fisher's Sample Handling, Collection and Storage Standard Field Procedure. In general, Fisher will collect the samples in laboratory-supplied sample containers, containing preservatives as required by the Analytical Protocol. Samples will be stored on ice and/or ice packs or in a refrigerator until transported to the laboratory.

Samples will be labeled with the sample number, sample date and Fisher project number. Fisher will complete the laboratory-specific Chain of Custody as per Fisher's Chain of Custody Completion Standard Field Procedure and laboratory requirements.

Sample shipment to the laboratory will be arranged by Fisher, as required. Fisher will keep a copy of the Chain of Custody for verification of sample receipt by the laboratory.

7. ANALYTICAL METHODS

Analysis will be conducted in accordance with the MOECC analytical protocols by an analytical laboratory accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA), as conforming to ISO Standard 17025.

Fisher will review sample submission documentation received electronically from the laboratory and verify that all samples have been accounted for and that requested analysis is being conducted. Errors or omissions will be brought to the laboratory's attention. The laboratory will complete additional quality control testing (i.e., duplicates and method spikes) as required by its certification. Additionally, Fisher will evaluate laboratories' quality report for issues with the data. If unacceptable variance in the data is found, Fisher will resample if possible, and if required.

8. INSTRUMENT/EQUIPMENT TESTING, INSPECTION AND MAINTENANCE

Instruments used include a pH meter, conductivity meter, inter-phase probe, and PID equipped for hydrocarbon and chlorinated solvent detection. The PID equipped with a 10.6 eV lamp will be calibrated to 100 ppm isobutylene prior to commencing on the day of fieldwork. Instruments used for the monitoring of groundwater will be inspected and maintained according to Fisher's Equipment Maintenance and Calibration Standard Field Procedure. In general, the equipment will be examined for defects and cleaned daily prior to use. Defects will be recorded on Fisher's Equipment Calibration/Maintenance Form and addressed before the start of fieldwork. The water-level meter will be cleaned with water containing Alconox® after each use to prevent cross-contamination between wells.

9. INSTRUMENT/EQUIPMENT CALIBRATION AND FREQUENCY

For this work program, the pH meter and conductivity meter will be calibrated on a weekly basis or more frequently if required by manufacturer's instructions. The calibration activity will be recorded on Fisher's Equipment Calibration/Maintenance Form. Works for this task will occur in accordance with Fisher's Equipment Maintenance and Calibration Standard Field Procedure.

10. INSPECTION/ACCEPTANCE OF SUPPLIES AND CONSUMABLES

Supplies to be used during the sampling include detergents, gloves and sampling equipment. Detergents, gloves and bottles will be provided directly by suppliers and will be used from new, unopened containers/bags at the Site.

11. DATA MANAGEMENT

Fisher will record all field data in Fisher forms and field books, as required. Field data will be tabulated into a database and verified by Fisher. Data obtained from the boreholes, groundwater monitoring wells, test pits investigation and laboratory will be managed in Fisher's database.

12. ASSESSMENTS AND RESPONSE ACTIONS

Adherence to the Sampling and Analysis Plan will be assessed primarily by the Fisher Project Manager and overseen by the Fisher QA Manager. To ensure adherence to the Sampling and Analysis Plan, the Fisher Project Manager will discuss Site activities with field staff to verify work completed. Omissions will be identified and field staff will be requested to verify data when next onsite.

13. REPORTS

Reports to our client will consist of:

- Memos including tabulated data, figures, QA/QC discussion, as required;
- Reports including tabulated data, figures, QA/QC discussion, as required; and
- Electronic version of field data.

The data generated will be used in a report provided to the MOECC, if required. The report will include a discussion of the QA/QC findings and implications of the findings.

14. DATA REVIEW, VERIFICATION AND VALIDATION

As identified in the sections above, Fisher will:

- Verify the recording and integrity of written field data;
- Verify the soil and groundwater sample receipt and analysis requested by the laboratory;
- Tabulate and review the laboratory-supplied analytical results; and
- Verify the electronic data input by Fisher.

15. VERIFICATION AND VALIDATION METHODS

The data handled by Fisher will be verified by a manual check of data received and laboratory request. Verification and validation of laboratory analysis will be completed by determining the relative percent difference (RPD) for duplicate samples by Fisher. Fisher will also review the analysis of blanks, laboratory-completed duplicates, and matrix spikes and verify that these are within the laboratory-specified range.

To calculate RPDs, Fisher will use the following formula:

$$\Delta\% = \left| S - D \right|_x 100\% / ½ (S + D)$$

Where: Δ% = RPD

S = sample value

D = duplicate or replicate value

Notes:

- RPD is calculated only for result pairs with concentrations greater than 5x the method detection limit in both samples.
- RPDs are not calculated where results are below the laboratory detection limits for sample pair.

The acceptable guideline limits for various analysis groups are noted below.

Parameter Category	Recommended RPD at concentrations exceeding 5 times the Method Detection Limit
Organics in solids	
• PAH	50%
• Volatile organics	40%
• PHC	40%
• Most others*	40%
Organics in water*	30%
Metals in solids	30%
Metals in water	20%
General inorganics in solids	30%
General inorganics in water	20%

"Derivatized acid extractables, like chlorophenol, and pesticides, will tend to be higher

Source: RPD screening values from the October 24, 2005 letter to BC Environment from the BC Environmental Laboratory Quality Assurance Advisory Committee

Where the target RPD is exceeded, we will investigate to assess whether the cause can be determined. We will also assess whether the RPD exceedance is material to the use of the data and if it impacts all data in that category.

Where detectable concentrations are found in a trip blank or field blank, Fisher will evaluate the possible causes of the finding and impacts on data.

Where laboratory QA/QC results indicate issues with data quality, Fisher will also evaluate the impacts of this information and report on our findings.

FISHER ENVIRONMENTAL LTD.

Per:

David Fisher, P. Eng., C. Chem., QPESA
Principal
Fisher Environmental Ltd.

APPENDIX B – LOGS OF BOREHOLES

FISHER ENVIRONMENTAL LTD.

Log of Borehole: MW1

376, 390 Derry Road West
Mississauga, Ontario

Sheet: 1 of 10

Project #: 16-7880

G.S.Elevation: 197.69 m asl

Location:

Drill Method: Diedrich 50

Drilling Date: 20 September 2016

Sample Method: Split Spoon

Dates: Water Level 06 October 2016

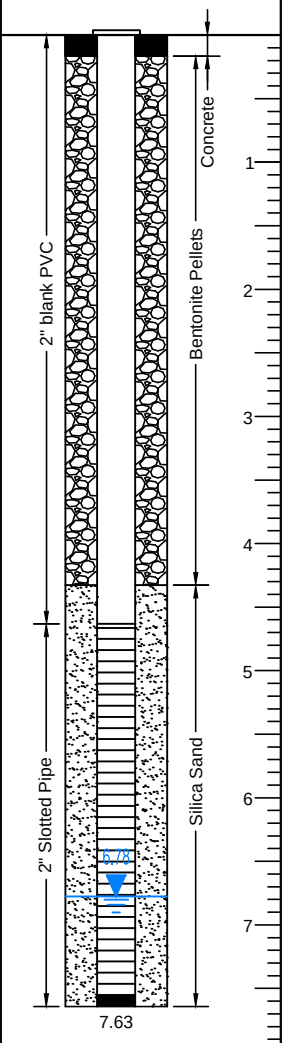
Borehole Diameter: 4"

Water Level: 6.78m

Logged By: HU

Checked By: KT

DEPTH (meters)	Sample No.	Blow Counts	H.C.Vapour (ppm)	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
					Grass Surface	
0 – 1.52				0 – 5	FILL: Brown SANDY SILT, organics, trace cobbles	
1.52 – 3.05				5 – 10	FILL: Greyish brown SANDY SILT, trace organics cobbles, slight oxidation	
3.05 – 4.57				10 – 15	Grey and brown SANDY SILT, trace cobbles	
4.57 – 6.10				15 – 20	Greyish brown SANDY SILT till, trace cobbles	
6.10 – 7.62				20 – 25	Greyish brown, light brown and brown SANDY SILT till, trace cobbles	
7.62 – 9.14				25 – 30	Grey to grey and light brown to grey SANDY SILT till, trace cobbles	
9.14 – 10				30 – 32	Grey SANDY SILT till, trace cobbles, slightly moist	
					Red weathered SHALE	
					Spoon refusal at 9.14 m	



FISHER ENVIRONMENTAL LTD.

