Phase Two Environmental Site Assessment

Parcel B, C, D

6500, 6432, 6400 Ninth Line

Mississauga, Ontario

Prepared For:

Derry Britannia Developments Ltd.

7880 Keele Street, Suite 500

Vaughan, Ontario

L4K 4G7

DS Project No: 18-692-100

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DS CONSULTANTS LTD.
6221 Highway 7, Unit 16
Vaughan, Ontario, L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Executive Summary

DS Consultants Ltd. (DS) was retained by Derry Britannia Developments Ltd. to complete a Phase Two Environmental Site Assessment (ESA) of the Properties located at 6500, 6432, and 6400 Ninth Line, Mississauga, Ontario (Parcels B, D and D), herein referred to as the "Phase Two Property". The Phase Two Property is a 20.49-hectare (50.65 acres) parcel of land situated within a mixed residential, commercial, agricultural neighbourhood in the City of Mississauga, Ontario. The Phase Two Property is located approximately 180 m south of the intersection of Beacham Street and Ninth Line.

The Property currently includes a two-storey residential building (Site Building A) with an attached single storey garage located in the central portion of Parcel C. The Property formerly included a one-storey shed (Site Building B), another small shed (Site Building C), and a multi-storey barn (Site Building D), all located immediately west of Site Building A. Agricultural fields encompass Parcel B, the northern and southern portion of Parcel C, and Parcel D. Based on the information obtained from the Phase One ESA, the first developed use of Parcel B was for residential and agricultural purposes and occurred prior to 1880, the first developed use of Parcel C was for agricultural purposes and occurred prior to 1880, and the first developed use of Parcel D was for residential and agricultural purposes and occurred prior to 1880.

It is DS's understanding that this Phase Two ESA has been requested for due diligence purposes in association with the proposed redevelopment of the Property.

It is understood that the intended future property use (residential) is not considered to be a more sensitive property use as defined under O.Reg. 153/04 (as amended); therefore the filing of a Record of Site Condition (RSC) with the Ontario Ministry of Environment, Conservation and Parks (MECP) is not mandated under O.Reg. 153/04. However, DS understands that the City of Mississauga may require the filing of a RSC as part of the development approvals process.

The Phase Two ESA was completed to satisfy the intent of the requirements, methodology and practices for a Phase Two ESA as described in Ontario Regulation 153/04 (as amended). The objective of this Phase Two ESA is to confirm whether contaminants are present, and at what concentration are they present on the Phase Two Property, as related to the Areas of Potential Environmental Concern (APEC) identified in the Phase One ESA.

The Phase One ESA completed in May 2019 indicated that the Phase Two Property was first developed for residential and agricultural purposes and has been used for residential and

agricultural purposes since prior to 1880. A total of sixteen (16) Potentially Contaminating Activities (PCAs) were identified in the Phase One ESA. Eight (8) of those PCAs were considered to be contributing to eight (8) APECs on the Phase Two Property. A summary of the APECs, associated PCAs, and contaminants of potential concern (copc) identified is presented in the table below:

Table 0-1: Summary of APECs

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase Two Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC-1	Vicinity of Site Building A on Parcel C.	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks - One historical AST was identified in the 2011 AME Phase I ESA conducted on Parcel C.	On Site	PHCs, PAHs	Soil
				PHC, BTEX	Groundwater
APEC-2	Footprint of Site Building D on Parcel C.	PCA-30: Importation of Fill Material of Unknown Quality - Fill material was observed during the site investigation in the footprint of the former barn.	On Site	Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil
APEC-3	Northwest corner of Parcel C.	PCA-30: Importation of Fill Material of Unknown Quality - Fill material was encountered in BH8 during the 2006 AME geotechnical investigation conducted on Parcel C.	On Site	Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil
APEC-4	Southwest corner of Parcel B	PCA-30: Importation of Fill Material of Unknown Quality – Fill material was encountered in BH1 in the 2008 geotechnical investigation conducted by Shad & Associates Inc.	On Site.	Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil
APEC-5	Entire Property	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications - The Phase One Property (Parcel B, C,	On Site	OCPs	Soil

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase Two Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
		D) has historically been used for agricultural purposes.			
APEC-6	Northern Portion of Parcel B	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications - An orchard was formerly present in the northern portion of Parcel B	On Site	OCPs, Metals, As, Sb, Se	Soil
APEC-7	Northern Portion of Parcel C	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications - An orchard was formerly present on the northern portion of Parcel C	On Site	OCPs, Metals, As, Sb, Se	Soil
APEC-8	Central Portion of Parcel D	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications - An orchard was formerly present on the central portion of Parcel D	On Site	OCPs, Metals, As, Sb, Se	Soil

Based on the findings of the Phase One ESA it was concluded that a Phase Two ESA is warranted in order to assess the soil and groundwater conditions on the Phase Two Property.

The Phase Two ESA involved the advancement of six (6) boreholes, which was completed on May 13, 2019. The boreholes were advanced to a maximum depth of 6.1 metres below ground surface (mbgs) under the supervision of DS personnel. One (1) groundwater

monitoring well was installed in one (1) of the boreholes to facilitate the collection of groundwater samples and the assessment of groundwater flow direction. The borehole locations were determined based on the findings of the Phase One ESA. All APECs were investigated with boreholes and/or monitoring wells in accordance with the requirements of O.Reg. 153/04 (as amended). Soil and groundwater samples were collected and submitted for analysis of all PCOCs, including: PHCs, BTEX, Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, and PAHs.

The soil and groundwater analytical results were compared to the "Table 8 SCS: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition for Residential/Parkland/Institutional Use" provided in the MECP document entitled, "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*" dated April 15, 2011 *(*Table 8 Standards*)* for coarse-textured soils and residential/parkland/institutional property use.

Based on the findings of the Phase Two ESA, DS presents the following findings:

- Generally, a surficial layer of topsoil approximately 50 to 450 mm thick was encountered, underlain by approximately 0.5 to 1.6 m of fill. The native soils consisted of clayey silt till and sandy silt till, which extended to a maximum depth of 7.9 mbgs. The depth in which bedrock was encountered was found to be variable, ranging between 4.6. mbgs to greater than 7.9 mbgs.
- The depth to groundwater was measured in one (1) monitoring well installed during the course of this investigation. The monitoring wells were screened to intercept the groundwater water table. The groundwater levels were found to range between 0.25 to 0.49 mbgs with corresponding elevations of 191.17 to 191.41 metres above sea level (masl). Groundwater is anticipated to flow towards the East Sixteen Mile Creek, which flows through the southern corner of Parcel D. It is possible that the groundwater levels may vary seasonally.
- Soil samples were collected from the boreholes advanced on the Phase Two Property and submitted for analysis of Metals and Inorganics, PHCs, PAHs and OC Pesticides. The results of the chemical analyses conducted indicated the following exceedances of the Table 8 Standards:

Table 1-2: Summary of Soil Impacts Identified

Sample ID	Sample Depth (mbgs)	Parameter	Units	Table 8 SCS	Reported Value
BH19-1 SS2	0.8-1.4	Uranium	µg/g	2.5	**4**
TP5	0.0-0.3	Uranium	µg/g	2.5	**4.8**
BH19-2 SS2	0.8-1.4	EC	mS/cm	0.7	**0.86**
BH19-2 SS2 (Dup-1)	0.8-1.4	EC	mS/cm	0.7	**1.1**

- Groundwater samples were collected from the monitoring well installed on the Phase Two Property and submitted for analysis of PHCs and BTEX. The results of the chemical analyses conducted indicated that all samples analyzed met the applicable Site Condition Standards.

Based on a review of the findings of this Phase Two ESA, DS presents the following conclusions and recommendations:

- EC and uranium impacts were identified in soil. Generally, the EC and uranium impacts were identified in the northern central portion of the property on Parcels C and D. The vertical and horizontal extent of these impacts is currently unknown. Uranium impacts were identified in TP5 and borehole BH19-1SS2. EC impacts were identified in borehole BH19-2 SS2. The vertical and horizontal extent of this impact is currently unknown, however, BH19-6 located adjacent to BH19-1 did not detect concentrations of uranium greater than the Table 8 SCS. Additional delineation and remediation of the impacted soils will be required in order to support the filing of an RSC for the Property.
- The groundwater samples submitted for chemical analysis met the applicable MECP Table 8 SCS for all parameters of concern.
- The results of this Phase Two ESA indicate that the applicable Site Condition Standards for soil have not been met. Additional delineation will be required in order to further assess the horizontal and vertical extent of the metals/ORPs impacts in soil.
- Supplementary groundwater sampling in the vicinity of the impacted soils is recommended in order to assess the groundwater quality.
- All monitoring wells should be decommissioned in accordance with O.Reg. 903 when no longer required.

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1.0 Introduction

DS Consultants Ltd. (DS) was retained by Derry Britannia Developments Ltd. to complete a Phase Two Environmental Site Assessment (ESA) of the Property located at 6500, 6432, 6400 Ninth Line, Mississauga, Ontario, herein referred to as the "Phase Two Property" or "Site". It is DS's understanding that this Phase Two ESA has been requested for due diligence purposes in association with the proposed redevelopment of the Property. DS understands that this Phase Two ESA may be used to support the filing of a Record of Site Condition (RSC) as part of the proposed redevelopment of the Site for residential purposes.

It is understood that the intended future property use (residential) is not considered to be a more sensitive property use as defined under O.Reg. 153/04 (as amended); therefore the filing of a Record of Site Condition (RSC) with the Ontario Ministry of Environment, Conservation and Parks (MECP) is not mandated under O.Reg. 153/04. However, DS understands that the City of Mississauga may require the filing of a RSC as part of the development approvals process.

The Phase Two ESA was completed to satisfy the intent of the requirements, methodology and practices for a Phase One ESA as described in Ontario Regulation 153/04 (as amended). The objective of this Phase Two ESA is to confirm whether contaminants are present, and at what concentration are they present on the Phase Two Property, as related to the Areas of Potential Environmental Concern (APEC) identified in the Phase One ESA.

1.1 Site Description

The Phase Two Property is a 20.49-hectare (50.65 acres) parcel of land situated within a mixed residential, commercial, agricultural neighbourhood in the City of Mississauga, Ontario. The Phase Two Property is comprised of three (3) parcels of land referred to as Parcels B, C, and D, with associated municipal addresses of 6500, 6432 and 6400 Ninth Line.

The Phase Two Property is located approximately 180 m south of the intersection of Beacham Street and Ninth Line. The Site was comprised of agricultural fields and a residential homestead at the time of this investigation. A Site Location Plan is provided in Figure 1.

For the purposes of this report, Beacham Street is assumed to be aligned in an east-west orientation, and Ninth Line in a north-south orientation. A Plan of Survey for the Phase Two Property prepared by J.D. Barnes Limited, an Ontario Land Surveyor, has been provided under Appendix A.

The Property currently includes a two-storey residential building (Site Building A) with an attached single storey garage located in the central portion of Parcel C. The Property formerly included a one-storey shed (Site Building B), another small shed (Site Building C), and a multi-storey barn (Site Building D), all located immediately west of Site Building A. Agricultural fields encompass Parcel B, the northern and southern portion of Parcel C, and Parcel D. Based on the information obtained from the Phase One ESA, the first developed use of Parcel B was for residential and agricultural purposes and occurred prior to 1880, the first developed use of Parcel C was for agricultural purposes and occurred prior to 1880, and the first developed use of Parcel D was for residential and agricultural purposes and occurred prior to 1880. A Site Plan depicting the orientation of the buildings on-site is provided in Figure 2. A Site Plan depicting the orientation of the historical buildings on-site is provided in Figure 2B.

Additional details regarding the Phase Two Property are provided in the table below.

Table 1-1: Phase Two Property Information

Criteria	Information	Source
Legal Description	Part of Lot 9, Concession 9, Trafalgar New Survey, Part 3, Plan 20R-13224, City of Mississauga - Parcel B Part of Lot 8, Concession 9, Trafalgar New Survey, Part 2, Plan 20R-2671, City of Mississauga - Parcel C Part of Lot 8, Concession 9, Trafalgar New Survey, Part 2, Plan 20R-13224, City of Mississauga - Parcel D	Legal Survey
Property Identification Number (PIN)	24938-0095 (LT) – Parcel B 24938-0027(LT) – Parcel C 24938-0096 (LT) – Parcel D	Legal Survey
Site Area	4.46-hectares (11.02 acres) – Parcel B 5.10-hectares (12.61 acres) – Parcel C 10.93-hectares (27.02 acres)- Parcel D	Client

1.2 Property Ownership

The ownership details for the Phase Two Property are provided in the table below.

Table 1-2: Phase Two Property Ownership

Property Owner	Address	Contact
Derry Britannia Developments Limited.	7880 Keele Street, Suite 500 Vaughan, Ontario L4K 4G7	Craig Scarlett Project Manager Phone: 416-302-3042

1.3 Current and Proposed Future Use

The Phase Two Property is currently used for agricultural and residential purposes which is considered to be Residential Property Use under O.Reg. 153/04 (as amended). It is DS's understanding that the Client intends to redevelop the Site for residential use.

1.4 Applicable Site Condition Standards

The applicable Site Condition Standards (SCS) for the Phase Two Property are considered by the Qualified Person (QP) to be the Table 8 SCS: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition for Residential/Parkland/Institutional Use as contained in the April 15, 2011 Ontario Ministry of Environment, Conservation and Parks (MECP) document entitled "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", herein referred to as the "Table 8 SCS".

The selection of the Table 8 SCS is considered appropriate based on the following rationale:

- Potable water well records were identified within 500 m of the Phase Two Property.
- The Site is not considered to be environmentally sensitive, as defined under O.Reg. 153/04 (as amended);
- The proposed future use of the Phase Two Property will be residential;
- The Site is located within 30 m of a water body;
- The pH of the soils analyzed during this Phase Two ESA are within the accepted range specified under O.Reg. 153/04 (as amended); and
- Bedrock was not encountered within 2 metres of the ground surface.

2.0 Background Information

2.1 Physical Setting

2.1.1 Water Bodies and Areas of Natural Significance

A tributary of the East Sixteen Mile Creek is the closest body of water to the Phase Two Property, which runs through the southwestern corner of the property, on Parcel D.

The Natural Heritage Areas database published by the Ministry of Natural Resources (MNR) was reviewed in order to identify the presence/absence of areas of natural significance including provincial parks, conservation reserves, areas of natural and scientific interest, wetlands, environmentally significant areas, habitats of threatened or endangered species,

and wilderness areas. The City of Mississauga and Region of Peel Official Plans were also reviewed as part of this assessment.

No areas of natural or scientific interest were identified within the Phase Two Study Area.

2.1.2 Topography and Surface Water Draining Features

The Phase Two Property is located in a mixed urban and rural setting, at an elevation of 192 to 190 metres above sea level (masl). The topography of the Phase Two Property is generally sloped to the southeast. The neighbouring property are generally at similar elevations, and the topography in the vicinity of the Phase Two Property generally slopes to the southeast. There are no drainage features (e.g. ditches, swales, etc.) present on-Site. Ninth Line is situated at a higher grade than the Phase Two Property. Surface water flow associated with precipitation events is anticipated to infiltrate on-Site, and/or drain overland into a tributary of Sixteen Mile Creek, located on the west adjacent lands.

2.2 Past Investigations

2.2.1 Previous Report Summary

The following environmental and geotechnical reports were provided for DS to review:

- *"Geotechnical Investigation, Argo Developments, 6432 Ninth Line, Town of Milton, Ontario",* prepared for Argo Development, prepared by AME Materials Engineering, dated January 2006; and
- *"Draft Phase I Environmental Site Assessment, Part of Lot 8, Concession 9, Milton, Ontario,",* prepared for Derry Britannia Developments Limited, prepared by Pinchin Environmental, dated October 2, 2008*; and*
- *"Draft Phase I Environmental Site Assessment, Part of Lot 9, Concession 9, Milton, Ontario,",* prepared for Derry Britannia Developments Limited, prepared by Pinchin Environmental Ltd., dated October 2, 2008; *and*
- *"Preliminary Geotechnical Investigation Report, Property P456, Milton, Ontario",* prepared for Derry Britannia Developments Limited, prepared by Shad & Associates, dated October 8, 2008; *and*
- *"Preliminary Geotechnical Investigation Report, Property P455, Milton, Ontario", prepared* for Derry Britannia Developments Limited, prepared by Shad & Associates, dated October 8, 2008*; and*
- *"Phase I Environmental Site Assessment, Scapicchio Property, 6432 Ninth Line, Milton, Ontario",* prepared for Mattamy Homes Limited, prepared by AME Materials Engineering, dated April 27, 2011

These reports were reviewed in order to assess for the presence of known or suspected PCAs and APECs, and to determine if there are known soil and/or groundwater impacts on the Phase One Property.

A summary of the pertinent details of the reports reviewed is provided below:

AME Materials Engineering Geotechnical Investigation, 6432 Ninth Line, January 2006 (Parcel C)

The AME investigation was conducted to determine the subsurface conditions at the eight borehole locations, and to provide recommendations on the geotechnical aspects of the construction of municipal services, roads and houses. The following pertinent information was noted by DS:

- A surficial layer of topsoil 50-150 mm in thickness was encountered in all eight borehole locations.
- Fill material consisting of moist sand and gravel was identified in one borehole (BH8)
- Native soil consisting of clayey silt was encountered in all the boreholes extending to depths between 2.1 to 4.2 mbgs.
- Shale bedrock was encountered in boreholes 5 to 7 extending to depths between 2.1 and 2.7 mbgs.
- Groundwater was encountered in four boreholes, at depths ranging from 0 to 0.8 mbgs.

Pinchin Environmental Ltd. Draft Phase I Environmental Site Assessment, Part of Lot 8, Concession 9, October 2, 2008 (Parcel D)

The Pinchin Draft Phase I Environmental Site Assessment was conducted in general accordance with CSA document entitled "Phase I Environmental Site Assessment" (CSA Document Z768-01), dated November 2001 (reaffirmed 2006), and included a review of readily available historical records and reasonably ascertainable regulatory information, a Site Reconnaissance, interviews, evaluation of information, and reporting. The following pertinent information was noted by DS:

- At the time of the investigation, the Site consisted of undeveloped, agricultural land.
- The Site had historically been used for agricultural purposes.
- No potentially contaminating activities were identified during the Phase I ESA.

Pinchin Draft Phase I Environmental Site Assessment, Part of Lot 9, Concession 9, October 2, 2008 Parcel B)

The Pinchin Draft Phase I Environmental Site Assessment was conducted in general accordance with CSA document entitled "Phase I Environmental Site Assessment" (CSA Document Z768-01), dated November 2001 (reaffirmed 2006), and included a review of readily available historical records and reasonably ascertainable regulatory information, a Site Reconnaissance, interviews, evaluation of information, and reporting. The following pertinent information was noted by DS:

- At the time of the investigation, the Site consisted of undeveloped, agricultural land.
- The Site had historically been used for agricultural purposes.
- No potentially contaminating activities were identified during the Phase I ESA.

Shad & Associates Preliminary Geotechnical Investigation, Property P456, October 8, 2008 (Parcel D)

The Shad & Associates geotechnical investigation was conducted to determine the subsurface conditions at seven borehole locations, and to comment on the geotechnical aspects of construction at the site. The following pertinent information was noted by DS:

- A surficial layer of topsoil 200-450 mm in thickness was encountered in all seven borehole locations.
- Disturbed native consisting of silty clay/clayey silt was encountered in the boreholes extending to depths between 0.9 to 1.8 mbgs.
- Native soil consisting of silty clay and clayey silt till was encountered in the boreholes.
- Weathered shale was encountered in boreholes 5 and 6 at a depth of approximately 2.5 mbgs.
- Groundwater was encountered in five boreholes, at depths ranging from 1.5 to 4.4 mbgs.

Shad & Associates Preliminary Geotechnical Investigation, Property P455, October 8, 2008 (Parcel B)

The Shad & Associates geotechnical investigation was conducted to determine the subsurface conditions at five borehole locations, and to comment on the geotechnical aspects of construction at the site. The following pertinent information was noted by DS:

- A surficial layer of topsoil 100-350 mm in thickness was encountered in all five borehole locations.
- Fill material approximately 0.6 m in thickness was encountered in borehole BH1.
- Disturbed native soil consisting of silty clay was identified in the boreholes extending to depths between 0.5 and 1.0 mbgs.

- Native soil consisting of silty clay till and clayey silt was encountered in the boreholes extending to depths between 2.5 and 3.8 mbgs.
- Weathered shale was encountered in one borehole at a depth of 4.6 mbgs.
- Groundwater was encountered in three boreholes, at depths ranging from 1.8 to 4.2 mbgs.

AME Materials Engineering Phase I Environmental Site Assessment, 6432 Ninth Line, April 27, 2011 (Parcel C)

The AME Phase I Environmental Site Assessment was conducted in general accordance with CSA document entitled "Phase I Environmental Site Assessment" (CSA Document Z768-01), dated November 2001 (reaffirmed 2006), and included a review of readily available historical records and reasonably ascertainable regulatory information, a Site Reconnaissance, interviews, evaluation of information, and reporting. The following pertinent information was noted by DS:

- At the time of the investigation, the Site consisted of a residential building, a barn and two garages. The barn and two garages were demolished between 2014 and 2015.
- The Site had historically been used for agricultural and residential purposes.
- The residential building was historically heated using oil, with the corresponding AST located in the attached garage. The heating system has since been converted to natural gas.
- Access to the residential building was not available during the site visit.
- No potentially contaminating activities were identified during the Phase I ESA.

2.2.2 Use of Previous Analytical Results

No previously analytical results were provided for DS to review.

3.0 Scope of the Investigation

The scope of the Phase Two ESA was designed to investigate the portions of the Site determined in the Phase One ESA to be Areas of Potential Environmental Concern. This Phase Two ESA was conducted in general accordance with O.Reg. 153/04 (as amended). The scope of the investigation including the subsurface investigation, sampling, and laboratory analysis was based on the findings of the Phase One ESA and was limited to the portions of the site which were accessible.

3.1 Overview of Site Investigation

The following tasks were completed as part of the Phase Two ESA:

- Preparation of a Health and Safety Plan to ensure that all work was executed safely;
- Clearance of public private underground utility services prior to commencement of subsurface investigative operations;
- Preparation of a Sampling and Analysis Plan (SAP);
- Retained a MECP licenced driller to advance a total of six (6) boreholes on the Phase Two Property, to depths ranging between 4.6 to 6.1 mbgs. Six test pits were also advanced to a maximum depth of 0.30 mbgs. One (1) of the boreholes was instrumented with a groundwater monitoring well upon completion. The soil lithology was logged during drilling, and representative soil samples were collected at regular intervals. The soil samples were screened for organic vapours using an RKI Eagle 2 MultiGas Detector and examined for visual and olfactory indications of soil impacts;
- Submitted "worst case" soil samples collected from the boreholes for laboratory analysis of relevant contaminants of potential concern (COPCs) as identified in the Phase One ESA;
- Conducted groundwater level measurements in the monitoring wells in order to determine the groundwater elevation, and to establish the local groundwater flow direction;
- Surveyed all monitoring wells to a geodetic benchmark;
- Developed and purged all monitoring wells prior to sampling. Groundwater samples were collected for all COPCs identified in the Phase One ESA;
- Compared all soil and groundwater analytical data to the applicable MECP SCS; and
- Prepared a Phase Two ESA Report in general accordance with O.Reg. 153/04 (as amended).

Media Investigated

3.1.1 Rationale for Inclusion or Exclusion of Media

Table 3-1: Rationale of Sampling Media

Media	Included or Excluded	Rationale
Soil	Included	Soil was identified as a media of potential impact in the Phase One ESA, based on the historical operations conducted on-Site.
Groundwater	Included	Groundwater was identified as a media of potential impact in the Phase One ESA, based on a historical AST located in the Site Building A.
Sediment	Excluded	Sediment is not present on the Phase Two Property.
Surface Water	Excluded	Surface water is not present on the Phase Two Property.

3.1.2 Overview of Field Investigation of Media

Table 3-2: Field Investigation of Media

Media	Methodology of Investigation
Soil	A total of six (6) boreholes were advanced on the Phase Two Property, to a maximum depth of 6.1 mbgs. A total of six (6) test pits were advanced as well to a maximum depth of 0.3 mbgs. Soil samples were collected and submitted for analysis of all relevant COPCs.
Groundwater	A total of one (1) monitoring well was present on the Phase Two Property at the time of the investigation. Representative groundwater samples were collected from the monitoring well and submitted for analysis of all relevant COPCs.

3.2 Phase One Conceptual Site Model

A Conceptual Site Model was developed for the Phase One Property, located at 6500, 6432, 6400 Ninth Line, Mississauga, Ontario. The Phase One Conceptual Site Model is presented in Drawings 3A, 3B, and 4 and visually depict the following:

- Any existing buildings and structures
- 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
- Water wells at the Phase One Property or within the Phase One Study Area
- Roads, including names, within the Phase One Study Area
- Uses of properties adjacent to the Phase One Property
- Areas where any PCAs have occurred, including location of any tanks
- Areas of Potential Environmental Concern

3.2.1 Potentially Contaminating Activity Affecting the Phase One Property

All PCAs identified within the Phase One Study Area are presented on Figure 3B. The PCAs which are considered to contribute to APECs on, in or under the Phase One Property are summarized in the table below:

Table 3-3: Summary of PCAs Contributing to APECs

PCA Item.	PCA Description (Per. Table 2, Schedule D of O.Reg. 153/04)	Description	Contributing to APEC (Y/N)
1	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks	One historical AST was identified in the 2011 AME Phase I ESA conducted on Parcel C.	Yes – APEC-1
2	PCA-30: Importation of Fill Material of Unknown Quality	Fill material was observed during the site investigation in the footprint of the former barn.	Yes – APEC-2
3	PCA-30: Importation of Fill Material of Unknown Quality	Fill material was encountered in BH8 during the 2006 AME geotechnical investigation conducted on Parcel C.	Yes – APEC-3
4	PCA-30: Importation of Fill Material of Unknown Quality	Fill material was encountered in BH1 in the 2008 geotechnical investigation conducted by Shad & Associates Inc.	Yes – APEC-4
5	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	The Phase One Property (Parcel B, C, D) has historically been used for agricultural purposes.	Yes – APEC-5
6	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	An orchard is visible on the northern portion of Parcel B in the 1880 Halton County Atlas.	Yes – APEC-6
7	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	An orchard is visible on the northern portion of Parcel C in the 1880 Halton County Atlas.	Yes – APEC-7
8	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	An orchard is visible on the central portion of Parcel D in the 1880 Halton County Atlas.	Yes – APEC-8

3.2.2 Contaminants of Potential Concern

A summary of the contaminants of potential concern identified for each respective APEC is presented in Table 3-3 above. The following contaminants of potential concern were

identified for the Phase One Property: PHCs, BTEX, Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, and PAHs.

3.2.3 Underground Utilities and Contaminant Distribution and Transport

Underground utilities can affect contaminant distribution and transport. Trenches excavated to install utility services, and the associated granular backfill may provide preferential pathways for horizontal contaminant migration in the shallow subsurface.

Site Building A was the only structure present on the Property. Underground utilities including water, sewer services and natural gas are anticipated to service Site Building A. Plans were not available to confirm the depths or presence of utilities leading to Site Building A.

Utility corridors are not expected to act as preferential pathways for contaminant distribution and transport in the event that shallow subsurface contaminants exist at the Property, due to the limited utilities present on the property. Groundwater was found to range between 0.25 to 0.49 mbgs in monitoring well BH19-6. No exceedances were identified within the soil and groundwater samples submitted for chemical analysis. Therefore, it is not anticipated that underground utilities would act as significant preferential pathways for contaminant transport.

3.2.4 Geological and Hydrogeological Information

The topography of the Phase One Property is generally flat with a surface elevation of approximately 192 to 190 metres above sea level (masl). The topography within the Phase One Study Area generally slopes to the southeast, towards Lake Ontario, located approximately 15 km southeast of the Phase One Property. The nearest body of water is a tributary of the East Sixteen Mile Creek, which runs through the southwest corner of Parcel D on the Phase One Property. Based on the groundwater data collected by DS personal, the groundwater table is located between 0.25 and 0.49 mbgs. The shallow groundwater flow direction within the Phase One Study Area is inferred to be southwest towards the tributary of East Sixteen Mile Creek.

The Site is situated within a beveled till plains physiographic region. The surficial geology within the Phase One Study Area consists of several different surficial deposits. Clay to silt textured till (derived from glaciolacustrine deposits or shale are located in the northern portion of the Property, mostly contained within Parcel B. Modern alluvial deposits consisting of clay, silt, sand, gravel and organic remains are located in the western boundary of Parcels C and D. The remaining area in the Phase One Property is occupied by fine-textured

glaciolacustrine deposits consisting of silt and clay, minor sand and gravel, interbedded silt and clay, and gritty pebbly flow till with rainout deposits. The underlying bedrock within the area generally consists of shale, siltstone, minor limestone and sandstone of the Queenston formation. Based on a review of the preliminary geotechnical reports reviewed in Section 4.1.5, the bedrock in the Phase One Study Area is anticipated to be encountered at an approximate depth range of 2.1 to 4.6 metres below ground surface (mbgs).

3.2.5 Uncertainty and Absence of Information

DS has relied upon information obtained from federal, provincial, municipal, and private databases, in addition to records and summaries provided by EcoLog ERIS. All information obtained was reviewed and assessed for consistency, however the conclusions drawn by DS are subject to the nature and accuracy of the records reviewed.

All reasonable inquiries were made to obtain reasonably accessible information, as mandated by O.Reg.153/04 (as amended). All responses to database requests were received prior to completion of this report. This report reflects the best judgement of DS based on the information available at the time of the investigation.

Information used in this report was evaluated based on proximity to the Phase One Property, anticipated direction of local groundwater flow, and the potential environmental impact on the Phase One Property as a result of potentially contaminating activities.

The QP has determined that the uncertainty does not affect the validity of the Phase One ESA Conceptual Site Model or the conclusions of this report. The conclusions of this report will be revised should additional PCAs be identified based on future inspections of the existing Site Buildings.

3.3 Deviations from Sampling and Analysis Plan

The Phase Two ESA was completed in accordance with the SAP.

3.4 Impediments

DS was granted complete access to the Phase Two Property throughout the course of the investigation. No impediments were encountered.

4.0 Investigation Method

4.1 General

The Phase Two ESA followed the methodology outlined in the following documents:

- Ontario Ministry of the Environment "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario" (December 1996);
- Ontario Ministry of the Environment "Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04" (June 2011);
- Ontario Ministry of the Environment "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" (July 2011) (Analytical Protocol);

The methods used in the Phase Two ESA investigation did not differ from the associated standard operating procedures.

4.2 Drilling and Excavating

A site visit was conducted prior to drilling in order to identify the borehole locations based on the APECs identified in the Phase One ESA. The selected borehole locations are presented on Figure 4. The borehole locations were cleared of underground public and private utility services prior to commencement of drilling. A summary of the drilling activities is provided in the table below.

Table 4-1: Summary of Drilling Activities

Parameter	Details
Drilling Contractor	Terra Firma Environmental Services
Drilling Dates	May 13, 2019 to May15, 2019
Drilling Equipment Used	Track Mounted CME 55 Hand Auger
Measures taken to minimize the potential for cross contamination	◆ Soil sampling was conducted using a 50 mm stainless steel split spoon sampler. The split spoon sampler was brushed clean of soil, washed in municipal water containing phosphate free detergent, rinsed in municipal water, and then rinsed with distilled water for each sampling interval in order to reduce the potential for cross contamination; ◆ Soil samples were extracted from the interior of the sampler rather than from areas in contact with the sampler sidewalls;

Parameter	Details
	◆ Use of dedicated and disposable nitrile gloves for the handling of soil samples. A new set of gloves was used for each sample.
Sample collection frequency	Samples were collected at a frequency of every 0.6 m per 0.8 m from the ground surface to borehole termination depth.

4.3 Soil Sampling

Soil samples were collected using a 50 mm stainless steel split spoon sampler. Discrete soil samples were collected from the split-spoon samplers by DS personnel using dedicated nitrile gloves.

A portion of each sample was placed in a resealable plastic bag for field screening, and the remaining portion was placed into laboratory supplied glass sampling jars. Samples intended for VOC and the F1 fraction of petroleum hydrocarbons analysis were collected using a laboratory-supplied soil core sampler, placed into the vials containing methanol for preservation purposes and sealed using Teflon lined septa lids. All sample jars were stored in dedicated coolers with ice for storage, pending transport to the analytical laboratory. A formal chain of custody was maintained for all samples submitted to the laboratory.

The subsurface soil conditions were logged by DS personnel at the time of drilling and recorded on field borehole logs. The borehole logs are presented under Appendix C. Additional detail regarding the lithology encountered in the boreholes is presented under Section 6.1 and depicted visually in Figures 8A and 8B.

4.4 Field Screening Measurements

All retrieved soil samples were screened in the field for visual and olfactory observations. No obvious visual or olfactory evidence of potential contamination were noted. No aesthetic impacts (e.g. cinders, slag, hydrocarbon odours) were encountered during this investigation. The soil sample headspace vapour concentrations for all soil samples recovered during the investigation were screened using portable organic vapour testing equipment in accordance with the procedure outlined in the MECP's '*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario'.*

The soil samples were inspected and examined to assess soil type, ground water conditions, and possible chemical contamination by visual and olfactory observations or by organic vapor screening. Samples submitted for chemical analysis were collected from locations judged by the assessor to be most likely to exhibit the highest concentrations of

contaminants based on several factors including (i) visual or olfactory observations, (ii) sample location, depth, and soil type (iii) ground water conditions and headspace reading. A summary of the equipment used for field screening is provided below:

Table 4-2: Field Screening Equipment

Parameter	Details
Make and Model of Field Screening Instrument	RKI Eagle 2, Model 5101-P2 Serial Number: E2G721
Chemicals the equipment can detect and associated detection limits	VOCs with dynamic range of 0 parts per million (ppm) to 2,000 ppm PHCs with range of 0 to 50, 000 ppm
Precision of the measurements	3 significant figures
Accuracy of the measurements	VOCs: ± 10% display reading + one digit Hydrocarbons: ± 5% display reading + one digit
Calibration reference standards	PID: Isobutylene CGD: Hexane
Procedures for checking calibration of equipment	In-field re-calibration of the CGI was conducted (using the gas standard in accordance with the operator's manual instructions) if the calibration check indicated that the calibration had drifted by more than +/- 10%.

A summary of the soil headspace measurements is provided in the borehole logs, provided under Appendix C.

4.5 Groundwater Monitoring Well Installation

One (1) monitoring well was installed upon completion of borehole BH19-6 advanced on the Phase Two Property. The monitoring well was constructed of 51-millimetre (2-inch) inner diameter (ID) flush-threaded schedule 40 polyvinyl chloride (PVC) risers, equipped with a 3.1 m length of No. 10 slot PVC screen. The well screen was sealed at the bottom using a threaded cap and at the top with a lockable J-plug.

Silica sand was placed around and up to 0.6m above the well screen to act as a filter pack. Bentonite was placed from the ground surface to the top of the sand pack. The well was completed with protective aboveground monument casings.

Details regarding the monitoring well construction can be found in Table 1, and on the borehole logs provided in Appendix C.

Disposable nitrile gloves were used to minimize the potential for cross-contamination during well installation. Dedicated equipment was used for well development and sampling for further minimize the risk of cross contamination.