Log of Borehole: MW2

376, 390 Derry Road West
Mississauga, Ontario

Sheet: 2 of 10

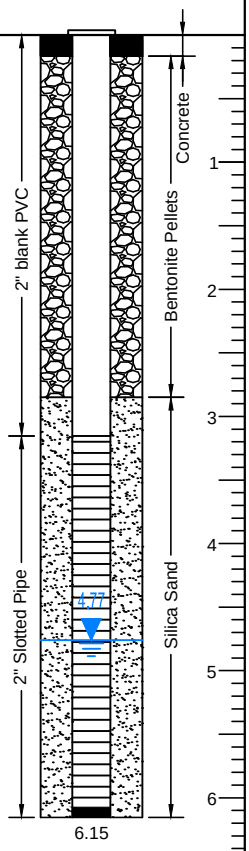
Project #: 16-7880

G.S.Elevation: 198.08 m asl

Location:

Drill Method:	Diedrich 50	Drilling Date:	20 September 2016
Sample Method:	Split Spoon	Dates: Water Level	06 October 2016
Borehole Diameter:	4"	Water Level: 4.77m	Logged By: HU / Checked By: KT

DEPTH (meters)	Sample No.	Blow Counts	H.C.Vapour (ppm)	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
					Grass Surface	
0–1				0–2	FILL: Brown SANDY SILT, trace organics	
1–2				2–4	Grey and light brown SANDY SILT, trace cobbles	
2–3				4–10	Brown SANDY SILT till, trace cobbles	
3–4				10–12	Brown to grey SANDY SILT till, trace cobbles	
4–5				12–16	Grey and light brown to grey SANDY SILT till, trace cobbles	
5–6				16–18	Grey SANDY SILT till, trace cobbles, slightly moist	
6–7				18–22	Grey SANDY SILT till, trace cobbles	
7–8				22–26	Red weathered SHALE	
8–9				26–30		
9–10				30–32	Spoon refusal at 9.14 m	



FISHER ENVIRONMENTAL LTD.

Log of Borehole: MW3

376, 390 Derry Road West
Mississauga, Ontario

Sheet: 3 of 10

Project #: 16-7880

G.S.Elevation: 197.28 m asl

Location:

Drill Method: Diedrich 50

Drilling Date: 20 September 2016

Sample Method: Split Spoon

Dates: Water Level 06 October 2016

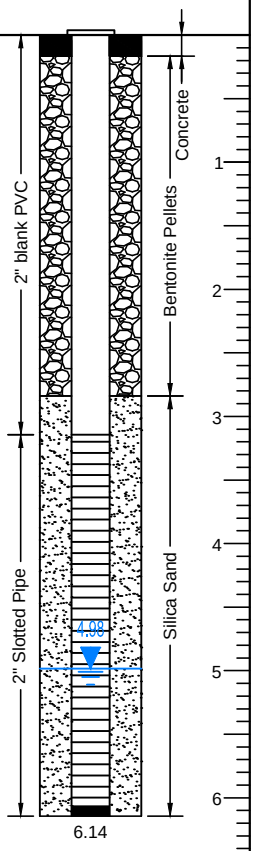
Borehole Diameter: 4"

Water Level: 4.98m

Logged By: HU

Checked By: KT

DEPTH (meters)	Sample No.	Blow Counts	H.C.Vapour (ppm)	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
					Dirt Surface	
0 to 1.52				0 to 5	FILL: Brown SANDY SILT, organics	
1.52 to 3.05				5 to 10	FILL: Grey and brown SANDY SILT, trace cobbles	
3.05 to 4.57				10 to 15	FILL: Grey, brown and light brown SANDY SILT, trace organics, rocks	
4.57 to 5.49				15 to 18	Brown SANDY SILT till, trace cobbles	
5.49 to 5.79				18 to 19	Brown to light brown and brown SANDY SILT till, cobbles	
5.79 to 6.10				19 to 20	Brown to grey SANDY SILT till, trace cobbles, slight moisture	
6.10 to 6.40				20 to 21	Grey SANDY SILT till, trace cobbles, slight moisture	
6.40 to 7.92				21 to 26	Grey SANDY SILT till, trace cobbles to red weathered SHALE	
7.92 to 9.14				26 to 30	Red weathered SHALE	
9.14				30	Spoon refusal at 9.14 m	



FISHER ENVIRONMENTAL LTD.

Log of Borehole: BH4

376, 390 Derry Road West
Mississauga, Ontario

Sheet: 4 of 10

Project #: 16-7880

G.S.Elevation: 197.29 m asl

Location:

Drill Method: Diedrich 50

Drilling Date: 20 September 2016

Sample Method: Split Spoon

Dates: Water Level

Borehole Diameter: 4"

Water Level:

Logged By: HU

Checked By: KT

DEPTH (meters)	Sample No.	Blow Counts	H.C.Vapour (ppm)	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
					Dirt Surface	
0 - 1.5				0 - 5	FILL: Brown and light brown SANDY SILT, trace organics	
1.5 - 2.1				5 - 7	FILL: Brown and light brown to grey and light brown SANDY SILT till	
2.1 - 3.0				7 - 10	Grey and light brown SANDY SILT till, trace cobbles	
3.0 - 4.6				10 - 15	Brown and light brown SANDY SILT till, trace cobbles	
4.6 - 5.2				15 - 17	Light brown and grey to grey SANDY SILT till, trace cobbles, slight moisture	
5.2 - 5.5				17 - 18	Grey SANDY SILT till, trace cobbles, slight moisture	
5.5 - 7.6				18 - 25	Red weathered SHALE, rocks	
7.6				25	Spoon refusal at 7.62 m	

FISHER ENVIRONMENTAL LTD.

Log of Borehole: BH5

376, 390 Derry Road West
Mississauga, Ontario

Sheet: 5 of 10

Project #: 16-7880

G.S.Elevation: 196.90 m asl

Location:

Drill Method: Diedrich 50

Drilling Date: 21 September 2016

Sample Method: Split Spoon

Dates: Water Level

Borehole Diameter: 4"

Water Level:

Logged By: HU

Checked By: KT

DEPTH (meters)	Sample No.	Blow Counts	H.C.Vapour (ppm)	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
					Dirt Surface	
0				0	FILL: Brown SANDY SILT, trace organics and cobbles	
1				2 / 4 / 1	Brown SANDY SILT, trace cobbles	
2				6 / 8 / 2	Brown to light brown and brown SANDY SILT till, trace cobbles	
3				10 / 12 / 3	Grey SANDY SILT till, trace cobbles, slight moisture	
4				14 / 16 / 4		
5				18 / 20 / 5	Red weathered SHALE, trace cobbles and rocks	
6				22 / 24 / 6		
7				26 / 28 / 7	Spoon refusal at 7.62 m	
8				30 / 32 / 8		
9				9		
10				10		

FISHER ENVIRONMENTAL LTD.

Log of Borehole: BH6
376, 390 Derry Road West
Mississauga, Ontario

Sheet: 6 of 10
Project #: 16-7880
G.S.Elevation: 198.80 m asl

Location:

Drill Method: Diedrich 50
Drilling Date: 21 September 2016

Sample Method: Split Spoon
Dates: Water Level

Borehole Diameter: 4"
Water Level:
Logged By: HU
Checked By: KT

DEPTH (meters)	Sample No.	Blow Counts	H.C.Vapour (ppm)	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
					Dirt Surface	
0 to 1				0 to 2	FILL: Dark grey to black SANDY SILT, cobbles, slight moisture	
1 to 2				2 to 4	FILL: Dark brown and light brown to light brown and grey SANDY SILT till, trace cobbles, slight moisture	
2 to 3				4 to 10	Grey and light brown SANDY SILT till, trace cobbles	
3 to 5				10 to 16	Brown and light brown SANDY SILT till, trace cobbles and rocks	
5 to 6				16 to 20	Grey and light brown SANDY SILT till, trace cobbles, moist with medium fine wet SAND seams	
6 to 7				20 to 22	Grey SANDY SILT till, trace cobbles, moist	
7 to 9				22 to 30	Red weathered SHALE	
9 to 10				30 to 32	Spoon refusal at 9.14 m	

FISHER ENVIRONMENTAL LTD.