The monitoring well was developed on May 17, 2019. In accordance with DS SOPs for monitoring well development, the well was developed by removing a minimum of three standing water column volumes using dedicated inertial pumps comprised of Waterra polyethylene tubing and dedicated foot valves.

4.6 Groundwater Field Measurement of Water Quality Parameters

Field measurements of water quality parameters including temperature, specific conductivity, pH, turbidity, dissolved oxygen, oxidation-reduction potential and turbidity were collected using a flow-through cell and a YSI Water Quality Meter (YSI-556™). The YSI Water Quality Meter was calibrated by the supplier (Maxim Environmental) in accordance with the manufacturer's specifications.

The measurements were conducted at regular intervals in order to determine whether stabilized geochemical conditions had been established in the monitoring well, indicating representative groundwater conditions.

The field measurements have been archived and can be provided upon request.

4.7 Groundwater Sampling

Groundwater samples were collected a minimum of 24 hours after the development of the monitoring wells. The wells were purged using a peristaltic pump equipped with dedicated polyethylene tubing. A YSI Water Quality Meter equipped with a flow-through cell was used to monitor the geochemical conditions during purging to assess whether steady-state conditions were achieved prior to sampling.

Samples were collected upon stabilization of the water quality parameters. Groundwater samples for metals analysis were field filtered using dedicated 0.45 micro in-line filters. The groundwater was transferred directly into laboratory supplied containers and preserved as appropriate using the containers supplied by the analytical laboratory. The samples were placed in coolers upon completion of sampling and stored on ice for storage, pending transport to the analytical laboratory. A formal chain of custody was maintained for all samples submitted to the laboratory.

4.8 Sediment Sampling

No sediment as defined under O.Reg. 153/04 (as amended) was present on the Phase Two Property at the time of this investigation. Sediment sampling was not conducted as a result.

4.9 Analytical Testing

The soil and groundwater samples collected were submitted to Maxxam Analytics under chain of custody protocols. Maxxam is an independent laboratory accredited by the Canadian Association for Laboratory Accreditation. Maxxam conducted the analyses in accordance with the MECP document "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" dated March 9, 2004 (revised on July 1, 2011).

4.10 Residue Management Procedures

4.10.1 Soil Cuttings From Drilling and Excavations

The soil cuttings generated by the borehole drilling program were stored on-site for future disposal at the time of site redevelopment.

4.10.2 Water from Well Development and Purging

Excess water derived from well purging activities was stored in 20-L sealed plastic pails, and temporarily stored on site. Upon receipt of the analytical results it was determined that the purged groundwater meets the applicable Table 8 SCS. Based on this the purged groundwater was allowed to re-infiltrate adjacent to the monitoring wells.

4.10.3 Fluids from Equipment Cleaning

Excess equipment cleaning fluids were stored in 20-L sealed plastic pails and temporarily stored on site for disposal by a MECP approved waste-hauler for disposal at a MECP-approved waste management facility.

4.11 Elevation Surveying

The ground surface elevations of the boreholes/monitoring wells were surveyed using a Sokkia GCX-2 GNSS RTK receiver, referenced to geodetic benchmark 00819800485 (elevation of 200.642 masl) located approximately 250m south of the intersection of Derry Road and Ninth Line.

The ground surface elevations can be found on the borehole logs presented in Appendix C.

4.12 Quality Assurance and Quality Control Measures

4.12.1 Sample containers, preservation, labelling, handling and custody for samples submitted for laboratory analysis, including any deviations from the SAP

All soil and groundwater samples were stored in laboratory-supplied sample containers in accordance with the MECP Analytical Protocol. A summary of the preservatives supplied by the laboratory is provided in the table below.

Table 4-3: Summary of Sample Bottle Preservatives

Media	Parameter	Sample Container
Soil	PHCs F1 VOCs	40 mL methanol preserved glass vial with septum lid.
	PHCs F2-F4 metals and ORPs PAHs	120 mL or 250 mL unpreserved glass jar with Teflon™-lined lid.
Groundwater	PHCs F1 VOCs	40 mL glass vial with septum lid, containing sodium bisulphate preservative.
	PHCs F2-F4	250 mL amber glass bottle with sodium bisulphate preservative
	PAHs	250 mL amber glass bottle (unpreserved)
	Inorganics	500 mL high density polyethylene bottle (unpreserved)
Groundwater	Metals	125 mL high density polyethylene bottle containing nitric acid preservative
	Hexavalent Chromium	125 mL high density polyethylene bottle containing ammonium sulphate/ammonium hydroxide preservative
	Mercury	125 mL glass bottle containing hydrochloric acid preservative
	Cyanide	125 mL high density polyethylene bottle containing sodium hydroxide preservative

Groundwater samples were collected using dedicated equipment for each well. Groundwater samples collected for analysis of dissolved metals, mercury and hexavalent chromium were filtered in the field using a dedicated 0.45-micron in-line filter. Each sample container was labelled with a unique sample identification, the project number, and the sampling date. All samples were placed in an ice-filled cooler upon completion of sampling and kept under refrigerated conditions until the time of delivery to the analytical laboratory. A formal chain of custody was maintained for all samples submitted to the laboratory.

4.12.2 Description of equipment cleaning procedures followed during all sampling

Dedicated, disposable nitrile gloves were used for each sampling event to reduce the potential for cross-contamination.

The split spoon sampler was brushed clean of soil, washed in municipal water containing phosphate free detergent, rinsed in municipal water, and then rinsed with distilled water for each sampling interval in order to reduce the potential for cross contamination. Dedicated equipment was used for well development and sampling for further minimize the risk of cross contamination. Non-dedicated equipment (i.e. interface probe) was cleaned before initial use and between all measurement points with a solution of Alconox™ and distilled water. The Alconox™ solution was rinsed off using distilled water.

4.12.3 Description of how the field quality control measures referred to in subsection 3 (3) were carried out

Field duplicate samples were collected at the time of sampling. In accordance with O.Reg. 153/04, one duplicate sample was analyzed per ten samples submitted for analysis. A laboratory prepared trip blank accompanied the groundwater samples during each sampling event and was submitted for laboratory analysis of VOCs.

All field screening devices (i.e. RKI Eagle 2 and YSI Water Quality Meter) were calibrated prior to use by the supplier. Calibration checks were completed, and re-calibrations were conducted as required.

4.12.4 Description of, and rational for, any deviations from the procedures set out in the quality assurance and quality control program set out in the SAP

There were no deviations from the QA/QC program described in the SAP.

5.0 Review and Evaluation

5.1 Geology

A summary of the subsurface conditions is presented below. Additional details may be found in the borehole logs appended in Appendix C.

Parcel B

A surficial layer of topsoil approximately 150mm to 350mm thick was encountered, underlain by fill material consisting of sandy silt, silty sand, sand, and clayey silt, extending to depths ranging from 0.8 to 1.5 mbgs. Below the fill material was a layer of clayey silt till that consisted of clayey silt and silty clay. This was underlain by a sandy silt till in boreholes BH19-4 and BH19-5, which overlaid shale bedrock. Bedrock was encountered at depths ranging from 2.5 to 4.6mbgs.

Parcel C

A surficial layer of topsoil approximately 50mm to 200mm thick was encountered, underlain by fill material consisting of sandy silt and clayey silt extending to approximate depths of 0.8 to 1.6 mbgs. The fill material was underlain by clayey silt till deposits, approximately 0.8-1.5 m in thickness. A till shale complex unit was encountered approximately 3.1 mbgs in BH19-2 below the clayey silt till deposit. This unit is the transition zone from till to shale bedrock and contain properties of hard/dense till and bedrock slabs.

Parcel D

Based on the Shad & Associates Preliminary Geotechnical Investigation conducted in 2008, a surficial topsoil layer was encountered, generally ranging in thickness from 100 to 200mm, with the exception of BH6 where the topsoil layer was 450mm thick. The topsoil layer at all borehole locations was underlain by a weathered and disturbed silty clay / clayey silt with trace topsoil and organics, extending to depths ranging from 0.9 m to 1.8 m below the existing grade. The weathered/disturbed layer is possibly a result of agricultural use of the land. Clayey silt / silty clay till was encountered below the weathered/disturbed layer at all borehole locations and extended to maximum explored depths of boreholes. Occasional sand seams were encountered within the till deposit across the site.

Table 5-1: Summary of Geologic Units Investigated

Geologic Unit	Inferred Thickness (m)	Top Elevation (masl)	Bottom Elevation (masl)	Properties
Fill Material	0.5 to 1.6	193.8	190.4	Aesthetic impacts identified including asphalt, concrete and organics.
Clayey Silt Till	0.5 to 3.1	193.1	188.6	Sandy, trace gravel, occasional cobble/boulder, occasional sand seams,
Sandy Silt Till	0.8 to 2.3	190.9	183.8	Some clay, occasional sand seams, trace gravel, occasional cobble/boulder
Shale Bedrock	Unknown	189.3	-	Weathered, reddish brown.

Groundwater levels were found to fluctuate between 191.41 and 191.17 masl on March 17, 2019 and May 22, 2019. In general, the low permeability of the native soils (glacial till) is anticipated to retard the downward migration of contaminants from soil to the groundwater on the Phase Two Property.

5.2 Ground Water Elevations and Flow Direction

5.2.1 Rationale for Monitoring Well Location and Well Screen Intervals

One (1) monitoring well was installed upon the completion of borehole BH19-6 on the Phase Two Property in order to assess the groundwater quality in relation to APEC-1. The COPC associated with this APEC were PHCs and BTEX. The monitoring well was screened to intersect the first water bearing formation encountered, in order to allow for the assessment of LNAPL, and to provide information regarding the quality of the groundwater at the water table. The monitoring well was screened within the silt till unit encountered at an approximate depth of 3.00 to 6.1 mbgs. This unit is inferred to be an unconfined aquifer.

5.2.2 Results of Interface Probe Measurements

A summary of the groundwater level measurements is provided in Table 1. The groundwater level measurements were collected using a (Solinst) interface probe (Model 122). The depth to groundwater was found to be 0.49 mbgs on May 22, 2019. There was no indication of DNAPL or LNAPL in the monitoring wells at this time.

5.2.3 Product Thickness and Free Flowing Product

No evidence of product was observed in the monitoring wells at the time of the investigation.

5.2.4 Groundwater Elevation

The groundwater elevation was calculated by subtracting the depth to groundwater from the surface elevation determined by the surface elevation survey conducted as part of this investigation. A summary of the groundwater elevations calculated is presented in Table 1. Generally, the groundwater elevation was found to range from 191.17 to 191.41 masl in the upper aquifer investigated.

5.2.5 Groundwater Flow Direction

The groundwater flow direction could not be calculated as only one monitoring well was present on the Phase Two Property. As a tributary of the East Sixteen Mile creek flows through the southeastern portion of the property on Parcel D, regional groundwater flow is inferred to be southeasterly towards the creek.

5.2.6 Assessment of Potential for Temporal Variability in Groundwater Flow Direction

The shallow aquifer investigated is inferred to be an unconfined aquifer, based on the soil stratigraphy observed in the boreholes advanced on the Phase Two Property. It is possible

that temporal variations in groundwater elevations may occur on the Phase Two Property in response to seasonal weather patterns.

Temporal variability in groundwater level has the ability to influence the groundwater flow direction. The degree of variation in groundwater levels on the Phase Two Property can only be confirmed with long-term monitoring.

5.2.7 Evaluation of Potential Interaction Between Buried Utilities and the Water Table

The groundwater table was encountered at depths ranging from 0.25 to 0.49 mbgs on the Phase Two Property. Buried utility services are present on the Phase Two Property in the vicinity of Site Building A and are inferred to be situated at depths ranging between 2 and 3 mbgs. Based on this, there is the potential for the utility trenches to act as preferential pathways. However, no groundwater impacts were identified, therefore the potential for preferential migration of contaminants is not of concern at this time.

5.3 Ground Water Hydraulic Gradients

5.3.1 Horizontal Hydraulic Gradient

The horizontal hydraulic gradient could not be calculated at this time as only one monitoring well was required to be advanced on the property. Horizontal hydraulic gradient calculations require a minimum of two (2) wells.

5.3.2 Vertical Hydraulic Gradient

The vertical hydraulic gradient was not calculated, as no groundwater impacts were identified on the Phase Two Property.

5.4 Fine-Medium Soil Texture

5.4.1 Rational for use of Fine-Medium Soil Texture Category

Three (3) grain size analysis was conducted as part of this investigation. The results of the grain size analysis indicate that the native soils encountered are medium to fine textured.

5.4.2 Results of Grain Size Analysis

A summary of the soil samples analyzed, and the corresponding grain size results is presented in the table below:

Table 5-2: Summary of Grain Size Analyses

Sample	% Gravel	% Sand	% Silt	% Clay	Classification
BH19-1 SS3	8%	22%	51%	19%	Medium-fine textured
BH19-1 SS5	5%	34%	53%	8%	Medium-fine textured
BH19-6 SS6	8%	41%	48%	3%	Medium-fine textured

5.4.3 Rational for the Number of Samples Collected and Analyzed

The grain size analyses were conducted as part of the geotechnical investigation which was conducted concurrently with this Phase Two ESA.

5.5 Soil Field Screening

Soil vapour headspace readings were collected at the time of sample collection, the results of which are presented on the borehole logs (Appendix C). The soil vapour headspace readings were collected using a PID and CGD in methane elimination mode. The PID readings were non-detect (0ppm). The CGD readings ranged between 0 and 115 ppm. The soil samples were also screened for visual and olfactory indicators of impacts (e.g. staining, odours). No staining or odours were noted during the time of sampling.

Some asphalt fragments were observed within the fill material in BH19-1 SS1 approximately 0.0 to 0.8 mbgs.

5.6 Soil Quality

The results of the chemical analyses conducted are presented in Tables 5 through 8. A visual summary of the location of the sample locations is provided in Figures 6A through 6D. The laboratory certificates of analysis have been provided under Appendix D.

5.6.1 Metals and ORPs

A total of ten (10) samples, including two (2) field duplicates for QA/QC purposes were submitted for analysis of metals and ORPs. The results of the analyses are tabulated in Table 5 and presented on Figure 6A. The results of the analyses indicated the following exceedances of the Table 8 SCS:

Table 5-3: Summary of Metals and ORPs Exceedances in Soil

Sample ID	Sample Depth (mbgs)	Parameter	Units	Table 8 SCS	Reported Value
BH19-1 SS2	0.8-1.4	Uranium	µg/g	2.5	**4**
TP5	0.0-0.3	Uranium	µg/g	2.5	**4.8**
BH19-2 SS2	0.8-1.4	EC	mS/cm	0.7	**0.86**
BH19-2 SS2 (Dup-1)	0.8-1.4	EC	mS/cm	0.7	**1.1**

5.6.2 Petroleum Hydrocarbons

A total of three (3) samples were submitted for analysis of PHCs (incl. BTEX). The results of the analyses are tabulated in Table 6 and presented on Figure 6B. The results of the chemical analyses conducted indicated that all samples analyzed met the applicable Site Condition Standards.

5.6.3 Polycyclic Aromatic Hydrocarbons

A total of six (6) samples were submitted for analysis of PAHs. The results of the analyses are tabulated in Table 7 and presented on Figure 6C. The results of the chemical analyses conducted indicated that all samples analyzed met the applicable Site Condition Standards.

5.6.4 OC Pesticides

A total of five (5) samples were submitted for analysis of OC Pesticides. The results of the analyses are tabulated in Table 8 and presented on Figure 6D. The results of the analyses indicated that none of the samples exceeded Table 8 SCS.

5.6.5 Commentary on Soil Quality

No evidence of chemical or biological transformations of the parameters analyzed was observed.

Elevated levels of uranium were detected in test pit TP5 and borehole BH19-1 SS2, both located on the northern portion of the Phase Two Property, on Parcels C and D. No potential sources of uranium contamination were identified in the Phase One ESA, it is possible that the soils in the vicinity of test pit TP5 and BH19-1 SS2 contain naturally elevated levels of uranium.

Electrical conductivity (EC) impacts were identified in borehole BH19-2 SS2, located within the vicinity of the demolished barn (Site Building D). It is possible that the minor application of de-icing salts in the vicinity of the barn have resulted in localized EC impacts.

5.7 Ground Water Quality

The results of the chemical analyses conducted are presented in Table 9. A visual summary of the location of the sample locations is provided in Figure 7. The laboratory certificates of analysis have been provided under Appendix D.

5.7.1 Petroleum Hydrocarbons

A total of two (2) samples, including one (1) field duplicate for QA/QC purposes were submitted for analysis of PHCs (incl. BTEX). The results of the analyses are tabulated in Table 9 and presented on Figure 7. The results of the chemical analyses conducted indicated that all samples analyzed met the applicable Site Condition Standards.

5.7.2 Commentary on Groundwater Quality

The results of the groundwater sampling conducted indicated that the groundwater on-Site meets the applicable site condition standards.

5.8 Sediment Quality

No sediment was present on the Phase Two Property at the time of the investigation.

5.9 Quality Assurance and Quality Control Results

Collection of soil and groundwater samples was conducted in general accordance with the MECP *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*. As described in Section 5.12, dedicated equipment was used where possible, and all non-dedicated equipment was decontaminated before and between sampling events. All soil and groundwater samples were transferred directly into laboratory-supplied containers. The laboratory containers were prepared by the laboratory with suitable preservative, as required. All samples were stored and transported under refrigerated conditions. Chain of custody protocols were maintained from the time of sampling to delivery to the analytical laboratory.

The field QA/QC program involved the collection of field duplicate soil and groundwater samples, and the use of a trip blank for each groundwater sampling event (when suitable). In addition to the controls listed above, the analytical laboratory employed method blanks, internal laboratory duplicates, surrogate spike samples, matrix spike samples, and standard reference materials.

A summary of the field duplicate samples analyzed and an interpretation of the efficacy of the QA/QC program is provided in the table below.