Log of Borehole: MW7

376, 390 Derry Road West
Mississauga, Ontario

Sheet: 7 of 10

Project #: 16-7880

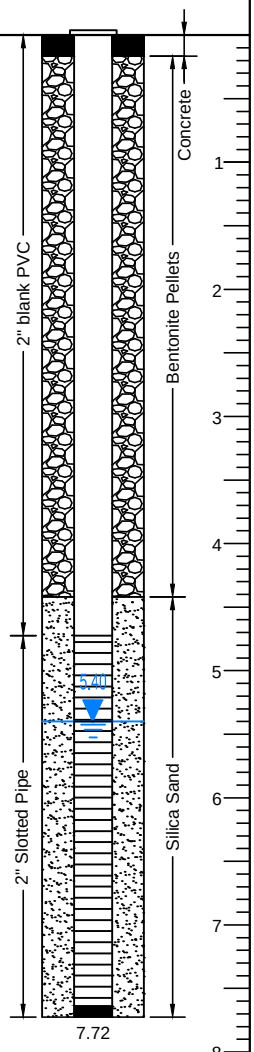
G.S.Elevation: 199.65 m asl

Location:

Drill Method:	Diedrich 50	Drilling Date:	21 September 2016
Sample Method:	Split Spoon	Dates: Water Level	06 October 2016
Borehole Diameter:	4"	Water Level: 5.40m	Logged By: HU / Checked By: KT

DEPTH (meters)	Sample No.	Blow Counts	H.C.Vapour (ppm)	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
0				0	Asphalt/dirt Surface	
0.6				2	FILL: Dark grey to brown SANDY SILT, trace cobbles, slight moisture	
1.5				5	Grey and light brown SANDY SILT till, trace cobbles, slight moisture	
3.0				10	Grey and light brown SANDY SILT till, trace cobbles and rocks	
4.6				15	Brown SANDY SILT till, trace cobbles	
6.1				20	Brown and light brown SANDY SILT till, trace cobbles	
7.6				25	Grey and light brown SANDY SILT till, trace cobbles, slight moisture	
9.1				30	Grey SANDY SILT till, trace cobbles, moist	
9.6				31.5	Red weathered SHALE	
9.75				32	End of borehole at 9.75m	

Monitoring Well Construction & Water Level (m)



FISHER ENVIRONMENTAL LTD.

Log of Borehole: MW8

376, 390 Derry Road West
Mississauga, Ontario

Sheet: 8 of 10

Project #: 16-7880

G.S.Elevation: 197.57 m asl

Location:

Drill Method: Diedrich 50

Drilling Date: 21 September 2016

Sample Method: Split Spoon

Dates: Water Level 06 October 2016

Borehole Diameter: 4"

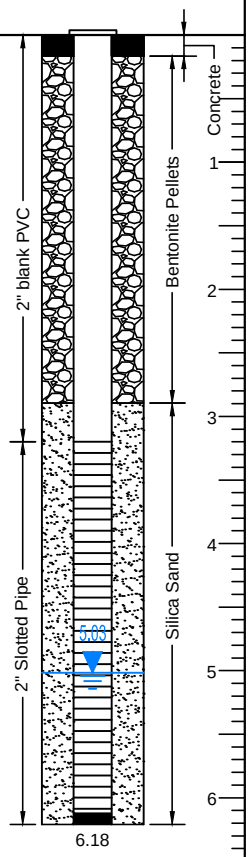
Water Level: 5.03m

Logged By: HU

Checked By: KT

DEPTH (meters)	Sample No.	Blow Counts	H.C.Vapour (ppm)	(feet) DEPTH (meters)	Materials Description
					Dirt Surface
0				0	FILL: Brown, black and dark grey SANDY SILT, trace glass, pieces of asphalt, moist
1				2 / 4 / 1	Light brown and grey SANDY SILT till, trace cobbles and rocks
2				6 / 2	Light brown and grey SANDY SILT till, trace cobbles
3				8 / 10 / 3	Brown and light brown SANDY SILT till, trace cobbles
4				12 / 14 / 4	Brown SILTY SAND till, trace cobbles
5				16 / 18 / 5	Grey and light brown SANDY SILT till, trace cobbles
6				20	Grey SANDY SILT till, rocks
7				22 / 24 / 7	Red weathered SHALE
8				26	Spoon refusal at 7.62 m
9				28 / 30 / 9	
10				32 / 10	

Monitoring Well Construction & Water Level (m)



FISHER ENVIRONMENTAL LTD.

Log of Borehole: MW9

376, 390 Derry Road West
Mississauga, Ontario

Sheet: 9 of 10

Project #: 16-7880

G.S.Elevation: 198.08 m asl

Location:

Drill Method: Diedrich 50

Drilling Date: 21 September 2016

Sample Method: Split Spoon

Dates: Water Level 06 October 2016

Borehole Diameter: 4"

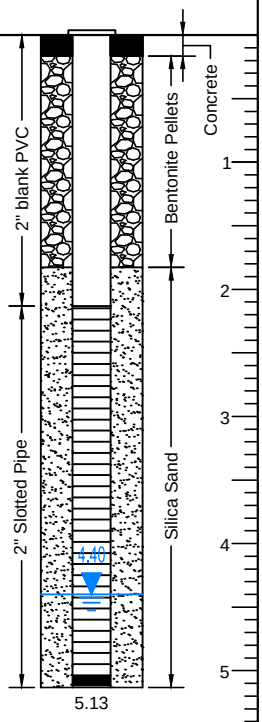
Water Level: 4.40m

Logged By: HU

Checked By: KT

DEPTH (meters)	Sample No.	Blow Counts	H.C.Vapour (ppm)	(feet) DEPTH (meters)	Materials Description
					Dirt Surface
0 to 1				0 to 2	FILL: Dark grey SANDY SILT, trace rock and organics, slight moisture
1 to 2				2 to 4	Grey and light brown SANDY SILT till, trace cobbles and rocks
2 to 3				4 to 10	Brown SANDY SILT till, trace cobbles
3 to 4				10 to 12	Brown and light brown SANDY SILT till, trace cobbles
4 to 5				12 to 16	Grey SANDY SILT till, trace cobbles, medium-fine brown SAND seam
5 to 6				16 to 18	Grey SANDY SILT till to red weathered SHALE
6 to 8				18 to 26	Red weathered SHALE
8 to 10				26 to 32	Spoon refusal at 7.62 m

Monitoring Well Construction & Water Level (m)



FISHER ENVIRONMENTAL LTD.

Log of Borehole: BH10
376, 390 Derry Road West
Mississauga, Ontario

Sheet: 10 of 10
Project #: 16-7880
G.S.Elevation: 199.45 m asl

Location:

Drill Method: Diedrich 50
Drilling Date: 22 September 2016

Sample Method: Split Spoon
Dates: Water Level

Borehole Diameter: 4"
Water Level:
Logged By: HU
Checked By: KT

DEPTH (meters)	Sample No.	Blow Counts	H.C.Vapour (ppm)	(feet) DEPTH (meters)	Materials Description	Monitoring Well Construction & Water Level (m)
					Dirt Surface	
0				0	FILL: Brown SAND and cobbles, moist	
1				2	Brown to dark grey SANDY SILT till, trace cobbles	
2				6		
3				10		
4				12	Grey SANDY SILT till	
5				16		
6				18	Grey SANDY SILT till, wet SAND seams, some CLAY	
7				22		
8				26		
9				28	Grey SANDY SILT till to red weathered SHALE	
10				32	End of borehole at 9.75m	

APPENDIX C – CERTIFICATES OF ANALYSIS

FISHER ENVIRONMENTAL LABORATORIES

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Client:	390 Derry Development Inc.	***F.E. Job #:***	16-4839
C/O:	Time Development Group Inc.	***Project Name:***	Phase II ESA
Address:	206-7100 Woodbine Ave	***Project ID:***	FE-P-16-7880-B
	Markham, ON	***Date Sampled:***	20, 21, 22-Sep-16
	L3R 5J2	***Date Received:***	22-Sep-16
Tel.:		***Date Reported:***	30-Sep-16
Email:		***Location:***	376, 390 Derry Road West
Attn.:	Mike Wang		Mississauga, ON

Certificate of Analysis

Analyses	Matrix	Quantity	Date Extracted	Date Analyzed	Lab SOP	Method Reference
Metals	Soil	15	27-Sep-16	28-Sep-16	Metals F-18	SM 3125-B
PHCs (F1 & BTEX)	Soil	15	23-Sep-16	27-Sep-16	PHCs F-7	CCME CWS
PHCs (F2 - F4)	Soil	15	23-Sep-16	29-Sep-16	PHCs F-7	CCME CWS
PAHs	Soil	15	27-Sep-16	28-Sep-16	PAHs F-4	SM 6410B
pH	Soil	4	26-Sep-16	26-Sep-16	pH-EC-SAR F-16	EPA 9045D
EC	Soil	2	26-Sep-16	26-Sep-16	pH-EC-SAR F-16	EPA 9050A
SAR	Soil	2	26-Sep-16	26-Sep-16	pH-EC-SAR F-16	EPA 6010C
Grain Size	Soil	2	N/A	28-Sep-16	Grain Size F-28	ASTM D6913-04
Moisture Content	Soil	15	N/A	28-Sep-16	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

Results related only to the items tested

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHS, pH, EC, SAR, Grain Size
Sample Description:	18 Soil Samples

Parameter	***16-4839-1*** MW1 0.76-1.37m	***16-4839-2*** MW1 6.10-6.71m	***16-4839-3*** MW2 0.00-0.61m	***16-4839-4*** MW2 4.57-5.18m	***16-4839-5*** MW3 0.00-0.61m	**Soil Standards** [1]
	Concentration (µg/g)					
Metals in Soil						
Antimony	<1	<1	<1	<1	<1	7.5
Arsenic	<1	<1	<1	<1	<1	18
Barium	44	17	47	30	62	390
Beryllium	<2	<2	<2	<2	<2	(5) 4
Boron	<5	<5	<5	5.6	<5	120
Cadmium	<1	<1	<1	<1	<1	1.2
Chromium	16	14	17	23	19	160
Cobalt	10	8.9	10	12	10	22
Copper	24	19	17	23	20	(180) 140
Lead	<10	<10	15	<10	23	120
Molybdenum	<2	<2	<2	<2	<2	6.9
Nickel	20	18	14	25	17	(130) 100
Selenium	<1	<1	<1	<1	<1	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	22	20	24	23	31	86
Zinc	58	44	60	49	82	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.

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHS, pH, EC, SAR, Grain Size
Sample Description:	18 Soil Samples

Parameter	***16-4839-6*** MW3 3.81-4.42m	***16-4839-7*** BH4 0.00-0.61m	***16-4839-8*** BH4 (Dupe) 0.00-0.61m	***16-4839-10*** BH5 0.00-0.61m	***16-4839-11*** BH6 0.00-0.61m	**Soil Standards** [1]
	Concentration (µg/g)					
Metals in Soil						
Antimony	<1	1.2	<1	<1	<1	7.5
Arsenic	<1	1.9	<1	<1	1.1	18
Barium	32	58	64	54	87	390
Beryllium	<2	<2	<2	<2	<2	(5) 4
Boron	5.5	<5	<5	<5	<5	120
Cadmium	<1	<1	<1	<1	<1	1.2
Chromium	20	16	18	15	21	160
Cobalt	12	8.5	9.0	9.5	7.5	22
Copper	20	20	12	15	19	(180) 140
Lead	<10	16	14	12	22	120
Molybdenum	<2	<2	<2	<2	<2	6.9
Nickel	23	14	12	18	16	(130) 100
Selenium	<1	<1	<1	<1	<1	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	1.2	<1	1.4	23
Vanadium	19	24	30	26	31	86
Zinc	53	62	45	48	67	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.

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHS, pH, EC, SAR, Grain Size
Sample Description:	18 Soil Samples

Parameter	***16-4839-12*** MW7 0.00-0.61m	***16-4839-13*** MW7 4.57-5.18m	***16-4839-14*** MW8 0.00-0.61m	***16-4839-15*** MW9 0.00-0.61m	***16-4839-17*** BH10 0.00-0.61m	**Soil Standards** [1]
	Concentration (µg/g)					
Metals in Soil						
Antimony	<1	<1	<1	<1	<1	7.5
Arsenic	<1	<1	<1	1.5	<1	18
Barium	45	44	58	58	36	390
Beryllium	<2	<2	<2	<2	<2	(5) 4
Boron	6.0	7.2	<5	<5	5.0	120
Cadmium	<1	<1	<1	<1	<1	1.2
Chromium	15	14	14	16	13	160
Cobalt	8.6	8.2	7.7	8.9	7.1	22
Copper	17	15	18	18	14	(180) 140
Lead	19	<10	12	19	15	120
Molybdenum	<2	<2	<2	<2	<2	6.9
Nickel	16	16	16	16	14	(130) 100
Selenium	<1	<1	<1	<1	<1	2.4
Silver	<0.5	<0.5	<0.5	<0.5	<0.5	(25) 20
Thallium	<1	<1	<1	<1	<1	1
Uranium	<1	1.2	<1	<1	<1	23
Vanadium	25	21	36	26	23	86
Zinc	73	44	47	68	57	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	LCS	AR	MS	AR
	(µg/g)		Recovery (%)		Recovery (%)	
Metals in Soil						
Antimony	<1	1	99	80-120	105	70-130
Arsenic	<1	1	105	80-120	106	70-130
Barium	<5	5	96	80-120	98	70-130
Beryllium	<2	2	99	80-120	100	70-130
Boron	<5	5	100	80-120	95	70-130
Cadmium	<1	1	108	80-120	105	70-130
Chromium	<5	5	98	80-120	92	70-130
Cobalt	<2	2	97	80-120	92	70-130
Copper	<5	5	84	80-120	95	70-130
Lead	<10	10	89	80-120	88	70-130
Molybdenum	<2	2	109	80-120	110	70-130
Nickel	<5	5	109	80-120	87	70-130
Selenium	<1	1	97	80-120	126	70-130
Silver	<0.5	0.5	108	80-120	102	70-130
Thallium	<1	1	82	80-120	107	70-130
Uranium	<1	1	106	80-120	90	70-130
Vanadium	<10	10	102	80-120	87	70-130
Zinc	<30	30	109	80-120	103	70-130

LEGEND:

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

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
Metals in Soil						
Antimony	0.0	0-30				
Arsenic	0.0	0-30				
Barium	3.2	0-30				
Beryllium	0.0	0-30				
Boron	0.0	0-30				
Cadmium	0.0	0-30				
Chromium	11	0-30				
Cobalt	6.1	0-30				
Copper	15	0-30				
Lead	0.0	0-30				
Molybdenum	0.0	0-30				
Nickel	4.7	0-30				
Selenium	0.0	0-30				
Silver	0.0	0-30				
Thallium	0.0	0-30				
Uranium	0.0	0-30				
Vanadium	9.2	0-30				
Zinc	4.2	0-30				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHS, pH, EC, SAR, Grain Size
Sample Description:	18 Soil Samples

Parameter	***16-4839-1*** MW1 0.76-1.37m	***16-4839-2*** MW1 6.10-6.71m	***16-4839-3*** MW2 0.00-0.61m	***16-4839-4*** MW2 4.57-5.18m	***16-4839-5*** MW3 0.00-0.61m	**Soil Standards** [1]
	Concentration (µg/g)					
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 (F_1-F_4) 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	93	101	131	104	110	60-140
Toluene-d8	102	106	138	109	108	60-140
4-Bromofluorobenzene	91	105	130	98	101	60-140

F_{4G} (gravimetric heavy hydrocarbons) cannot be added to the C_6 to C_{50} 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, EC, SAR, Grain Size
Sample Description:	18 Soil Samples

Parameter	***16-4839-6*** MW3 3.81-4.42m	***16-4839-7*** BH4 0.00-0.61m	***16-4839-8*** BH4 (Dupe) 0.00-0.61m	***16-4839-10*** BH5 0.00-0.61m	***16-4839-11*** BH6 0.00-0.61m	**Soil Standards** [1]
	Concentration (µg/g)					
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 (F_1-F_4) 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	96	114	110	81	134	60-140
Toluene-d8	94	117	108	81	133	60-140
4-Bromofluorobenzene	87	130	101	92	119	60-140

F_{4G} (gravimetric heavy hydrocarbons) cannot be added to the C_6 to C_{50} 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, EC, SAR, Grain Size
Sample Description:	18 Soil Samples

Parameter	***16-4839-12*** MW7 0.00-0.61m	***16-4839-13*** MW7 4.57-5.18m	***16-4839-14*** MW8 0.00-0.61m	***16-4839-15*** MW9 0.00-0.61m	***16-4839-17*** BH10 0.00-0.61m	**Soil Standards** [1]
	Concentration (µg/g)					
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 (F_1-F_4) 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	110	(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	78	68	114	88	139	60-140
Toluene-d8	77	66	114	89	138	60-140
4-Bromofluorobenzene	86	76	123	96	121	60-140