Table 5-4: Summary of QA/QC Results

Sample ID	QA/QC duplicate	Medium	Parameter Analyzed	QA/QC Result
Dup-1	BH19-2 SS2	Soil	Metals and ORPs	All results were within the analytical protocol criteria for RPD with the following exceptions noted below.
Dup-8	TP5	Soil	Metals and ORPs	All results were within the analytical protocol criteria for RPD with the following exceptions noted below.
Dup-C	BH19-6	Groundwater	PHCs	All results were within the analytical protocol criteria for RPD

The following exceptions in the RPD protocols were identified:

- The RPD value for BH19-2 SS2 (Dup-1) of 59% exceeded the recommended 30% RPD limit for barium. The variance in the analytical result between the parent and duplicate sample are attributed to the heterogeneity of the fill material analyzed.
- The RPD value for BH19-2 SS2 (Dup-1) of 31% exceeded the recommended 30% RPD limit for uranium. The variance in the analytical result between the parent and duplicate sample are attributed to the heterogeneity of the fill material analyzed.
- The RPD value for BH19-2 SS2 (Dup-1) of 24% exceeded the recommended 10% RPD limit for electrical conductivity. The variance in the analytical result between the parent and duplicate sample are attributed to the heterogeneity of the fill material analyzed.
- The RPD value for TP5 (Dup-8) of 38% exceeded the recommended 10% RPD limit for EC. The variance in the analytical result between the parent and duplicate sample are attributed to the heterogeneity of the fill material analyzed.

Based on the interpretation of the laboratory results and the QA/QC program, it is the opinion of the QP that the laboratory analytical data can be relied upon.

All samples were handled in accordance with the MECP Analytical Protocol regarding sample holding time, preservation methods, storage requirements, and type of container.

Maxxam routinely conducts internal QA/QC analyses in order to satisfy regulatory QA/QC requirements. The results of the Maxxam QA/QC analyses for the submitted soil samples are summarized in the laboratory Certificates of Analyses provided in Appendix C.

With respect to subsection 47(3) of O.Reg 153/04 (as amended), all certificates of analysis or analytical reports pursuant to clause 47(2) (b) of the regulation comply with subsection 47(3). A certificate of analysis has been received for each sample submitted for analysis and have been provided (in full) in Appendix D.

A review of the QA/QC sample results indicated that no issues were identified with respect to both the field collection methodology and the laboratory reporting. It is the opinion of the QP that the analytical data obtained are representative of the soil and groundwater conditions at the Phase Two Property for the purpose of assessing whether the soil and groundwater at the Phase Property meets the applicable MECP SCS.

5.10 Phase Two Conceptual Site Model

This Phase Two Conceptual Site Model was developed through a synthesis of the information obtained through the completion of the Phase One ESA, and the data collected as part of the Phase Two ESA.

I. Description and Assessment of:

A. <u>Areas where potentially contaminating activity has occurred</u>

A total of sixteen (16) PCAs were identified in the Phase One ESA. A summary of the PCAs considered to be contributing to APECs on the Phase Two Property is provided in the table below.

Table 5-5: Summary of PCAs Contributing to APECs

PCA Item.	PCA Description (Per. Table 2, Schedule D of O.Reg. 153/04)	Description	Contributing to APEC (Y/N)
1	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks	One historical AST was identified in the 2011 AME Phase I ESA conducted on Parcel C.	Yes – APEC-1
2	PCA-30: Importation of Fill Material of Unknown Quality	Fill material was observed during the site investigation in the footprint of the former barn.	Yes – APEC-2
3	PCA-30: Importation of Fill Material of Unknown Quality	Fill material was encountered in BH8 during the 2006 AME geotechnical investigation conducted on Parcel C.	Yes – APEC-3
4	PCA-30: Importation of Fill Material of Unknown Quality	Fill material was encountered in BH1 in the 2008 geotechnical investigation conducted by Shad & Associates Inc.	Yes – APEC-4
5	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	The Phase One Property (Parcel B, C, D) has historically been used for agricultural purposes.	Yes – APEC-5
6	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	An orchard is visible on the northern portion of Parcel B in the 1880 Halton County Atlas.	Yes – APEC-6

PCA Item.	PCA Description (Per. Table 2, Schedule D of O.Reg. 153/04)	Description	Contributing to APEC (Y/N)
7	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	An orchard is visible on the northern portion of Parcel C in the 1880 Halton County Atlas.	Yes – APEC-7
8	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	An orchard is visible on the central portion of Parcel D in the 1880 Halton County Atlas.	Yes – APEC-8

B. Areas of potential environmental concern

A total of eight (8) APECs were identified to be present on the Phase Two Property through the completion of the Phase One ESA. A summary of the APECs identified, and the associated PCOCs is provided in the table below.

Table 5-6: Summary of APECs on Phase Two Property

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase Two Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC-1	Vicinity of Site Building A on Parcel C.	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks - One historical AST was identified in the 2011 AME Phase I ESA conducted on Parcel C.	On Site	PHCs, PAHs	Soil
				PHC, BTEX	Groundwater
APEC-2	Footprint of Site Building D on Parcel C.	PCA-30: Importation of Fill Material of Unknown Quality - Fill material was observed during the site investigation in the footprint of the former barn.	On Site	Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil
APEC-3	Northwest corner of Parcel C.	PCA-30: Importation of Fill Material of Unknown Quality - Fill material was encountered in BH8 during the 2006 AME geotechnical investigation conducted on Parcel C.	On Site	Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil
APEC-4	Southwest corner of Parcel B	PCA-30: Importation of Fill Material of Unknown Quality – Fill material was encountered in BH1 in the 2008 geotechnical	On Site.	Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg,	Soil

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase Two Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
		investigation conducted by Shad & Associates Inc.		low or high pH, SAR, PAHs	
APEC-5	Entire Property	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications - The Phase One Property (Parcel B, C, D) has historically been used for agricultural purposes.	On Site	OCPs	Soil
APEC-6	Northern Portion of Parcel B	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications - An orchard was formerly present in the northern portion of Parcel B	On Site	OCPs, Metals, As, Sb, Se	Soil
APEC-7	Northern Portion of Parcel C	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications - An orchard was formerly present on the northern portion of Parcel C	On Site	OCPs, Metals, As, Sb, Se	Soil
APEC-8	Central Portion of Parcel D	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications - An orchard was formerly present on the central portion of Parcel D	On Site	OCPs, Metals, As, Sb, Se	Soil

C. <u>Any subsurface structures and utilities on, in or under the Phase Two Property that may affect contaminant distribution and transport</u>

The groundwater table was encountered at depths ranging from 0.25 to 0.49 on the Phase Two Property. Buried utility services are present on the Phase Two Property and are inferred to be situated at depths ranging between 2 and 3 mbgs. Based on this there is the potential for the utility trenches to act as preferential pathways. However, no groundwater impacts were identified, therefore the potential for preferential migration of contaminants is not of concern at this time.

II. Description of, and as appropriate, figures illustrating, the physical setting of the Phase Two Property and any areas under it including:

A. <u>Stratigraphy from ground surface to the deepest aquifer or aquitard investigated</u>

<u>Parcel B</u>

A surficial layer of topsoil approximately 150mm to 350mm thick was encountered, underlain by fill material consisting of sandy silt, silty sand, sand, and clayey silt, extending to depths ranging from 0.8 to 1.5 mbgs. Below the fill material was a layer of clayey silt till that consisted of clayey silt and silty clay. This was underlain by a sandy silt till in boreholes BH19-4 and BH19-5, which overlaid shale bedrock. Bedrock was encountered at depths ranging from 2.5 to 4.6mbgs.

<u>Parcel C</u>

A surficial layer of topsoil approximately 50mm to 200mm thick was encountered, underlain by fill material consisting of sandy silt and clayey silt extending to approximate depths of 0.8 to 1.6 mbgs. The fill material was underlain by clayey silt till deposits, approximately 0.8-1.5 m in thickness. A till shale complex unit was encountered approximately 3.1 mbgs in BH19-2 below the clayey silt till deposit. This unit is the transition zone from till to shale bedrock and contain properties of hard/dense till and bedrock slabs.

<u>Parcel D</u>

Based on the Shad & Associates Preliminary Geotechnical Investigation conducted in 2008, a surficial topsoil layer was encountered, generally ranging in thickness from 100 to 200mm, with the exception of BH6 where the topsoil layer was 450mm thick. The topsoil layer at all borehole locations was underlain by a weathered and disturbed silty clay / clayey silt with trace topsoil and organics, extending to depths ranging from 0.9 m to 1.8 m below the existing grade. The weathered/disturbed layer is possibly a result of agricultural use of the

land. Clayey silt / silty clay till was encountered below the weathered/disturbed layer at all borehole locations and extended to maximum explored depths of boreholes. Occasional sand seams were encountered within the till deposit across the site.

The borehole locations are depicted on Figure 4.

B. Hydrogeological Characteristics, including aquifers, aquitards and, in each hydrostratigraphic unit where one or more contaminants is present at concentrations above the applicable site condition standards, lateral and vertical gradients

The groundwater table was encountered in a clayey silt till unit, which is considered to be an unconfined aquifer.

A minimum of three (3) monitoring wells are required in order to asses groundwater flow direction. One (1) monitoring well (BH19-6) was advanced on the Phase Two Property, therefore, the groundwater flow direction was interpreted based on the local topography. The groundwater flow direction is interpreted to be southeast towards a tributary of the East Sixteen Mile Creek, which runs through the southeastern corner of the Phase Two Property on Parcel D.

C. Depth to bedrock

The depth to bedrock was found to range between 3.1 and 4.6 mbgs. The bedrock was found to consist of weathered shale and was reddish brown in colour.

D. Approximate depth to water table

The depth to groundwater was found to range between 0.25 to 0.49 mbgs between May 17 and May 22, 2019.

E. Any respect in which section 41 or 43.1 of the regulation applies to the property

The pH values measured were within the acceptable limits for non-sensitive sites. There are no areas of natural significance on the Phase Two Property, as such the Phase Two Property is not considered to be environmentally sensitive as defined by Section 41. The Phase Two Property is within 30m of a water body (a tributary of the East Sixteen Mile Creek), therefore, sub-subparagraph of 1 a of sub-section 43.1 of O.Reg 153/04 applies. As such, the laboratory analytical results for the Phase Two Property were compared to the MECP Table 8 SCS.

F. Areas where soil has been brought from another property and placed on, in or under the Phase Two Property

No fill material was imported to the Phase Two Property during the course of this investigation.

G. Approximate locations, if known, of any proposed buildings and other structures

It is our understanding that redevelopment of the Site for residential purposes has been proposed. It is further understood that the proposed development will occupy the entirety of the Phase Two Property.

III. Where a contaminant is present on, in or under the Phase Two Property at a concentration greater than the applicable site condition standard, identification of

A. Each area where a contaminant is present on, in or under the Phase Two Property at a concentration greater than the applicable SCS

Metals and ORPs

Elevated levels of uranium were detected in test pit TP5 and borehole BH19-1 SS2, both located on the northern portion of the Phase Two Property, on Parcels C and D. No potential sources of uranium contamination were identified in the Phase One ESA, it is possible that the soils in the vicinity of test pit TP5 and BH19-1 SS2 contain naturally elevated levels of uranium.

Electrical conductivity (EC) impacts were identified in borehole BH19-2 SS2, located within the vicinity of the demolished barn (Site Building D). It is possible that the minor application of de-icing salts in the vicinity of the barn have resulted in localized EC impacts.

PHCs (incl. BTEX)

All samples analyzed met the Table 8 SCS.

PAHs

All samples analyzed met the Table 8 SCS.

OCPs

All samples analyzed met the Table 8 SCS.

B. The contaminants associated with each of the areas

A visual representation of the location of the impacts identified, including the individual contaminants associated with the impacted areas is presented in Figure 6A.

The contaminants identified at concentrations greater than the applicable SCS included: Uranium and conductivity in the vicinity of BH19-1, BH19-2, and TP5 respectively. The vertical and horizontal extent of the soil impacts is currently unknown.

C. Medium that contaminants were identified in

Contaminants were identified at concentrations greater than the applicable SCS in soil for EC, and uranium. All contaminants identified were within 0.0-1.4 mbgs. All of the groundwater samples analyzed met the Table 8 SCS.

D. Description and assessment of what is know about each of the areas

The vertical and horizontal distribution of EC and uranium impacts identified are unknown at this time. EC and uranium impacts were identified in the northern central portion of the property on Parcels C and D.

E. Distribution in which the areas of each contaminant is present in the area at a concentration greater than the applicable SCS, for each medium in which the contaminant is present, together with figures showing the distribution

The vertical and horizontal distribution of EC and uranium impacts identified are unknown at this time. Figure 6A shows the location of the impacts identified.

F. Anything know about the reason for the discharge of the contaminants present on, in or under the Phase Two Property at a concentrations greater than the applicable SCS

Elevated levels of uranium were detected in test pit TP5 and borehole BH19-1 SS2, both located on the northern portion of the Phase Two Property, on Parcels C and D. No potential sources of uranium contamination were identified in the Phase One ESA, it is possible that the soils in the vicinity of test pit TP5 and BH19-1 SS2 contain naturally elevated levels of uranium.

Electrical conductivity (EC) impacts were identified in borehole BH19-2 SS2, located within the vicinity of the demolished barn (Site Building D). It is possible that the minor application of de-icing salts in the vicinity of the barn have resulted in localized EC impacts.

G. Anything known about migration of the contaminants present on, in or under the phase two property at a concentration greater than the applicable SCS away from any area of potential environmental concern, including the identification of any preferential pathways

The soil impacts were identified in the northern-central portion of the Phase Two Property on Parcels C and D. There is no indication of mobilization of contaminants at this time. Contaminants were identified within 0.0 to 1.4 mbgs. The soils on-site are inferred to be of low hydraulic conductivity and is therefore likely to limit the mobility of the contaminants identified.

H. Climatic or meteorological conditions that may have influenced distribution and migration of the contaminants, such as temporal fluctuations in groundwater levels

Two (2) groundwater level measurements were recorded throughout the course of this investigation. The groundwater levels were found to fluctuate by a maximum of 24 cm between May 17 and 22 2019, suggesting that there are relatively minor temporal variations in groundwater levels. As such the effect of temporal fluctuations on contaminant distribution is expected to be minor.

I. Information concerning soil vapour intrusion of the contaminants into buildings

No volatile parameters were identified at concentrations greater than the applicable SCS, therefore vapour intrusion is not considered to be an exposure pathway at this time.

IV. Where contaminants on, in or under the Phase Two Property are present at concentrations greater than the applicable SCS, one or more cross-sections showing

A. The lateral and vertical distribution of a contaminant in each area where the contaminants are present at concentrations greater than the applicable SCS in soil, groundwater and sediment

B. Approximate depth to water table

C. Stratigraphy from ground surface to the deepest aquifer or aquitard investigated

D. Any subsurface structures and utilities that may affect contaminants distribution and transport

Additional delineation is required. Cross-sections will be prepared once all required investigation has been completed.

V. For each area where a contaminant is present on, in or under the property at a concentration greater than the applicable SCS for the contaminant, a diagram identifying, with narrative explanatory notes

A. The release mechanisms
B. Contaminant transport pathway
C. The human and ecological receptors located on, in or under the phase two property
D. Receptor exposure points
E. Routes of exposure

Refer to Figure 7.

6.0 Conclusions

This Phase Two ESA involved that advancement of six (6) boreholes, six (6) test pits, and the installation of one (1) monitoring well on the Phase Two Property, and the collection of soil and groundwater samples for analysis of the potential contaminants of concern, including: PHCs, BTEX, Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, and PAHs.

Based on the results of the information gathered through the course of the investigation, DS presents the following conclusions:

- EC and uranium impacts were identified in soil. Generally, the EC and uranium impacts were identified in the northern central portion of the property on Parcels C and D. The vertical and horizontal extent of these impacts is currently unknown. Uranium impacts were identified in TP5 and borehole BH19-1SS2. EC impacts were identified in borehole BH19-2 SS2. The vertical and horizontal extent of this impact is currently unknown, however, BH19-6 located adjacent to BH19-1 did not detect concentrations of uranium greater than the Table 8 SCS. Additional delineation is required to further characterize the soils on-Site.
- The groundwater samples submitted for chemical analysis met the applicable MECP Table 8 SCS for all parameters of concern.
- The results of this Phase Two ESA indicate that the applicable Site Condition Standards for soil have not been met. Additional delineation will be required in order to further assess the horizontal and vertical extent of the metals/ORPs impacts in soil.
- All monitoring wells should be decommissioned in accordance with O.Reg. 903 when no longer required.

6.1 Qualifications of the Assessors

Ms. Aphrodite Koseos, B.Sc., EPt.

Ms. Koseos is an Environmental Technician with DS Consultants Ltd. Aphrodite holds a Bachelor of Science Degree from Simon Fraser University with a major in Environmental Science and a specialization in Earth Systems. Aphrodite is also registered as an environmental professional in training with ECO Canada. Aphrodite has had several years of experience in the environmental sector conducting Phase One and Phase Two Environmental Site Assessments.

Mr. Patrick (Rick) Fioravanti, B.Sc., P.Geo., QP_{ESA}

Mr. Fioravanti is the Manager of Environmental Services with DS Consultants Limited. Patrick holds a Honours Bachelor of Science with distinction in Toxicology from the University of Guelph and is a practicing member of the Association of Professional Geoscientists of Ontario (APGO). Patrick has over eight years of environmental consulting experience and has conducted and/or managed over 100 projects in his professional experience. Patrick has extensive experience conducting Phase One and Phase Two Environmental Site Assessments in support of brownfields redevelopment in urban settings, and been involved in numerous remediation projects, supported many risk assessments, and successfully filed Records of Site Condition with the Ministry of Environment, Conservation and Parks. He has conducted work across southern and eastern Ontario, and Quebec in his professional experience. Patrick is considered a Qualified Person to conduct Environmental Site Assessments as defined by Ontario Regulation 153/04 (as amended).