F_{4G} (gravimetric heavy hydrocarbons) cannot be added to the C_6 to C_{50} 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 (%)	
BTEX in Soil						
Benzene	<0.02	0.02	110	60-130	90	50-140
Toluene	<0.2	0.2	91	60-130	126	50-140
Ethylbenzene	<0.05	0.05	108	60-130	135	50-140
Xylenes	<0.05	0.05	107	60-130	136	50-140
PHCs (F_1-F_4) in Soil						
$F1_{-BTEX}$ (C_6 - C_{10})	<10	10	104	80-120	126	60-140
F2 (C_{10} - C_{16})	<10	10	95	80-120	115	60-140
F3 (C_{16} - C_{34})	<50	50	88	80-120	102	60-140
F4 (C_{34}-C_{50})	<50	50	97	80-120	106	60-140
Surrogates						
Parameter	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**
1,2-Dichloroethane-d4	96	60-140	76	60-140	76	60-140
Toluene-d8	106	60-140	74	60-140	112	60-140
4-Bromofluorobenzene	109	60-140	79	60-140	67	60-140

LEGEND:

RL - Reporting Limit

LCS - Laboratory Control Sample

MS - Matrix Spike

AR - Acceptable Range

BTEX should be subtracted from F_1, Naphthalene from F_2 and selected PAHs from F_3 if BTEX/PAHs are analyzed, then report $F_{1\text{-BTEX}}$, $F_{2\text{-Naph.}}$ and $F_{3\text{-PAH}}$. nC_{50} response factor was within 70% of nC_{10}+nC_{16}+nC_{34} average.

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
BTEX in Soil						
Benzene	10	0-50				
Toluene	4.0	0-50				
Ethylbenzene	9.0	0-50				
Xylenes	6.0	0-50				
PHCs (F_1-F_4) in Soil						
$F1_{-BTEX}$ (C_6 - C_{10})	8.6	0-30				
F2 (C_{10} - C_{16})	7.0	0-30				
F3 (C_{16} - C_{34})	8.0	0-30				
F4 (C_{34}-C_{50})	11	0-30				
Surrogates						
Parameter	**Recovery (%)**	**AR**				
1,2-Dichloroethane-d4	130	60-140				
Toluene-d8	86	60-140				
4-Bromofluorobenzene	81	60-140				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHS, pH, EC, SAR, Grain Size
Sample Description:	18 Soil Samples

Parameter	***16-4839-1*** MW1 0.76-1.37m	***16-4839-2*** MW1 6.10-6.71m	***16-4839-3*** MW2 0.00-0.61m	***16-4839-4*** MW2 4.57-5.18m	***16-4839-5*** MW3 0.00-0.61m	**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	77	87	101	78	67	50-140
Phenanthrene-d10	90	82	82	83	76	50-140
Chrysene-d12	80	81	85	82	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; 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, EC, SAR, Grain Size
Sample Description:	18 Soil Samples

Parameter	***16-4839-6*** MW3 3.81-4.42m	***16-4839-7*** BH4 0.00-0.61m	***16-4839-8*** BH4 (Dupe) 0.00-0.61m	***16-4839-10*** BH5 0.00-0.61m	***16-4839-11*** BH6 0.00-0.61m	**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	106	84	94	87	94	50-140
Phenanthrene-d10	75	88	70	73	63	50-140
Chrysene-d12	79	863	91	86	72	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, EC, SAR, Grain Size
Sample Description:	18 Soil Samples

Parameter	***16-4839-12*** MW7 0.00-0.61m	***16-4839-13*** MW7 4.57-5.18m	***16-4839-14*** MW8 0.00-0.61m	***16-4839-15*** MW9 0.00-0.61m	***16-4839-17*** BH10 0.00-0.61m	**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	0.09	<0.05	0.11	<0.05	<0.05	0.69
Pyrene	0.07	<0.05	0.11	<0.05	<0.05	78
Benzo [a] anthracene	<0.05	<0.05	0.08	<0.05	<0.05	(0.63) 0.5
Chrysene	0.05	<0.05	0.10	<0.05	<0.05	(7.8) 7
Benzo [b] fluoranthene	0.06	<0.05	0.05	<0.05	<0.05	0.78
Benzo [k] fluoranthene	0.07	<0.05	0.06	<0.05	<0.05	0.78
Benzo [a] pyrene	0.07	<0.05	0.06	<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	88	95	87	105	77	50-140
Phenanthrene-d10	65	83	69	80	76	50-140
Chrysene-d12	73	90	81	88	89	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	121	50-140	72	50-140
2-Methylnaphthalene	<0.05	0.05	103	50-140	118	50-140
1-Methylnaphthalene	<0.05	0.05	113	50-140	87	50-140
Acenaphthylene	<0.05	0.05	117	50-140	77	50-140
Acenaphthene	<0.05	0.05	105	50-140	81	50-140
Fluorene	<0.05	0.05	91	50-140	117	50-140
Phenanthrene	<0.05	0.05	135	50-140	72	50-140
Anthracene	<0.05	0.05	116	50-140	74	50-140
Fluoranthene	<0.05	0.05	105	50-140	71	50-140
Pyrene	<0.05	0.05	139	50-140	69	50-140
Benzo [a] anthracene	<0.05	0.05	121	50-140	72	50-140
Chrysene	<0.05	0.05	124	50-140	71	50-140
Benzo [b] fluoranthene	<0.05	0.05	104	50-140	101	50-140
Benzo [k] fluoranthene	<0.05	0.05	103	50-140	106	50-140
Benzo [a] pyrene	<0.05	0.05	124	50-140	110	50-140
Indeno [1,2,3-cd] pyrene	<0.1	0.1	105	50-140	109	50-140
Dibenzo [a,h] anthracene	<0.1	0.1	102	50-140	105	50-140
Benzo [g,h,i] perylene	<0.1	0.1	113	50-140	98	50-140
Surrogates						
Parameter	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**
Naphthalene-d8	95	50-140	63	50-140	68	50-140
Phenanthrene-d10	93	50-140	61	50-140	63	50-140
Chrysene-d12	91	50-140	78	50-140	90	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	82	50-140				
Chrysene-d12	106	50-140				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHS, pH, EC, SAR, Grain Size
Sample Description:	18 Soil Samples

Parameter	***16-4839-2*** MW1 6.10-6.71m	***16-4839-9*** BH4 1.52-2.13m	***16-4839-16*** MW9 0.76-1.37m	***16-4839-18*** BH10 3.05-3.66m		**Soil Standards** *
pH *(no unit)*	7.92	7.60	7.39	7.55		(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**		
pH *(no unit)*	7.15	7.00-7.40	0.03	<0.3		

LEGEND:
LCS - Laboratory Control Sample
AR - Acceptable Range

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHS, pH, EC, SAR, Grain Size
Sample Description:	18 Soil Samples

Parameter	***16-4839-9*** BH4 1.52-2.13m	***16-4839-16*** MW9 0.76-1.37m				**Soil Standards** [1]
EC *(mS/cm)*	0.48	0.22				0.7

[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).

QA/QC Report

Parameter	**Blank**	**RL**	**LCS**	**AR**	**Duplicate**	**AR**
			Recovery (%)		**RPD (%)**	
EC *(mS/cm)*	<0.01	0.01	107	90-110	1.4	0-10

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

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHS, pH, EC, SAR, Grain Size
Sample Description:	18 Soil Samples

Parameter	***16-4839-9*** BH4 1.52-2.13m	***16-4839-16*** MW9 0.76-1.37m				**Soil Standards** [1]
SAR *(no unit)*	0.53	0.29				5

[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).

QA/QC Report

Parameter	**LCS**	**AR**	**Duplicate**	**AR**		
			RPD (%)			
SAR *(no unit)*	0.43	0.35-0.55	0.8	0-30		

LEGEND:
LCS - Laboratory Control Sample
AR - Acceptable Range
RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHS, pH, EC, SAR, Grain Size
Sample Description:	18 Soil Samples

Parameter	***16-4839-9*** BH4 1.52-2.13m	***16-4839-18*** BH10 3.05-3.66m				
Grain Size in Soil						
Total Sample, g	22.38	22.28				
Coarse Fraction >75µm, g	4.23	8.29				
Fine Fraction <75µm, g	18.15	13.98				
Coarse Fraction >75µm, %	18.9	37.2				
Fine Fraction <75µm, %	81.1	62.8				
Comments	Medium and fine textured	Medium and fine textured				

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHS, pH, EC, SAR, Grain Size
Sample Description:	18 Soil Samples

Parameter	***16-4839-1*** MW1 0.76-1.37m	***16-4839-2*** MW1 6.10-6.71m	***16-4839-3*** MW2 0.00-0.61m	***16-4839-4*** MW2 4.57-5.18m	***16-4839-5*** MW3 0.00-0.61m	***16-4839-6*** MW3 3.81-4.42m
Moisture Content (%)	11	16	12	14	12	14

Parameter	***16-4839-7*** BH4 0.00-0.61m	***16-4839-8*** BH4 (Dupe) 0.00-0.61m	***16-4839-10*** BH5 0.00-0.61m	***16-4839-11*** BH6 0.00-0.61m	***16-4839-12*** MW7 0.00-0.61m	***16-4839-13*** MW7 4.57-5.18m
Moisture Content (%)	10	12	9.8	13	14	15

Parameter	***16-4839-14*** MW8 0.00-0.61m	***16-4839-15*** MW9 0.00-0.61m	***16-4839-17*** BH10 0.00-0.61m			
Moisture Content (%)	15	14	17			

QA/QC Report

Parameter	**Blank**	**RL**	**LCS**	**AR**	**Duplicate**	**AR**
			Recovery (%)		**RPD (%)**	
Moisture Content (%)	<0.1	0.1	99	70-130	3.6	0-20

LEGEND:

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

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Client: 390 Derry Development Inc.
C/O: Time Development Group Inc.
Address: 206-7100 Woodbine Ave
Markham, ON
L3R 5J2
Tel.:
Email:
Attn.: Mike Wang

F.E. Job #: 16-4947
Project Name: Phase II ESA
Project ID: FE-P-16-7880-B
Date Sampled: 06-Oct-16
Date Received: 07-Oct-16
Date Reported: 04-Nov-16
Location: 376, 390 Derry Road West
Mississauga, ON

Certificate of Analysis

Analyses	Matrix	Quantity	Date Extracted	Date Analyzed	Lab SOP	Method Reference
Metals	Water	7	N/A	03-Nov-16	Metals F-1	SM 3120-B
PHCs (F1 & BTEX)	Water	8	N/A	07-Oct-16	PHCs F-7	CCME CWS
PHCs (F2 - F4)	Water	5	07-Oct-16	12-Oct-16	PHCs F-7	CCME CWS
PAHs	Water	5	07-Oct-16	07-Oct-16	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

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
CHARTERED
Ronggen (Roger) Lin
CHEMIST

Results related only to the items tested

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs
Sample Description:	8 Water Samples

Parameter	***16-4947-1*** MW1	***16-4947-2*** MW2	***16-4947-3*** MW3	***16-4947-4*** MW7	***16-4947-5*** MW7 Duplicate	**Ground Water Standards [1]**
	Concentration (µ g/L)					
Metals in Water						
Antimony	0.58	0.67	1.1	1.0	0.88	6
Arsenic	6.5	5.2	3.0	3.6	5.4	25
Barium	65	59	47	79	71	1,000
Beryllium	<0.5	<0.5	<0.5	<0.5	<0.5	4
Boron	663	333	783	631	728	5,000
Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	2.7
Chromium	13	<10	11	<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	45	44	56	53	52	70
Nickel	5.4	3.0	2.7	1.5	1.3	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	**32**	**21**	**28**	6.8	7.1	20
Vanadium	4.4	3.6	4.8	3.4	2.5	6.2
Zinc	5.7	<5	5.7	<5	6.8	1,100

< result obtained was below RL (Reporting Limit).

Bold: Result exceeds limit noted in Ground Water Standards.

[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.

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs
Sample Description:	8 Water Samples

Parameter	***16-4947-6*** MW8	***16-4947-7*** MW9				**Ground Water Standards** [1]
	Concentration (µ g/L)					
Metals in Water						
Antimony	<0.5	0.52				6
Arsenic	12	13				25
Barium	93	63				1,000
Beryllium	<0.5	<0.5				4
Boron	473	709				5,000
Cadmium	<0.5	<0.5				2.7
Chromium	<10	<10				50
Cobalt	1.0	<1				3.8
Copper	<5	<5				87
Lead	<1	<1				10
Molybdenum	56	51				70
Nickel	5.4	2.1				100
Selenium	<5	<5				10
Silver	<0.3	<0.3				1.5
Thallium	<0.5	<0.5				2
Uranium	**24**	17				20
Vanadium	2.6	3.2				6.2
Zinc	<5	<5				1,100

< result obtained was below RL (Reporting Limit).

Bold: Result exceeds limit noted in Ground Water Standards.

[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.

QA/QC Report

Parameter	Blank	RL	LCS	AR	MS	AR
	(µg/L)		Recovery (%)		Recovery (%)	
Metals in Water						
Antimony	<0.5	0.5	94	80-120	104	70-130
Arsenic	<1	1	101	80-120	124	70-130
Barium	<2	2	86	80-120	85	70-130
Beryllium	<0.5	0.5	86	80-120	72	70-130
Boron	<10	10	102	80-120	100	70-130
Cadmium	<0.5	0.5	94	80-120	90	70-130
Chromium	<10	10	102	80-120	79	70-130
Cobalt	<1	1	100	80-120	78	70-130
Copper	<5	5	89	80-120	83	70-130
Lead	<1	1	102	80-120	95	70-130
Molybdenum	<0.5	0.5	102	80-120	88	70-130
Nickel	<1	1	98	80-120	75	70-130
Selenium	<5	5	97	80-120	98	70-130
Silver	<0.3	0.3	97	80-120	78	70-130
Thallium	<0.5	0.5	111	80-120	95	70-130
Uranium	<2	2	116	80-120	120	70-130
Vanadium	<0.5	0.5	104	80-120	80	70-130
Zinc	<5	5	98	80-120	76	70-130

LEGEND:

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

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
Metals in Water						
Antimony	5.0	0-20				
Arsenic	0.8	0-20				
Barium	2.0	0-20				
Beryllium	0.0	0-20				
Boron	0.9	0-20				
Cadmium	0.0	0-20				
Chromium	19	0-20				
Cobalt	0.0	0-20				
Copper	0.0	0-20				
Lead	0.0	0-20				
Molybdenum	3.4	0-20				
Nickel	12	0-20				
Selenium	0.0	0-20				
Silver	0.0	0-20				
Thallium	0.0	0-20				
Uranium	14	0-20				
Vanadium	17	0-20				
Zinc	9.2	0-20				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs
Sample Description:	8 Water Samples

Parameter	***16-4947-1*** MW1	***16-4947-2*** MW2	***16-4947-4*** MW7	***16-4947-5*** MW7 Duplicate	***16-4947-6*** MW8	**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	124	115	88	88	81	60-140
1,4-Difluorobenzene	104	111	90	90	83	60-140
1,4-Dichlorobutane	122	112	86	86	79	60-140

F_{4G} (gravimetric heavy hydrocarbons) cannot be added to the C_6 to C_{50} 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.

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs
Sample Description:	8 Water Samples

Parameter	***16-4947-3*** MW3	***16-4947-7*** MW9	***16-4947-8*** Trip Blank			**Ground Water Standards [1]**
	Concentration (µ g/L)					
BTEX in Water						
Benzene	<0.5	<0.5	<0.5			5
Toluene	<0.5	<0.5	<0.5			24
Ethylbenzene	<0.5	<0.5	<0.5			2.4
Xylenes	<0.5	<0.5	<0.5			300
Surrogate Recovery (%)						
Bromochloromethane	93	104	81			60-140
1,4-Difluorobenzene	91	105	94			60-140
1,4-Dichlorobutane	101	102	92			60-140

F_{4G} (gravimetric heavy hydrocarbons) cannot be added to the C_6 to C_{50} 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.