6.2 Signatures

This Phase Two ESA was conducted under the supervision of Mr. Patrick (Rick) Fioravanti, B.Sc., P.Geo., QP$_{ESA}$ in accordance with the requirements of O.Reg. 153/04 (as amended). The findings and conclusions presented have been determined based on the information obtained at the time of the investigation, and on an assessment of the conditions of the Site at this time.

We trust this report meets with your requirements. Should you have any questions regarding the information presented, please do not hesitate to contact our office.

Yours truly,

DS Consultants Ltd

Aphrodite Koseos, B.Sc., EPt.
Environmental Technician

Rick Fioravanti, B.Sc., P.Geo., QP$_{ESA}$
Manager – Environmental Services

6.3 Limitations

This report was prepared for the sole use of Derry Britannia Developments Ltd. and is intended to provide an assessment of the environmental condition on the property located at 6500, 6432, 6400 Ninth Line, Mississauga, Ontario. The information presented in this report is based on information collected during the completion of the Phase Two Environmental Site Assessment by DS Consultants Ltd. The material in this report reflects DS' judgment in light of the information available at the time of report preparation. This report may not be relied upon by any other person or entity without the written authorization of DS Consultants Ltd. The scope of services performed in the execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or reuse of this documents or findings, conclusions and recommendations represented herein, is at the sole risk of said users.

The conclusions drawn from the Phase Two ESA were based on information at selected observation and sampling locations. Conditions between and beyond these locations may become apparent during future investigations or on-site work, which could not be detected or anticipated at the time of this investigation. The sampling locations were chosen based upon a cursory historical search, visual observations and limited information provided by persons knowledgeable about past and current activities on this site during the Phase Two ESA activities. As such, DS Consultants Ltd. cannot be held responsible for environmental conditions at the site that was not apparent from the available information.

7.0 References

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- Ontario Ministry of Environment, 15 April 2011. *Soil, Ground Water and Sediment Standards for use under part XV.1of the Environmental Protection Act.*
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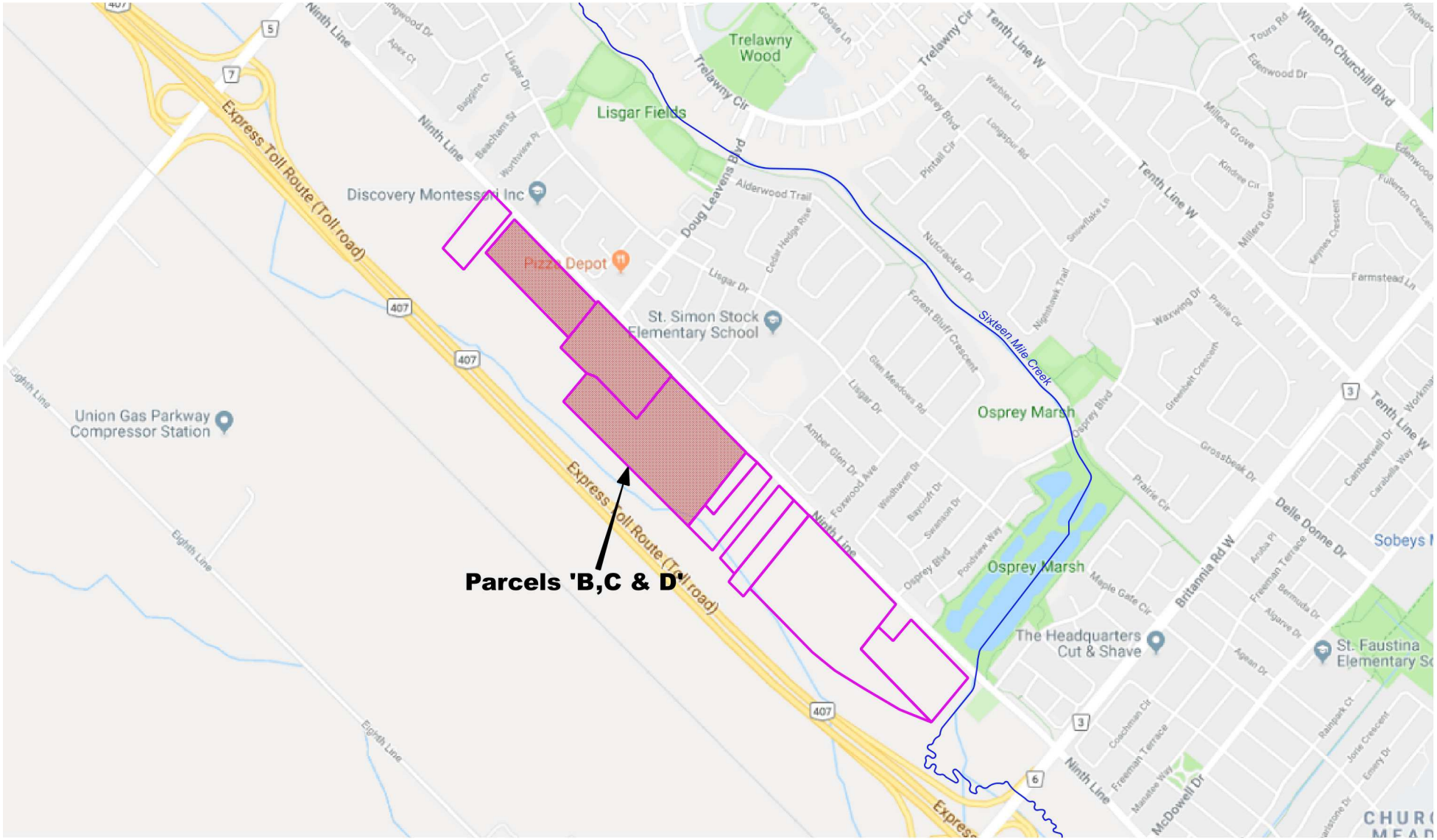
- Ontario Ministry of the Environment, July 2011. *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.*
- The Ontario Geological Survey. 2003. *Surficial Geology of Southern Ontario*.
- *"Geotechnical Investigation, Argo Developments, 6432 Ninth Line, Town of Milton, Ontario",* prepared for Argo Development, prepared by AME Materials Engineering, dated January 2006; and
- *"Draft Phase I Environmental Site Assessment, Part of Lot 8, Concession 9, Milton, Ontario,",* prepared for Derry Britannia Developments Limited, prepared by Pinchin Environmental, dated October 2, 2008*; and*
- *"Draft Phase I Environmental Site Assessment, Part of Lot 9, Concession 9, Milton, Ontario,",* prepared for Derry Britannia Developments Limited, prepared by Pinchin Environmental, dated October 2, 2008; *and*
- *"Preliminary Geotechnical Investigation Report, Property P456, Milton, Ontario",* prepared for Derry Britannia Developments Limited, prepared by Shad & Associates, dated October 8, 2008; *and*
- *"Preliminary Geotechnical Investigation Report, Property P455, Milton, Ontario", prepared* for Derry Britannia Developments Limited, prepared by Shad & Associates, dated October 8, 2008*; and*
- *"Phase I Environmental Site Assessment, Scapicchio Property, 6432 Ninth Line, Milton, Ontario",* prepared for Mattamy

Figures

J:\-GIS\18-692-100 Ninth Line_Mattamy Development\1-QGIS\Parcel B,C and D\Phase Two\Figure 1 - Site Location Plan.qgs



Legend

- Site Boundary
- Parcel 'B,C & D' Boundary

0 250 500 m

DS CONSULTANTS LTD.
6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
6500, 6432, 6400 Ninth Line, Mississauga, ON

Title: **SITE LOCATION PLAN**

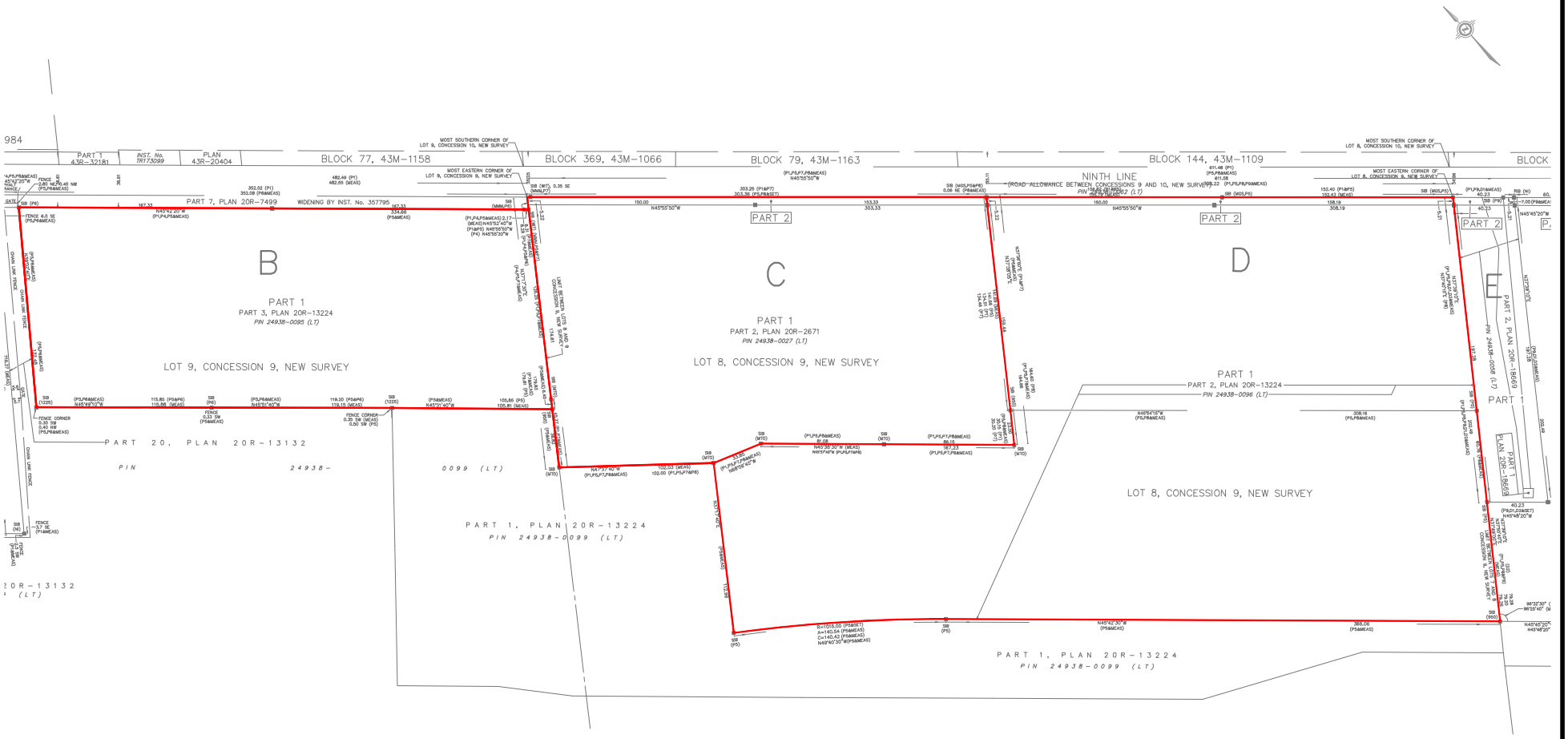
N

Client: DERRY BRITANNIA DEVELOPMENTS LTD.

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	June 2019
Rev: 0	Scale: As Shown	Project No.: 18-692-100	Figure No.: 1

Image/Map Source: *Google Street Map*

Path:j:\-gis\18-692-100 ninth line_mattamy development\7-misc\cad\figure 2 - phase one property site plan.dwg



Parcel 'B, C' & 'D' Boundary

DS CONSULTANTS LTD.
6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
6500, 6432, 6400 Ninth Line, Mississauga, ON

Title: **PHASE TWO PROPERTY SITE PLAN**

Client:	Size:	Approved By:	Drawn By:	Date:
DERRY BRITANNIA DEVELOPMENTS LTD.	8.5 x 11	R.F	S.Y	June 2019
	Rev.	Scale: 1:4000	Project No: 18-692-100	Figure No. **2A**

J:\-GIS\18-692-100 Ninth Line_Mattamy Development\1-QGIS\Parcel B,C and D\Phase Two\Figure 2B - Historical Site Plan.qgs

Legend

Parcels 'B, C & 'D' Boundary

DS CONSULTANTS LTD.
6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
6500, 6432, 6400 Ninth Line, Mississauga, ON

Title: **HISTORICAL SITE PLAN**

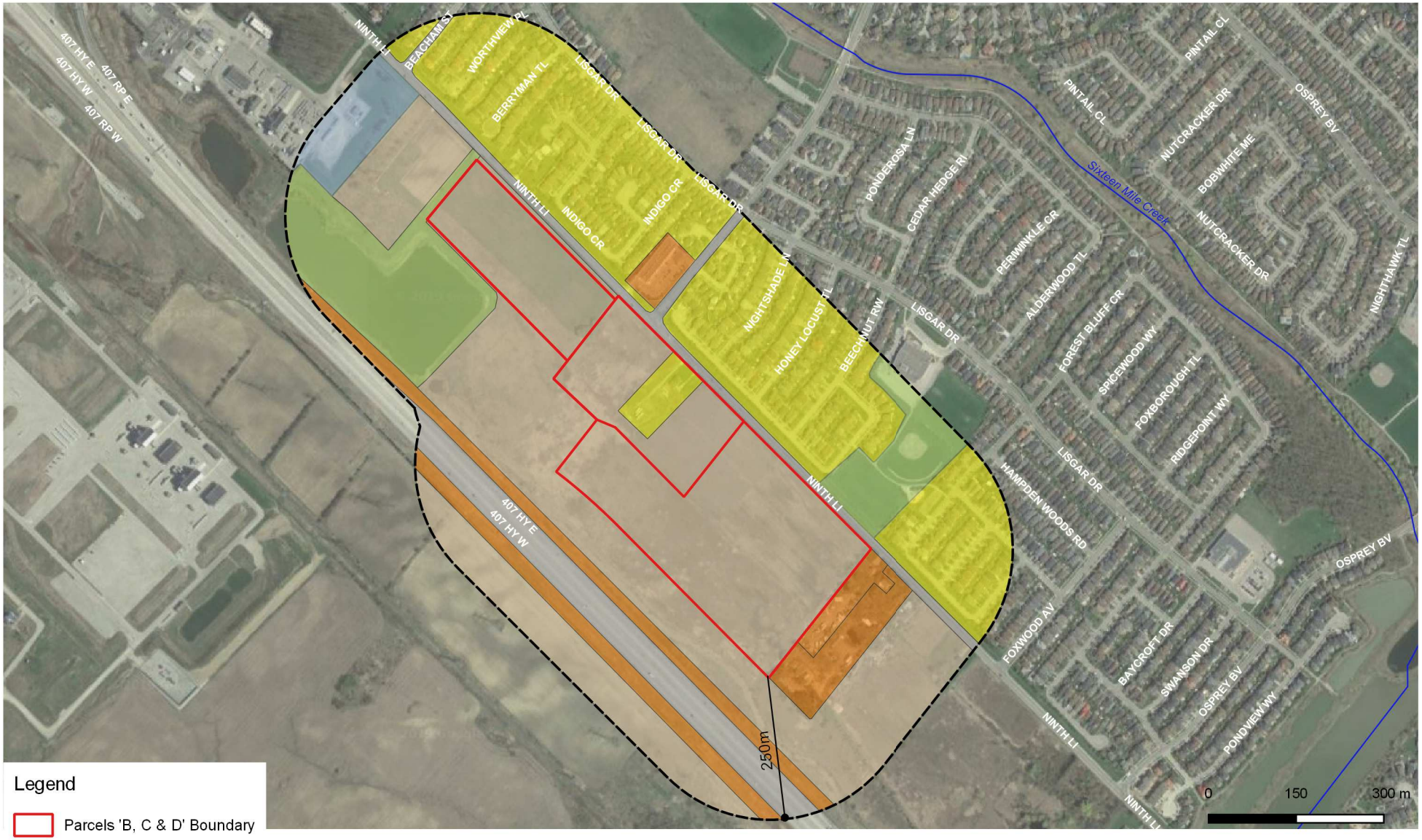
N

Client: DERRY BRITANNIA DEVELOPMENTS LTD.

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	May 2019
Rev: 0	Scale: As Shown	Project No.: 18-692-100	Figure No.: **2B**

Image/Map Source: *2009 Google Satellite Image*

J:\-GIS\18-692-100 Ninth Line_Mattamy Development\1-QGIS\Parcel B,C and D\Phase Two\Figure 3A - Phase One Study Area.qgs



Legend

- Parcels 'B, C & D' Boundary
- 250m Buffer
- Residential
- Commercial
- Industrial
- Agricultural
- Parkland

DS CONSULTANTS LTD.
6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Client: DERRY BRITANNIA DEVELOPMENTS LTD.