QA/QC Report

Parameter	Blank	RL	LCS	AR	MS	AR
	(ug/L)		Recovery (%)		Recovery (%)	
BTEX in Water						
Benzene	<0.5	0.5	91	60-130	106	50-140
Toluene	<0.5	0.5	108	60-130	114	50-140
Ethylbenzene	<0.5	0.5	93	60-130	107	50-140
Xylenes	<0.5	0.5	83	60-130	105	50-140
PHC (F1-F4) in Water						
$F1_{-BTEX}$ (C_6 - C_{10})	<25	25	108	60-140	97	60-140
F2 (C_{10} - C_{16})	<100	100	92	60-140	82	60-140
F3 (C_{16} - C_{34})	<100	100	97	60-140	101	60-140
F4 (>C_{34})	<100	100	102	60-140	67	60-140
Surrogates						
Parameter	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**
Bromochloromethane	124	60-140	107	60-140	74	60-140
1,4-Difluorobenzene	115	60-140	103	60-140	86	60-140
1,4-Dichlorobutane	120	60-140	104	60-140	90	60-140

LEGEND:

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

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
BTEX in Water						
Benzene	14	0-30				
Toluene	17	0-30				
Ethylbenzene	18	0-30				
Xylenes	15	0-30				
PHC (F1-F4) in Water						
$F1_{-BTEX}$ (C_6 - C_{10})	14	0-30				
F2 (C_{10} - C_{16})	10	0-30				
F3 (C_{16} - C_{34})	6.0	0-30				
F4 (>C_{34})	7.0	0-30				
Surrogates						
Parameter	**Recovery (%)**	**AR**				
Bromochloromethane	123	60-140				
1,4-Difluorobenzene	114	60-140				
1,4-Dichlorobutane	121	60-140				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, PHCs, PAHs
Sample Description:	8 Water Samples

Parameter	***16-4947-1*** MW1	***16-4947-2*** MW2	***16-4947-4*** MW7	***16-4947-5*** MW7 Duplicate	***16-4947-6*** MW8	**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	
Acenaphthylene	<1	<1	<1	<1	<1	1
Acenaphthene	<1	<1	<1	<1	<1	4.1
Fluorene	<0.5	<0.5	<0.5	<0.5	<0.5	120
Phenanthrene	<0.1	<0.1	<0.1	<0.1	<0.1	1
Anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	2.4
Fluoranthene	<0.4	<0.4	<0.4	<0.4	<0.4	0.41
Pyrene	<0.2	<0.2	<0.2	<0.2	<0.2	4.1
Benzo [a] anthracene	<0.2	<0.2	<0.2	<0.2	<0.2	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	0.1
Benzo [a] pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
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	50	51	53	57	57	50-140
Phenanthrene-d10	87	93	73	76	71	50-140
Chrysene-d12	83	86	91	87	95	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.

QA/QC Report

Parameter	Blank	RL	LCS	AR	MS	AR
	(µg/L)		Recovery (%)		Recovery (%)	
PAHs in Water						
Naphthalene	<2	2	74	50-140	82	50-140
2-Methylnaphthalene	<1	1	62	50-140	74	50-140
1-Methylnaphthalene	<1	1	51	50-140	51	50-140
Acenaphthylene	<1	1	93	50-140	93	50-140
Acenaphthene	<1	1	69	50-140	75	50-140
Fluorene	<0.5	0.5	52	50-140	75	50-140
Phenanthrene	<0.1	0.1	99	50-140	98	50-140
Anthracene	<0.1	0.1	103	50-140	90	50-140
Fluoranthene	<0.4	0.4	124	50-140	94	50-140
Pyrene	<0.2	0.2	117	50-140	116	50-140
Benzo [a] anthracene	<0.2	0.2	80	50-140	85	50-140
Chrysene	<0.1	0.1	85	50-140	82	50-140
Benzo [b] fluoranthene	<0.1	0.1	85	50-140	86	50-140
Benzo [k] fluoranthene	<0.1	0.1	88	50-140	82	50-140
Benzo [a] pyrene	<0.01	0.01	79	50-140	82	50-140
Indeno [1,2,3-cd] pyrene	<0.2	0.2	67	50-140	64	50-140
Dibenzo [a,h] anthracene	<0.2	0.2	54	50-140	58	50-140
Benzo [g,h,i] perylene	<0.2	0.2	50	50-140	50	50-140
Surrogates						
Parameter	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**
Naphthalene-d8	56	50-140	50	50-140	50	50-140
Phenanthrene-d10	75	50-140	94	50-140	103	50-140
Chrysene-d12	64	50-140	89	50-140	97	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	3.9	0-30				
2-Methylnaphthalene	7.7	0-30				
1-Methylnaphthalene	2.6	0-30				
Acenaphthylene	2.0	0-30				
Acenaphthene	13	0-30				
Fluorene	7.7	0-30				
Phenanthrene	2.4	0-30				
Anthracene	2.2	0-30				
Fluoranthene	1.8	0-30				
Pyrene	6.7	0-30				
Benzo [a] anthracene	1.7	0-30				
Chrysene	7.0	0-30				
Benzo [b] fluoranthene	7.0	0-30				
Benzo [k] fluoranthene	1.6	0-30				
Benzo [a] pyrene	1.0	0-30				
Indeno [1,2,3-cd] pyrene	1.0	0-30				
Dibenzo [a,h] anthracene	7.2	0-30				
Benzo [g,h,i] perylene	0.5	0-30				
Surrogates						
Parameter	**Recovery (%)**	**AR**				
Naphthalene-d8	50	50-140				
Phenanthrene-d10	92	50-140				
Chrysene-d12	96	50-140				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference

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ATTN: WALTER WANG
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MARKHAM ON N/A

Date Received: 27-SEP-16
Report Date: 03-OCT-16 09:30 (MT)
Version: FINAL

Client Phone: 905-475-7755

Certificate of Analysis

Lab Work Order #: L1835145

Project P.O. #: NOT SUBMITTED
Job Reference: 16-4839
C of C Numbers: 14-467234
Legal Site Desc:

Danielle Walker
Account Manager

Sample Details Grouping / Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L1835145-1 16-4839-3 MW2 0'-2' Sampled By: CLIENT on 20-SEP-16 Matrix: SOIL						#1			
Metals									
Boron (B), Hot Water Ext.	0.75		0.10	ug/g	30-SEP-16	1.5			
L1835145-2 16-4839-7 BH4 0'-2' Sampled By: CLIENT on 20-SEP-16 Matrix: SOIL						#1			
Metals									
Boron (B), Hot Water Ext.	0.40		0.10	ug/g	30-SEP-16	1.5			
L1835145-3 16-4839-8 BH4 0'-2' DUP Sampled By: CLIENT on 20-SEP-16 Matrix: SOIL						#1			
Metals									
Boron (B), Hot Water Ext.	0.16		0.10	ug/g	30-SEP-16	1.5			
L1835145-4 16-4839-10 BH5 0'-2' Sampled By: CLIENT on 21-SEP-16 Matrix: SOIL						#1			
Metals									
Boron (B), Hot Water Ext.	0.19		0.10	ug/g	30-SEP-16	1.5			
L1835145-5 16-4839-11 BH6 0'-2' Sampled By: CLIENT on 21-SEP-16 Matrix: SOIL						#1			
Metals									
Boron (B), Hot Water Ext.	0.84		0.10	ug/g	30-SEP-16	1.5			
L1835145-6 16-4839-12 MW7 0'-2' Sampled By: CLIENT on 21-SEP-16 Matrix: SOIL						#1			
Metals									
Boron (B), Hot Water Ext.	0.53		0.10	ug/g	30-SEP-16	1.5			
L1835145-7 16-4839-17 BH10 0'-2' Sampled By: CLIENT on 22-SEP-16 Matrix: SOIL						#1			
Metals									
Boron (B), Hot Water Ext.	0.52		0.10	ug/g	30-SEP-16	1.5			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T3-Soil-Res/Park/Inst. Property Use (Coarse)

#1: T3-Soil-Res/Park/Inst. Property Use (Coarse)

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

14-467234

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information.

Quality Control Report

Workorder: L1835145 Report Date: 03-OCT-16

Client: FISHER ENVIRONMENTAL
15-400 ESNA PARK DRIVE
MARKHAM ON N/A
Contact: WALTER WANG

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R3561696								
WG2400488-4 DUP		**L1835145-1**						
Boron (B), Hot Water Ext.		0.75	0.75		ug/g	0.0	30	30-SEP-16
WG2400488-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			89.6		%		70-130	30-SEP-16
WG2400488-3 LCS								
Boron (B), Hot Water Ext.			96.9		%		70-130	30-SEP-16
WG2400488-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	30-SEP-16

Quality Control Report

Workorder: L1835145 Report Date: 03-OCT-16

Client: FISHER ENVIRONMENTAL
15-400 ESNA PARK DRIVE
MARKHAM ON N/A
Contact: WALTER WANG

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1835145-COFC

COC Number: 14 - 467234

Page 1 of 1

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	Fisher Environmental Ltd.	Select Report Format:	☑ PDF ☐ EXCEL ☑ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3pm)
Contact:	Walter Wang	Quality Control (QC) Report with Report	☑ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	400 Esna park Dr. unit 15	☑ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:		Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax	walter@fisherLabs.ca	Specify Date Required for E2,E or P:
		Email 2		

Invoice To		Invoice Distribution	
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ Yes ☐ No		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:		Approver ID:	Cost Center:
Job #:	16-4839	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:	Sep27D	Location:	
ALS Lab Work Order # (lab use only)	L1835145	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Boron (Hot Water Soluble)	Number of Containers
1	16-4839-3 MW2 0'-2'	20-09-16		Soil	✓	1
2	16-4839-7 BH4 0'-2'	"		"	✓	1
3	16-4839-8 BH4 0'-2' Dupe	"		"	✓	1
4	16-4839-10 BH5 0'-2'	21-09-16		"	✓	1
5	16-4839-11 BH6 0'-2'	"		"	✓	1
6	16-4839-12 MW7 0'-2'	"		"	✓	1
7	16-4839-17 BH10 0'-2'	22-09-16		"	✓	1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	MOE Reg. 153 – Table 3, Residential
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐	☒ Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
					21.7

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Walter Wang	Sep 27/16	1:30 pm				Wayne Smith	27-SEP-16	18:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

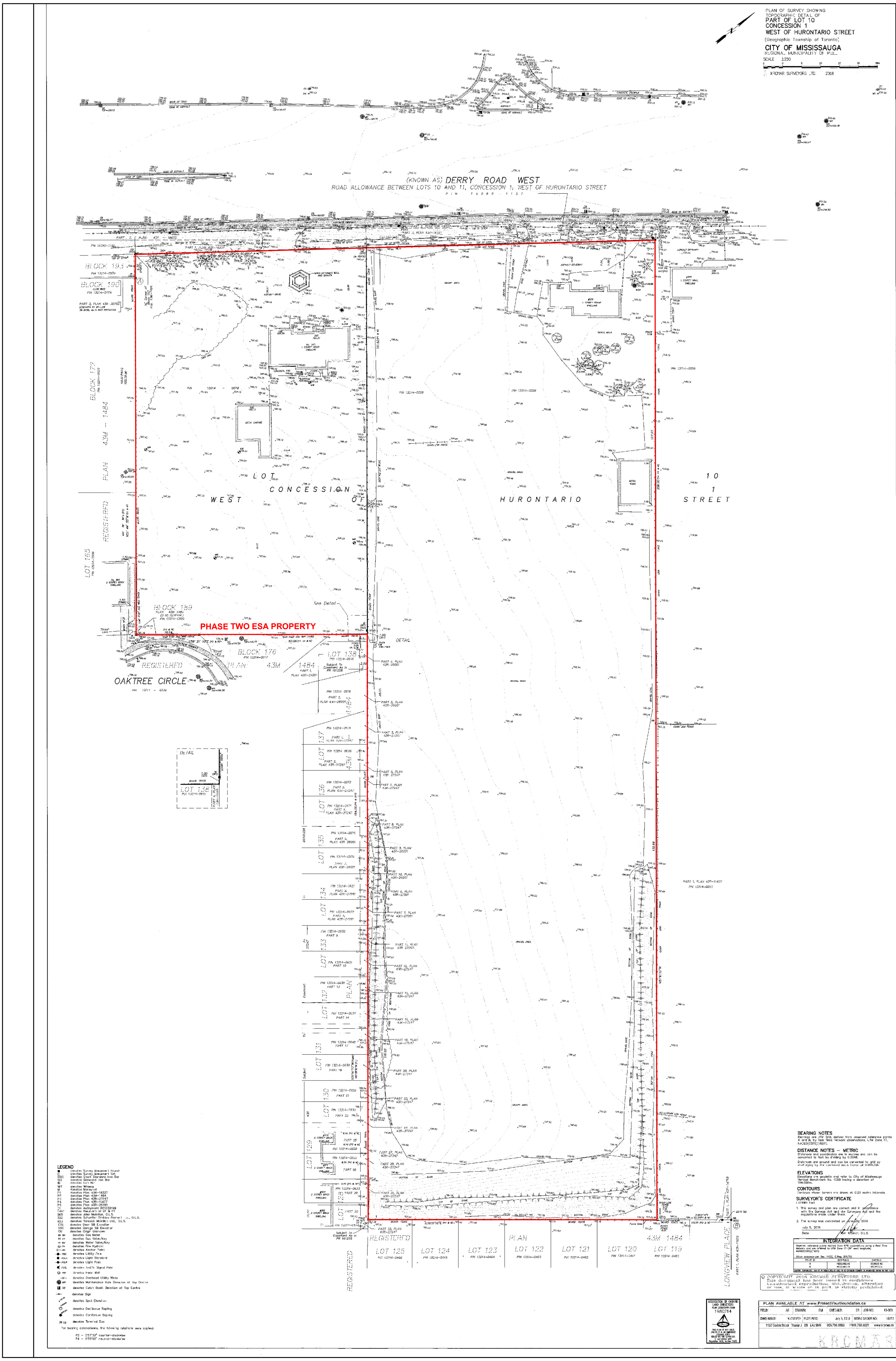
WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NAFM-0326e v09 Front/04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

APPENDIX D – LEGAL SURVEY



Fisher Environmental Ltd.

400 Esna Park Dr., #15
Markham, Ontario
L3R 3K2

Tel: 905 475-7755
Fax: 905 475-7718

KEY PLAN

N

LEGEND

Legal Survey & Site Topography

PROJECT NAME AND ADDRESS

Phase Two Environmental Site Assessment

376-390 Derry Road West,
Mississauga, ON

PROJECT NO.
FE-P 16-7880-B

DATE
November 2016

SCALE
AS SHOWN

SHEET NO.

2

APPENDIX E – CORRESPONDENCE WITH MUNICIPALITIES

City of Mississauga
Transportation and Works
201 City Centre Drive, Suite 800
MISSISSAUGA ON L5B 2T4
mississauga.ca

February 1, 2017

Sent via Email

David Fisher, B.A.Sc., C.Chem, P.Eng.
President

Fisher Environmental Ltd.
400 Esna Park Drive, Unit 15
Markham, Ontario L3R 3K2

Re: 376-390 Derry Road West, Mississauga, Ontario – Notice of Intent to Assume Non-Potable Ground Water Conditions – Withdrawal of Objection

Dear Mr. Fisher,

The City of Mississauga has reviewed your request, dated January 31, 2017, and based on a review of the watermain services map and the supporting letter from the Region of Peel, we are withdrawing our previous objection. We are pleased to advise that the City of Mississauga has no objection to the use of Non-Potable Standards of "Soil Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" dated April 15, 2011 for assessment and/or remediation of the property located at 376-390 Derry Road West, provided the owners (or owners' representative) maintain compliance with Ontario Regulation 153/04, as amended.

Please be advised that the City of Mississauga will require a copy of the Record of Site Condition (RSC) and all supporting documents for review through any development application process.

Should you have any questions, please contact Katrina MacDonald at extension 3165.

Sincerely,

Katrina MacDonald, P.Eng.
Environmental Coordinator, Site Assessments
Environmental Services Section
T 905-615-3200 ext. 3165

Cc: Arij Alam, Fisher Environmental Ltd.
Bernadette Sniatenchuk, Region of Peel
Christina Marzo, Region of Peel
Emma Calvert, City of Mississauga

Region of Peel
Working for you

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GOLD RECIPIENT QUALITY 2006

January 26, 2017

David Fisher, P. Eng., C. Chem
President
Fisher Environmental Ltd.
400 Esna Park Drive, Unit 15
Markham, Ontario
L3R 3K2

Dear Mr. Fisher,

Subject: Withdrawal of Peel Region Objection to the Use of Table 3 Non-Potable Groundwater Criteria
Location: 376- 390 Derry Road West, City of Mississauga

Regional staff has reviewed your request to use MOE Table 3 Non-Potable Groundwater Criteria for the above-noted lands.

Based on the Draft Phase 1 and II ESAR's dated November 2016, supporting letter with recommendations and well records, we are withdrawing our previous objection. I am pleased to advise you that the Regional Municipality of Peel has no objection to the use of the Table 3 Non-Potable Groundwater standard for these lands, conditional upon the owners maintaining compliance with Ontario Regulation 153/04 throughout the site restoration process.

Please call me directly at 905-791-7800, ext. 8589 if you have any questions or if you require any further information from Peel Region regarding this property.

Thank you,

Bernadette Sniatenchuk, B. Sc.
Development Facilitator, Development Services

c. Christina Marzo, Region of Peel
Katrina MacDonald, City of Mississauga
Emma Calvert, City of Mississauga
Arij Alam, Fisher Environmental Ltd.