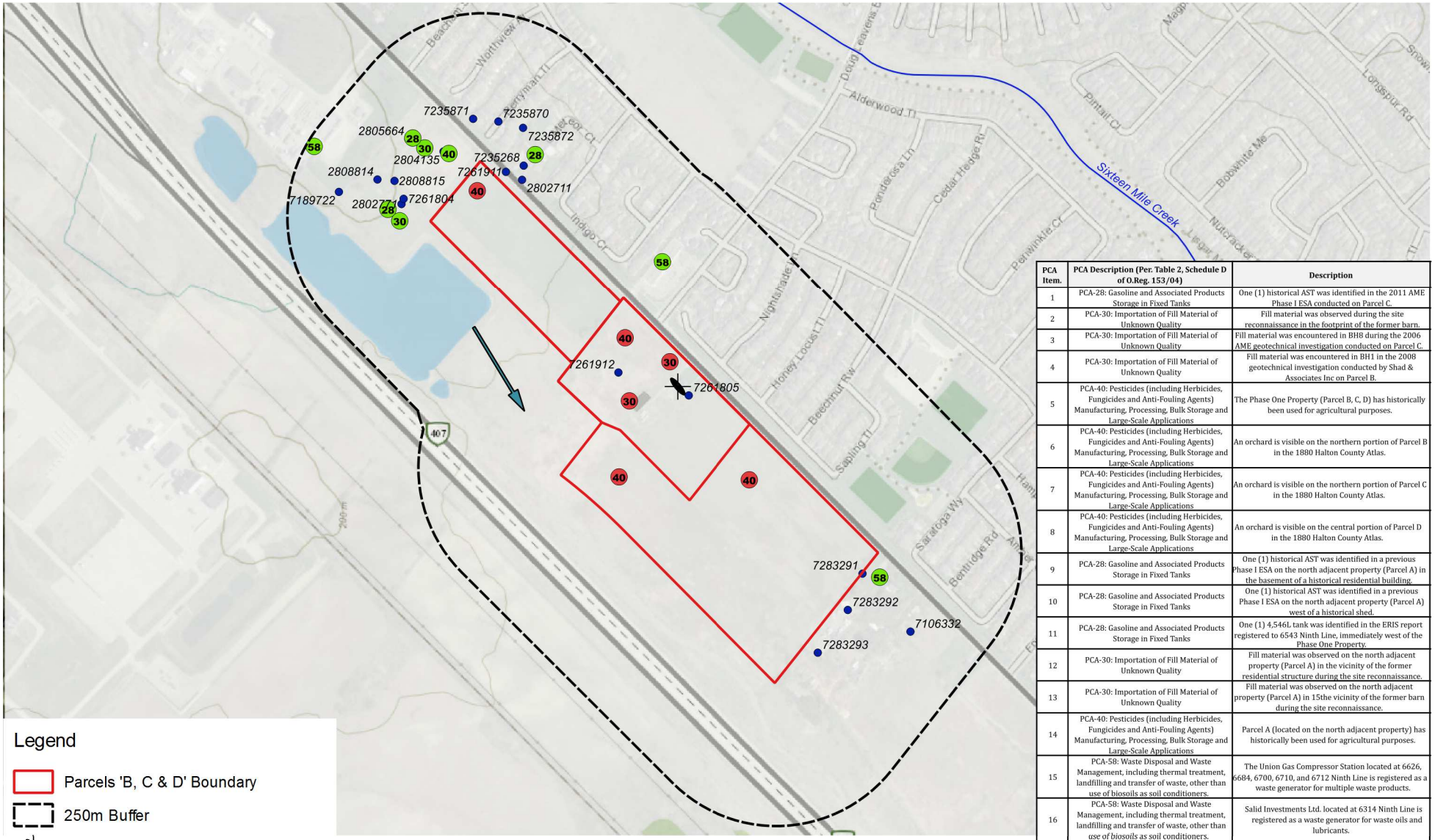
Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
6500, 6432, 6400 Ninth Line, Mississauga, ON

Title: **PCA WITHIN PHASE ONE STUDY AREA**

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	June 2019
Rev: 0	Scale: As Shown	Project No.: 18-692-100	Figure No.: **3A**

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-692-100 Ninth Line_Mattamy Development\1-QGIS\Parcel B,C and D\Phase Two\Figure 3B - PCA within Phase One Study Area.qgs



PCA Item.	PCA Description (Per. Table 2, Schedule D of O.Reg. 153/04)	Description
1	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) historical AST was identified in the 2011 AME Phase I ESA conducted on Parcel C.
2	PCA-30: Importation of Fill Material of Unknown Quality	Fill material was observed during the site reconnaissance in the footprint of the former barn.
3	PCA-30: Importation of Fill Material of Unknown Quality	Fill material was encountered in BH8 during the 2006 AME geotechnical investigation conducted on Parcel C.
4	PCA-30: Importation of Fill Material of Unknown Quality	Fill material was encountered in BH1 in the 2008 geotechnical investigation conducted by Shad & Associates Inc on Parcel B.
5	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	The Phase One Property (Parcel B, C, D) has historically been used for agricultural purposes.
6	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	An orchard is visible on the northern portion of Parcel B in the 1880 Halton County Atlas.
7	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	An orchard is visible on the northern portion of Parcel C in the 1880 Halton County Atlas.
8	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	An orchard is visible on the central portion of Parcel D in the 1880 Halton County Atlas.
9	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) historical AST was identified in a previous Phase I ESA on the north adjacent property (Parcel A) in the basement of a historical residential building.
10	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) historical AST was identified in a previous Phase I ESA on the north adjacent property (Parcel A) west of a historical shed.
11	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks	One (1) 4,546L tank was identified in the ERIS report registered to 6543 Ninth Line, immediately west of the Phase One Property.
12	PCA-30: Importation of Fill Material of Unknown Quality	Fill material was observed on the north adjacent property (Parcel A) in the vicinity of the former residential structure during the site reconnaissance.
13	PCA-30: Importation of Fill Material of Unknown Quality	Fill material was observed on the north adjacent property (Parcel A) in 15the vicinity of the former barn during the site reconnaissance.
14	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	Parcel A (located on the north adjacent property) has historically been used for agricultural purposes.
15	PCA-58: Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners.	The Union Gas Compressor Station located at 6626, 6684, 6700, 6710, and 6712 Ninth Line is registered as a waste generator for multiple waste products.
16	PCA-58: Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners.	Salid Investments Ltd. located at 6314 Ninth Line is registered as a waste generator for waste oils and lubricants.

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
6500, 6432, 6400 Ninth Line, Mississauga, ON

Title: **PCA WITHIN PHASE ONE STUDY AREA**

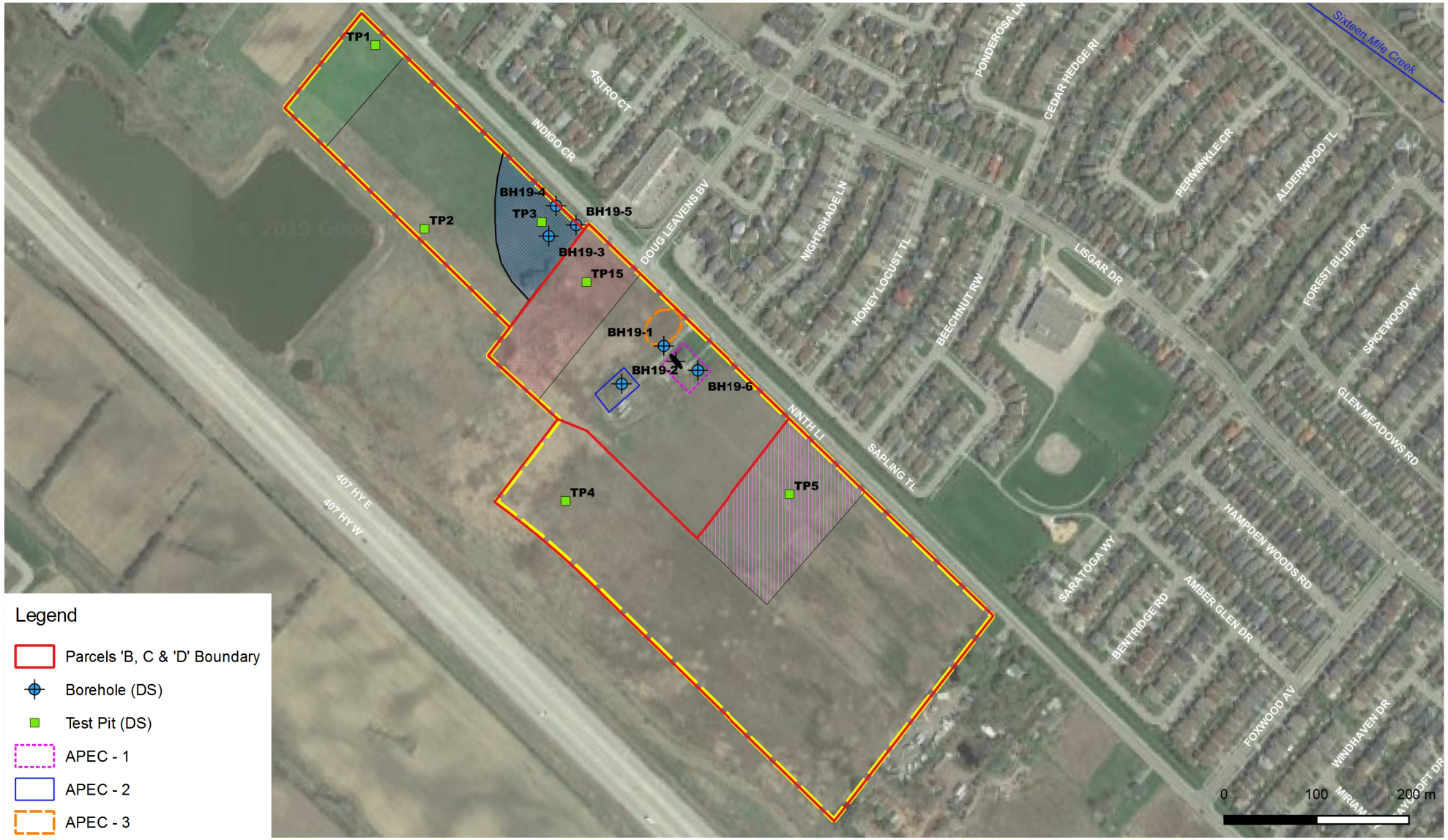
N

Client: DERRY BRITANNIA DEVELOPMENTS LTD.

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	June 2019
Rev: 0	Scale: As Shown	Project No.: 18-692-100	Figure No.: **3B**

Image/Map Source: *Esri Topo and Google Satellite Image*

J:\-GIS\18-692-100 Ninth Line_Mattamy Development\1-QGIS\Parcel B,C and D\Phase Two\Figure 4 - Borehole Location Plan with APEC.qgs



Legend

- Parcels 'B, C & 'D' Boundary
- Borehole (DS)
- Test Pit (DS)
- APEC - 1
- APEC - 2
- APEC - 3
- APEC - 4
- APEC - 5
- APEC - 6
- APEC - 7
- APEC - 8
- Former AST (PCA-28)

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
6500, 6432, 6400 Ninth Line, Mississauga, ON

Title: **BOREHOLE LOCATION PLAN WITH APECs**

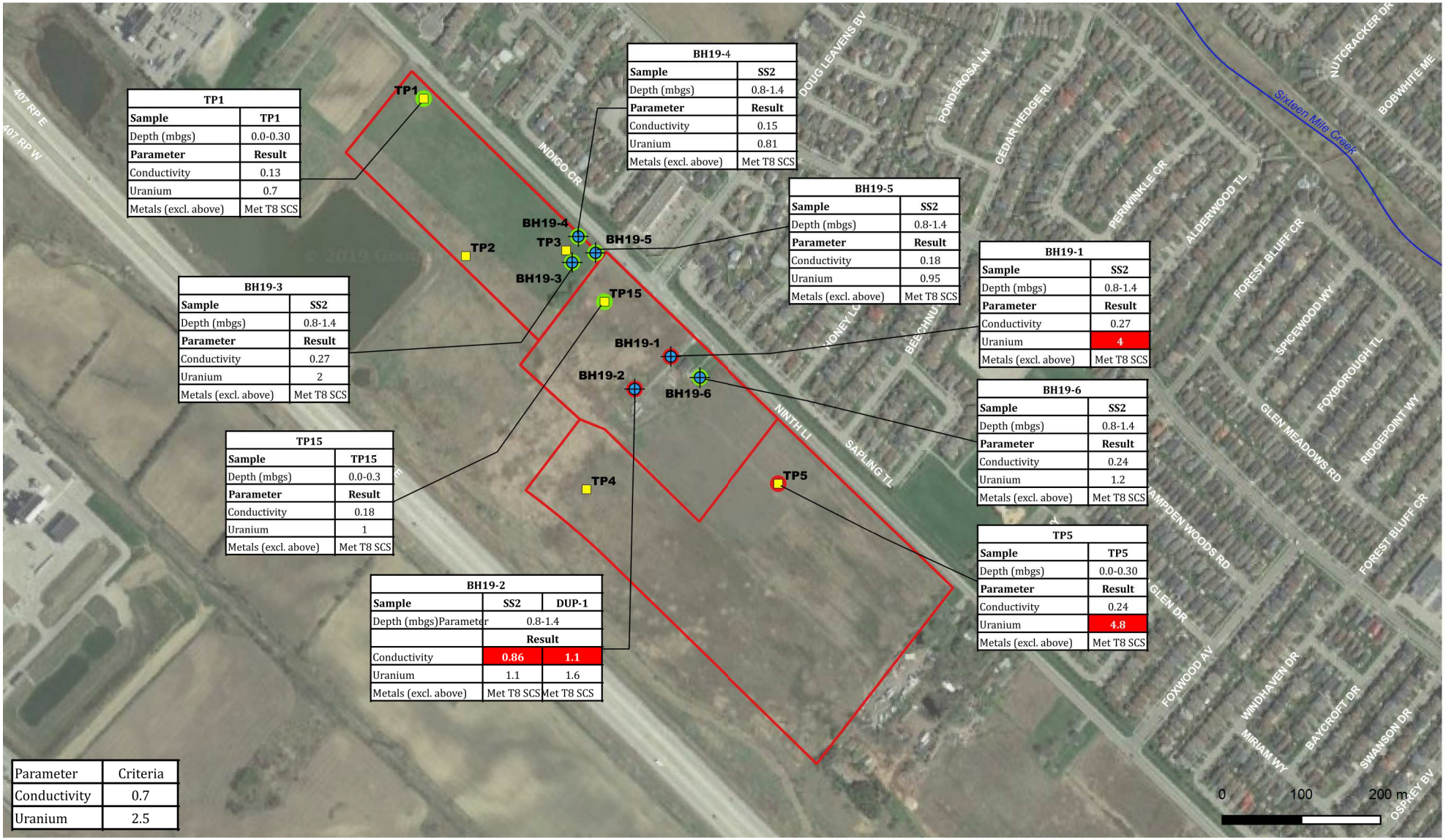
N

Client: DERRY BRITANNIA DEVELOPMENTS LTD.

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	June 2019
Rev: 0	Scale: As Shown	Project No.: 18-692-100	Figure No.: 4

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-692-100 Ninth Line_Mattamy Development\1-QGIS\Parcel B,C and D\Phase Two\Figure 5a - Summary of Metals and Inorganics In Soil.qgs



TP1	
Sample	**TP1**
Depth (mbgs)	0.0-0.30
Parameter	**Result**
Conductivity	0.13
Uranium	0.7
Metals (excl. above)	Met T8 SCS

BH19-4	
Sample	**SS2**
Depth (mbgs)	0.8-1.4
Parameter	**Result**
Conductivity	0.15
Uranium	0.81
Metals (excl. above)	Met T8 SCS

BH19-5	
Sample	**SS2**
Depth (mbgs)	0.8-1.4
Parameter	**Result**
Conductivity	0.18
Uranium	0.95
Metals (excl. above)	Met T8 SCS

BH19-1	
Sample	**SS2**
Depth (mbgs)	0.8-1.4
Parameter	**Result**
Conductivity	0.27
Uranium	4
Metals (excl. above)	Met T8 SCS

BH19-3	
Sample	**SS2**
Depth (mbgs)	0.8-1.4
Parameter	**Result**
Conductivity	0.27
Uranium	2
Metals (excl. above)	Met T8 SCS

BH19-6	
Sample	**SS2**
Depth (mbgs)	0.8-1.4
Parameter	**Result**
Conductivity	0.24
Uranium	1.2
Metals (excl. above)	Met T8 SCS

TP15	
Sample	**TP15**
Depth (mbgs)	0.0-0.3
Parameter	**Result**
Conductivity	0.18
Uranium	1
Metals (excl. above)	Met T8 SCS

TP5	
Sample	**TP5**
Depth (mbgs)	0.0-0.30
Parameter	**Result**
Conductivity	0.24
Uranium	4.8
Metals (excl. above)	Met T8 SCS

BH19-2		
Sample	**SS2**	**DUP-1**
Depth (mbgs)Parameter	0.8-1.4	
	Result	
Conductivity	**0.86**	**1.1**
Uranium	1.1	1.6
Metals (excl. above)	Met T8 SCS	Met T8 SCS

Parameter	Criteria
Conductivity	0.7
Uranium	2.5

Legend

- Parcels 'B, C & 'D' Boundary
- Borehole (DS)
- Test Pit (DS)
- Sample Met Applicable Standards
- Sample Exceeds Applicable Standards

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
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Title: **SUMMARY OF METALS AND ORPs IN SOIL**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	June 2019
Rev: 0	Scale: As Shown	Project No.: 18-692-100	Figure No.: **5A**

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-692-100 Ninth Line_Mattamy Development\1-QGIS\Parcel B,C and D\Phase Two\Figure 5b - Summary of PHC in Soil.qgs

Legend

- Parcels 'B, C & 'D' Boundary
- Borehole (DS)
- Test Pit (DS)
- Sample Met Applicable Standards

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
6500, 6432, 6400 Ninth Line, Mississauga, ON

Title: **SUMMARY OF PHCs IN SOIL**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	June 2019
Rev: 0	Scale: As Shown	Project No.: 18-692-100	Figure No.: **5B**

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-692-100 Ninth Line_Mattamy Development\1-QGIS\Parcel B,C and D\Phase Two\Figure 5C - Summary of PAH in Soil.qgs

Legend

- Parcels 'B, C & 'D' Boundary
- Borehole (DS)
- Test Pit (DS)
- Sample Met Applicable Standards

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
6500, 6432, 6400 Ninth Line, Mississauga, ON

Title: **SUMMARY OF PAHs IN SOIL**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	June 2019
Rev: 0	Scale: As Shown	Project No.: 18-692-100	Figure No.: **5C**

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-692-100 Ninth Line_Mattamy Development\1-QGIS\Parcel B,C and D\Phase Two\Figure 5D - Summary of OCPs in Soil.qgs

Legend

- Parcels 'B, C & 'D' Boundary
- Borehole (DS)
- Test Pit (DS)
- Sample Met Applicable Standards

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
6500, 6432, 6400 Ninth Line, Mississauga, ON

Title: **SUMMARY OF OCPs IN SOIL**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	June 2019
Rev: 0	Scale: As Shown	Project No.: 18-692-100	Figure No.: **5D**

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-692-100 Ninth Line_Mattamy Development\1-QGIS\Parcel B,C and D\Phase Two\Figure 6A - Summary of PHC in GW.qgs

Legend

- Parcels 'B, C & 'D' Boundary
- Borehole (DS)
- Test Pit (DS)
- Sample Met Applicable Standards

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
6500, 6432, 6400 Ninth Line, Mississauga, ON

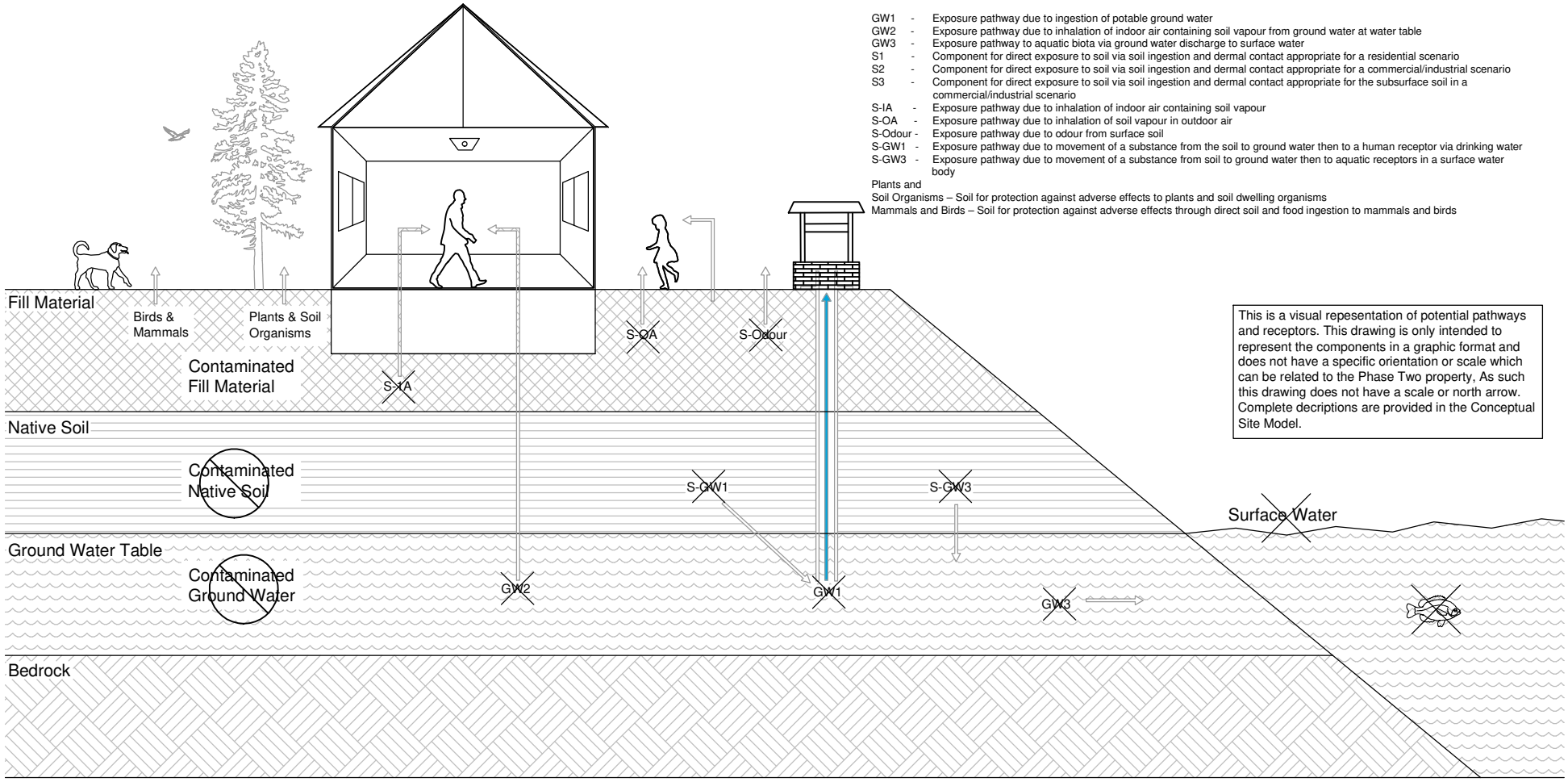
Title: **SUMMARY OF PHCs IN GROUNDWATER**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	June 2019
Rev: 0	Scale: As Shown	Project No.: 18-692-100	Figure No.: **6A**

Image/Map Source: *Google Satellite Image*

Path:j:\-gis\18-692-100 ninth line_mattamy development\7-misc\cad\figure 8 -pathways and receptors.dwg



Pathway Not Present

Not Identified

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
6500, 6432, 6400 Ninth Line, Mississauga, ON

Title: **CONTAMINANT TRANSPORT DIAGRAM**

Client: MATTAMY DEVELOPMENT CORPORATION

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	R.F	S.Y	June 2019
Rev.	Scale: N.T.S	Project No: 18-692-100	Figure No. 7

Tables

Table 1: Summary of Monitoring Well Installation and Groundwater Data

Well ID			BH19-6
Installed By:			DS
Installation Date:			13-May-19
Well Status:			Active
Inner Diameter		(mm)	50
Surface Elevation		(masl)	191.66
Bottom of Concrete Seal/Top of Bentonite Seal		mbgs	0.30
		masl	191.36
Bottom of Bentonite Seal/Top of Sand Pack		mbgs	2.40
		masl	189.26
Top of Well Screen		mbgs	3.00
		masl	188.66
Well Screen Length		m	3.10
Bottom of Well Screen		mbgs	6.10
		masl	185.56
GW Monitoring			
17-May-19	Depth to GW	mbgs	0.25
	GW Elevation	masl	191.41
22-May-19	Depth to GW	mbgs	0.49
	GW Elevation	masl	191.17

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 2: Summary of Soil Samples Submitted for Chemical Analysis

Borehole ID	Sample No.	Sample Depth (mbgs)	Soil Description	Parameter Analyzed	APEC Investigated
BH19-1	SS2	0.8-1.4	Sandy Silt	M&I, PAHs	APEC-3
	SS6	3.9-4.5	Silty Sand	PHCs+BTEX	APEC-3
BH19-2	SS2	0.8-1.4	Silt	M&I, PAHs	APEC-2
	SS4	2.3-2.9	Silt	PHCs+BTEX	APEC-2
BH19-3	SS2	0.8-1.4	Silt	M&I, PAHs	APEC-4
BH19-4	SS2	0.8-1.4	Silt	M&I, PAHs	APEC-4
BH19-5	SS2	0.8-1.4	Sandy Silt	M&I, PAHs	APEC-4
BH19-6	SS2	0.8-1.4	Sandy Silt	M&I, PAHs	APEC-1
	SS6	3.9-4.5	Silty Sand	PHCs+BTEX	APEC-1
TP1	TP1	0-0.3	Topsoil	M&I, OC Pesticides	APEC-5, APEC-6
TP2	TP2	0-0.3	Topsoil	M&I, OC Pesticides	APEC-5
TP3	TP3	0-0.3	Topsoil	OC Pesticides	APEC-5
TP4	TP4	0-0.3	Topsoil	OC Pesticides	APEC-5
TP5	TP5	0-0.3	Topsoil	OC Pesticides	APEC-5, APEC-8
TP15	TP15	0-0.3	Topsoil	M&I, OC Pesticides	APEC-5, APEC-7

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 3: Summary of Groundwater Samples Submitted for Chemical Analysis

Well ID	Well Screen Interval (masl)	Sample Date	Parameter Analyzed	APEC Investigated
BH19-6	185.56 - 188.66	22-May-19	PHCs	APEC-1

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 4: Summary of APECs Investigated

APEC	Description	PCOCs	Media	Boreholes Within APEC	Samples Analysed	Parameter Analyzed
APEC-1	Historical presence of fuel oil AST in attached garage	PHCs, BTEX, PAHs	Soil	BH19-6	SS2	Metals and ORPs, PAHs
					SS6	PHCs, BTEX
			Groundwater	BH19-6	BH19-6	PHCs, BTEX
APEC-2	Fill material in vicinity of historical barn	Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil	BH19-2	SS2	Metals and ORPs, PAHs
					SS4	PHCs, BTEX
APEC-3	Fill material in vicinity of 2006 AME BH8	Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR	Soil	BH19-1	SS2	Metals and ORPs, PAHs
					SS6	PHCs, BTEX
APEC-4	Fill material in vicinity of 2008 Shad & Associates BH1	Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil	BH19-3	SS2	Metals and ORPs, PAHs
				BH19-4	SS2	Metals and ORPs, PAHs
				BH19-5	SS2	Metals and ORPs, PAHs
APEC-5	Historical pesticide use for agricultural fields	OCPs	Soil	TP1		OCPs
				TP2		OCPs
				TP3		OCPs
				TP4		OCPs
				TP5		OCPs
APEC-6	An orchard was formerly present on the northern portion of Parcel B.	OCPs, Metals, As, Sb, Se	Soil	TP1		Metals and ORPs, OCPs
APEC-7	An orchard was formerly present on the northern portion of Parcel C.	OCPs, Metals, As, Sb, Se	Soil	TP15		Metals and ORPs, OCPs
APEC-8	An orchard was formerly present on the central portion of Parcel D.	OCPs, Metals, As, Sb, Se	Soil	TP5		Metals and ORPs, OCPs

Table 5: Summary of Metals and ORPs in Soil

Parameter	MECP Table 8 SCS	BH19-1 SS2	BH19-2 SS2	BH19-2 SS2 (Dup-1)	BH19-3 SS2	BH19-4 SS2	BH19-5 SS2	BH19-6 SS2
Date of Collection		13-May-19	13-May-19	13-May-19	13-May-19	13-May-19	13-May-19	13-May-19
Date Reported		22-May-19	22-May-19	22-May-19	22-May-19	22-May-19	22-May-19	22-May-19
Sampling Depth (mbgs)		0.8-1.4	0.8-1.4	0.8-1.4	0.8-1.4	0.8-1.4	0.8-1.4	0.8-1.4
Analytical Report Reference No.		JSJ965	JSJ967	JSJ974	JSJ969	JSJ970	JSJ971	JSJ972
Antimony	1.3	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	18	4.4	6.7	6	4.8	4.4	4.9	4.2
Barium	220	190	71	130	95	83	71	86
Beryllium	2.5	1	0.9	1	0.86	0.54	0.64	0.72
Boron (Hot Water Soluble)	1.5	0.28	0.14	0.1	0.34	0.086	0.23	0.32
Cadmium	1.2	0.19	0.12	0.15	0.28	0.12	<0.10	<0.10
Chromium	70	28	26	31	24	18	20	21
Chromium VI	0.66	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cobalt	22	12	16	16	13	10	11	12
Copper	92	30	34	32	19	31	31	38
Lead	120	14	15	15	19	9.2	10	10
Mercury	0.27	0.063	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Molybdenum	2	1.4	0.51	<0.50	0.57	<0.50	0.65	<0.50
Nickel	82	27	34	37	22	20	24	25
Selenium	1.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Silver	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium	1	0.16	0.13	0.17	0.15	0.11	0.12	0.13
Vanadium	86	40	35	42	38	26	28	32
Zinc	290	66	75	80	72	45	54	56
pH (pH Units)	NV	7.22	8.16	7.75	6.97	7.86	7.88	7.7
Conductivity (ms/cm)	0.7	0.27	**0.86**	**1.1**	0.27	0.15	0.18	0.24
Sodium Adsorption Ratio	5	0.51	3.5	3.8	0.23	0.33	0.4	2.4
Cyanide, Free	0.051	0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01
Boron (Total)	36	9.2	8.9	11	7	9.4	10	9.6
Uranium	2.5	**4**	1.1	1.6	2	0.81	0.95	1.2

For Table Notes see Notes for Soil and Groundwater Summary Tables, included at the end of this Section.

Table 5: Summary of Metals and ORPs in Soil

Parameter	MECP Table 8 SCS	TP1	TP1 (DUP-8)	TP5	TP15	TP15 Lab-Dup
Date of Collection		27-May-19	27-May-19	27-May-19	27-May-19	27-May-19
Date Reported		04-Jun-19	04-Jun-19	04-Jun-19	04-Jun-19	04-Jun-19
Sampling Depth (mbgs)		0.0-0.3	0.0-0.3	0.0-0.3	0.0-0.3	0.0-0.3
Analytical Report Reference No.		JVP550	JVP553	JVP551	JVP552	JVP552
Antimony	1.3	<0.20	<0.20	<0.20	<0.20	-
Arsenic	18	4	4.1	4.1	4.1	-
Barium	220	110	100	130	99	-
Beryllium	2.5	0.91	0.89	0.75	0.83	-
Boron (Hot Water Soluble)	1.5	0.68	0.52	1.5	0.52	-
Cadmium	1.2	0.31	0.23	0.26	0.22	-
Chromium	70	25	24	22	23	-
Chromium VI	0.66	<0.2	<0.2	<0.2	<0.2	-
Cobalt	22	11	10	6.9	11	-
Copper	92	22	21	21	21	-
Lead	120	19	18	19	16	-
Mercury	0.27	<0.050	<0.050	<0.050	0.052	-
Molybdenum	2	<0.50	<0.50	0.52	<0.50	-
Nickel	82	22	22	19	22	-
Selenium	1.5	<0.50	<0.50	0.6	<0.50	-
Silver	0.5	<0.20	<0.20	<0.20	<0.20	-
Thallium	1	0.17	0.18	0.15	0.17	-
Vanadium	86	37	35	31	34	-
Zinc	290	73	70	80	76	-
pH (pH Units)	NV	7.18	7.36	6.71	7.41	-
Conductivity (ms/cm)	0.7	0.13	0.19	0.24	0.18	0.18
Sodium Adsorption Ratio	5	0.27	0.22	0.26	0.22	-
Cyanide, Free	0.051	0.01	<0.01	0.05	<0.01	-
Boron (Total)	36	6.2	6.3	8.4	6.6	-
Uranium	2.5	0.7	0.7	**4.8**	1	-

For Table Notes see Notes for Soil and Groundwater Summary Tables, included at the end of this Section.

Table 6: Summary of PHCs in Soil

Parameter	MECP Table 8 SCS	BH19-1 SS6	BH19-2 SS4	BH19-6 SS6
Date of Collection		13-May-19	13-May-19	13-May-19
Date Reported		22-May-19	22-May-19	22-May-19
Sampling Depth (mbgs)		3.9-4.5	2.3-2.9	3.9-4.5
Analytical Report Reference No.		JSJ966	JSJ968	JSJ973
Benzene	0.02	<0.020	<0.020	<0.020
Ethylbenzene	0.05	<0.020	<0.020	<0.020
Toluene	0.2	<0.020	<0.020	<0.020
Xylenes (Total)	0.05	<0.040	<0.040	<0.040
F1-BTEX	25	<10	<10	<10
F2 (C10-C16)	10	<10	<10	<10
F3 (C16-C34)	240	<50	<50	<50
F4 (C34-C50)	120	<50	<50	<50

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section

Table 7: Summary of PAHs in Soil

Parameter	MECP Table 8 SCS	BH19-1 SS2	BH19-2 SS2	BH19-3 SS2	BH19-4 SS2	BH19-5 SS2	BH19-6 SS2
Date of Collection		13-May-19	13-May-19	13-May-19	13-May-19	13-May-19	13-May-19
Date Reported		22-May-19	22-May-19	22-May-19	22-May-19	22-May-19	22-May-19
Sampling Depth (mbgs)		0.8-1.4	0.8-1.4	0.8-1.4	0.8-1.4	0.8-1.4	0.8-1.4
Analytical Report Reference No.		JSJ965	JSJ967	JSJ969	JSJ970	JSJ971	JSJ972
Acenaphthene	0.072	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	0.093	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Anthracene	0.22	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(a)anthracene	0.36	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(a)pyrene	0.3	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(b/j)fluoranthene	0.47	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(ghi)perylene	0.68	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(k)fluoranthene	0.48	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chrysene	2.8	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dibenzo(a,h)anthracene	0.1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	0.69	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluorene	0.19	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Indeno(1,2,3-cd)pyrene	0.23	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Naphthalene	0.09	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Phenanthrene	0.69	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Pyrene	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Methylnaphthalene, 2-(1-)	0.59	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section.

Table 8: Summary of OCPs in Soil

Parameter	MECP Table 8 SCS	TP1	TP2	TP3	TP4	TP5
Date of Collection		13-May-19	13-May-19	13-May-19	13-May-19	13-May-19
Date Reported		30-May-19	30-May-19	30-May-19	30-May-19	30-May-19
Sampling Depth (mbgs)		0-0.3	0-0.3	0-0.3	0-0.3	0-0.3
Analytical Report Reference No.		JTM398	JTM399	JTM400	JTM401	JTM402
Aldrin	0.05	<0.0020	<0.0020	<0.0030	<0.0020	<0.0020
Chlordane (total)	0.05	<0.0020	<0.0020	<0.0030	<0.0020	<0.0020
DDD (total)	0.05	<0.0020	<0.0020	<0.0030	<0.0020	<0.0020
DDE (total)	0.05	<0.0020	<0.0020	<0.0030	<0.0020	<0.0020
DDT (total)	1.4	<0.0020	<0.0020	<0.0030	<0.0020	<0.0020
Dieldrin	0.05	<0.0020	<0.0020	<0.0030	<0.0020	<0.0020
Total Endosulphan	0.04	<0.0020	<0.0020	<0.0030	<0.0020	<0.0020
Endrin	0.04	<0.0020	<0.0020	<0.0030	<0.0020	<0.0020
Heptachlor	0.05	<0.0020	<0.0020	<0.0030	<0.0020	<0.0020
Heptachlor Epoxide	0.05	<0.0020	<0.0020	<0.0030	<0.0020	<0.0020
Lindane	0.01	<0.0020	<0.0020	<0.0030	<0.0020	<0.0020
Methoxychlor	0.05	<0.0050	<0.0050	<0.0075	<0.0050	<0.0050
Total PCB	0.3	<0.015	<0.015	<0.023	<0.015	<0.015
Hexachlorobenzene	0.02	<0.0020	<0.0020	<0.0030	<0.0020	<0.0020
Hexachlorobutadiene	0.01	<0.0020	<0.0020	<0.0030	<0.0020	<0.0020
Hexachloroethane	0.01	<0.0020	<0.0020	<0.0030	<0.0020	<0.0020

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section.

Table 9: Summary of PHCs in Groundwater

Parameter	MECP Table 8 SCS	BH19-6	BH19-6 Lab-Dup	BH19-6 (Dup-C)
Date of Collection		22-May-19	22-May-19	22-May-19
Date Reported		28-May-19	28-May-19	28-May-19
Screen Interval (mbgs)		3.00-6.10	3.00-6.10	3.00-6.10
Analytical Report Reference No.		JUF597	JUF597	JUF598
Benzene	5	<0.20	<0.20	<0.20
Ethylbenzene	2.4	<0.20	<0.20	<0.20
Toluene	22	<0.20	<0.20	<0.20
Xylenes (Total)	300	<0.40	<0.40	<0.40
F1 (C6 to C10) minus BTEX	420	<25	<25	<25
F2 (C10 to C16)	150	<100	-	<100
F3 (C16 to C34)	500	<200	-	<200
F4 (C34 to C50) minus PAHs	500	<200	-	<200

For Table Notes see **Notes for Soil and Groundwater Summary Tables,** included at the end of this Section.

Table 10: Summary of Maximum Concentrations in Soil

	Parameter	Standard	Maximum Concentration	Location
Metals and ORPs	Antimony	1.3	<0.20	All Samples
	Arsenic	18	6.7	BH19-2 SS2
	Barium	220	190	BH19-1 SS2
	Beryllium	2.5	1	BH19-1 SS2
	Boron (Hot Water Soluble)	1.5	1.5	TP5
	Cadmium	1.2	0.31	TP1
	Chromium	70	31	BH19-2 SS2 (Dup-1)
	Chromium VI	0.66	0.2	BH19-2 SS2
	Cobalt	22	16	BH19-2 SS2
	Copper	92	38	BH19-6 SS2
	Lead	120	19	BH19-3 SS2
	Mercury	0.27	0.063	BH19-1 SS2
	Molybdenum	2	1.4	BH19-1 SS2
	Nickel	82	37	BH19-2 SS2 (Dup-1)
	Selenium	1.5	0.6	TP5
	Silver	0.5	<0.20	All Samples
	Thallium	1	0.18	TP1 (DUP-8)
	Vanadium	86	42	BH19-2 SS2 (Dup-1)
	Zinc	290	80	BH19-2 SS2 (Dup-1)
	pH (pH Units)	NV	8.16	BH19-2 SS2
	Conductivity (ms/cm)	0.7	**1.1**	BH19-2 SS2 (Dup-1)
	Sodium Adsorption Ratio	5	3.8	BH19-2 SS2 (Dup-1)
	Cyanide, Free	0.051	0.05	TP5
	Boron (Total)	36	11	BH19-2 SS2 (Dup-1)
	Uranium	2.5	**4.8**	TP5
PHCs	Benzene	0.02	<0.020	All Samples
	Ethylbenzene	0.05	<0.020	All Samples
	Toluene	0.2	<0.020	All Samples
	Xylenes (Total)	0.05	<0.040	All Samples
	F1-BTEX	25	<10	All Samples
	F2 (C10-C16)	10	<10	All Samples
	F3 (C16-C34)	240	<50	All Samples
	F4 (C34-C50)	120	<50	All Samples
PAHs	Acenaphthene	0.072	<0.0050	All Samples
	Acenaphthylene	0.093	<0.0050	All Samples
	Anthracene	0.22	<0.0050	All Samples
	Benzo(a)anthracene	0.36	<0.0050	All Samples
	Benzo(a)pyrene	0.3	<0.0050	All Samples
	Benzo(b/j)fluoranthene	0.47	<0.0050	All Samples
	Benzo(ghi)perylene	0.68	<0.0050	All Samples
	Benzo(k)fluoranthene	0.48	<0.0050	All Samples
	Chrysene	2.8	<0.0050	All Samples
	Dibenzo(a,h)anthracene	0.1	<0.0050	All Samples
	Fluoranthene	0.69	<0.0050	All Samples
	Fluorene	0.19	<0.0050	All Samples

Table 10: Summary of Maximum Concentrations in Soil

Parameter		Standard	Maximum Concentration	Location
PAHs	Indeno(1,2,3-cd)pyrene	0.23	<0.0050	All Samples
	Naphthalene	0.09	<0.0050	All Samples
	Phenanthrene	0.69	<0.0050	All Samples
	Pyrene	0.09	<0.0050	All Samples
	Methylnaphthalene, 2-(1-)	0.69	<0.0050	All Samples
OCPs	Aldrin	0.05	<0.0030	TP3
	Chlordane (total)	0.05	<0.0030	TP3
	DDD (total)	0.05	<0.0030	TP3
	DDE (total)	0.05	<0.0030	TP3
	DDT (total)	1.4	<0.0030	TP3
	Dieldrin	0.05	<0.0030	TP3
	Total Endosulphan	0.04	<0.0030	TP3
	Endrin	0.04	<0.0030	TP3
	Heptachlor	0.05	<0.0030	TP3
	Heptachlor Epoxide	0.05	<0.0030	TP3
	Lindane	0.01	<0.0030	TP3
	Methoxychlor	0.05	<0.0075	TP3
	Total PCB	0.3	<0.023	TP3
	Hexachlorobenzene	0.02	<0.0030	TP3
	Hexachlorobutadiene	0.01	<0.0030	TP3
	Hexachloroethane	0.01	<0.0030	TP3

Table 11: Summary of Maximum Concentrations in Groundwater

Parameter		Standard	Maximum Concentration	Location
PHCs	Benzene	5	<0.20	All Samples
	Ethylbenzene	2.4	<0.20	All Samples
	Toluene	22	<0.20	All Samples
	Xylenes (Total)	300	<0.40	All Samples
	F1 (C6 to C10) minus BTEX	420	<25	All Samples
	F2 (C10 to C16)	150	<100	All Samples
	F3 (C16 to C34)	500	<200	All Samples
	F4 (C34 to C50) minus PAHs	500	<200	All Samples

Notes for Soil & Groundwater Summary Tables

1.	mbgs =	Meters below ground surface
2.	masl =	Meters above sea level
3.		Units for all soil analyses are in µg/g (ppm) unless otherwise indicated
4.		Units for all groundwater analyses are in µg/L (ppb) unless otherwise indicated
5.	MECP Table 8 SCS =	Generic Site Condition Standards in a Potable Groundwater Condition for Use within 30 m of a Water Body in a potable grundwater condition as contained in Table 8 of the "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", published by the MECP on April 15, 2011
6.	CCME=	Canadian Environmental Quality Guidelines
7.		For soil and groundwater analytical results, concentration exceeds the applicable Standards
8.	NM =	Not Monitored
9.	PHC =	Petroluem Hydrocarbon
10.	PAH =	Polyaromatic Hydrocarbon
11.	BTEX =	Benzene, Toluene, Ethylbenzene, Xylene
12.	OCPs =	Organochlorine Pesticides

Appendix A

CONCESSION 9, NEW SURVEY, SF=1.0003051

BLOCK 18, 43M-1984

BLOCK 77, 43M-1158

BLOCK 369, 43M-1066

BLOCK 79, 43M-1163

BLOCK 144, 43M-1109

NINTH LINE

BLOCK 150, 43M-1286

BLOCK 200, 43M-1279

BLOCK 166, 43M-1272

BLOCK 234, 43M-1457

BLOCK 8
43M-2031

BLOCK 233, 43M-1457

BLOCK 53, 43M-1111

A

B

C

D

F

G

H

I

J

LOT 9, CONCESSION 9, NEW SURVEY

LOT 8, CONCESSION 9, NEW SURVEY

LOT 7, CONCESSION 9, NEW SURVEY

LOT 6, CONCESSION 9, NEW SURVEY

PART 20, PLAN 20R-13132
PIN 24938-0099 (LT)

PART 1, PLAN 20R-13224
PIN 24938-0099 (LT)

PART 1, PLAN 20R-13225
PIN 24938-0098 (LT)

PART 1, PLAN 20R-13127
PIN 24938-0094 (LT)

ALEXANDRA ROAD

Appendix B

DS CONSULTANTS LTD.
Geotechnical ◆ Environtmental ◆ Materials ◆ Hydrogeology

Project Number: 18-692-100 **2019-05-13**
Derry Britannia Developments Limited
7880 Keele Street
Vaughan, Ontario
L4K 4G7

Attention: Mr. Craig Scarlett

Sent via email: eric.mueller@mattamycorp.com

RE: **Sampling and Analysis Plan**
Phase Two Environmental Site Assessment
6500, 6432, 6400 Ninth Line Mississauga, Ontario

Dear: Mr. Craig Scarlett

1.1 Introduction

DS Consultants Limited (DS) is pleased to present the Sampling and Analysis Plan (SAP) for the proposed Phase Two Environmental Site Assessment of 6500, 6432, 6400 Ninth Line Mississauga, Ontario, (the Site).The purpose of the proposed Phase Two ESA program is to assess the current subsurface environmental conditions in support of the proposed redevelopment of the Site.

The Phase Two ESA will involve intrusive investigation in the areas determined in the Site visit to be Areas of Potential Environmental Concern (APECs), and will be completed in general accordance with O.Reg 153/04. Based on the findings of the field and laboratory analyses, a Phase Two ESA report will be prepared.

1.2 Background

Based on the Phase One Environmental Site Assessment completed by DS in May 2019, it is DS's understanding that the Site is a 20.49-hectare (50.65 acres) parcel of land which is currently used for residential purposes. The first developed use of the Site is interpreted to be residential and agricultural, based on the findings of the Phase One ESA. A total of sixteen (16) potentially contaminating activities were identified on the Phase One Property or on neighbouring properties within the Phase One Study Area of which eight (8) are considered to be contributing to eight (8) Areas of Potential Environmental Concern (APECs) on the Phase Two Property. A summary of the APECs identified, the potential contaminants of concern, and the media potentially impacted is presented in Table 1 below:

Table 1: Areas of Potential Environmental Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase Two Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC-1	Vicinity of Site Building A on Parcel C.	PCA-28: Gasoline and Associated Products Storage in Fixed Tanks - One historical AST was identified in the 2011 AME Phase I ESA conducted on Parcel C.	On Site	PHCs, PAHs	Soil
				PHC, BTEX	Groundwater
APEC-2	Footprint of Site Building D on Parcel C.	PCA-30: Importation of Fill Material of Unknown Quality - Fill material was observed during the site investigation in the footprint of the former barn.	On Site	Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil
APEC-3	Northwest corner of Parcel C.	PCA-30: Importation of Fill Material of Unknown Quality - Fill material was encountered in BH8 during the 2006 AME geotechnical investigation conducted on Parcel C.	On Site	Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil
APEC-4	Southwest corner of Parcel B	PCA-30: Importation of Fill Material of Unknown Quality – Fill material was encountered in BH1 in the 2008 geotechnical investigation conducted by Shad & Associates Inc.	On Site.	Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PAHs	Soil
APEC-5	Entire Property	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications - The Phase One Property (Parcel B, C, D) has historically been used for agricultural purposes.	On Site	OCPs	Soil

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase Two Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC-6	Northern Portion of Parcel B	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications - An orchard was formerly present in the northern portion of Parcel B	On Site	OCPs, Metals, As, Sb, Se	Soil
APEC-7	Northern Portion of Parcel C	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications - An orchard was formerly present on the northern portion of Parcel C	On Site	OCPs, Metals, As, Sb, Se	Soil
APEC-8	Central Portion of Parcel D	PCA-40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications - An orchard was formerly present on the central portion of Parcel D	On Site	OCPs, Metals, As, Sb, Se	Soil

Notes:
1. PHC (F1-F4) = Petroleum Hydrocarbons in the F1-F4 fraction ranges
2. PAHs = Polycyclic Aromatic Hydrocarbons
3. OCPs = Organochlorine Pesticides

1.3 Site Investigation Program

The Site Investigation Program will be completed as follows:

- Public and private underground utilities and services will be cleared prior to commencement of intrusive investigation activities;
- A Health and Safety Plan will be prepared, and all work will be executed safely;
- Six (6) boreholes will be advanced on the Phase Two Property, to an approximate maximum depth of 7.9 mbgs, or until sample refusal depth, or until groundwater is encountered, using a truck-mounted drill rig. The soil profile from each borehole will be logged in the field and samples will be screened for total organic vapours (TOV) with a an RKI Eagle 2 MultiGas Detector. The location of the boreholes will be selected to investigate any APECs identified during the Phase One ESA, as well as to delineate the horizontal and vertical extents of relevant parameters of concern.It is anticipated that bedrock will be encountered at an approximate depth of 6 mbgs.
- Six (6) test pits will be advanced on the Phase Two Property, to an approximate maximum depth of 0.3 mbgs, using a standard shovel. The soil profile from each borehole will be logged in the field. The location of the test pits will be selected to investigate any APECs identified during the Phase One ESA, as well as to delineate the horizontal and vertical extents of relevant parameters of concern.
- Groundwater monitoring wells will be installed within one (1) of the six (6) boreholes advanced in order to facilitate the collection of groundwater samples to assess the groundwater quality below the Site;
- Based on field screening and visual/olfactory observations, worst-case/representative soil samples from the boreholes will be submitted for laboratory testing of relevant parameters of concern;
- The groundwater levels in the wells will be measured at least 24 hours after well development has been completed, to determine the groundwater elevation. The wells will be surveyed to a geodetic benchmark to determine groundwater flow direction;
- The groundwater wells will be purged to remove stagnant water and sampled for laboratory testing of relevant parameters of concern;

- Both soil and groundwater samples will be submitted for chemical analysis by a CALA laboratory in accordance with the Ontario MOECC standards and requirements of O.Reg. 153/04 under the Environmental Protection Act.

All field equipment is to be calibrated at the start of each field day, in accordance with DS's Standard Operating Procedures (SOPs). Clean, disposable Nitrile™ gloves will be used at each sampling interval to reduce the risk of cross contamination. All non-dedicated equipment (e.g. split spoon sampler, interface probe, etc.) will be decontaminated between each borehole. The equipment will be brushed free of debris, washed with phosphate-free detergent, and then rinsed with analyte free water.

The proposed monitoring wells will be installed using 50 mm inner diameter Schedule 40 polyvinyl chloride (PVC), equipped with 50 mm inner diameter Schedule 40 PVC with #10 slot well screens. A silica sand filter pack will be placed around the well screen and up to 0.61 metres above the top of the well screen. The well annulus will be sealed with hydrated bentonite. All wells will be protected with either a flush mount well casing, or a locked monument style casing.

The proposed analytical program is outlined below (proposed program subject to change as a result of site observations/findings). All soil and groundwater sampling will be carried out in accordance with DS's SOPs.

Soils:

- Ten (10) soil samples for analysis of Metals and other regulated parameters (ORPs)
- Three (3) soil samples for analysis of Petroleum Hydrocarbons in the F1 to F4 fraction ranges (F1-F4), including benzene, toluene, ethylbenzene, and xylenes (collectively referred to as BTEX);
- Six (6) soil samples for analysis of Polycyclic Aromatic Hydrocarbons (PAHs);
- Five (5) soil samples for analysis of Organochlorine Pesticides (OCPs); and

One quality control/quality assurance (QAQC) sample will be submitted for analysis per ten (10) samples analyzed in accordance with O.Reg. 153/04.

Groundwater:

- One (1), groundwater samples for analysis of PHCs (F1 to F4 and BTEX).

One quality control/quality assurance (QAQC) sample will be submitted for analysis per ten (10) samples analyzed in accordance with O.Reg. 153/04. One laboratory supplied trip

blank will be submitted as part of each sample submission event for analysis of volatile parameters (i.e. VOCs, BTEX, PHCs F1-BTEX).

Following receipt of all of the results, a report in accordance with O.Reg. 153/04 will be prepared.

It is noted that if the Phase Two ESA reveals parameter concentrations greater than the applicable standards set out in *Ontario Regulation 153/04,* then additional work (i.e., supplemental delineation, additional drilling, sampling, analysis, and/or site remediation activities) will be deemed necessary prior to RSC filing, should an RSC be required. The costs for any additional work, if necessary, are beyond the current scope of work.

The SAP was created based on the request to complete a Phase Two ESA in support of the proposed redevelopment of the Site. The SAP was compiled to collect data to provide information on soil and/or groundwater quality in each APEC.

Additional delineation may be required following the implementation of this SAP to meet the requirements of O.Reg. 153/04 which requires delineation of all areas where concentrations are above the applicable SCS such as in the following conditions:

- Unexpected contamination not previously discovered, or not related to identified APECs, is discovered which will require further delineation to identify source(s); and
- If the sampling results indicate that the soil and/or groundwater impacts are deeper than initially expected.

We trust that this Sampling and Analysis Plan meets the objectives of the Client. If further assistance is required on this matter please do not hesitate to contact the undersigned.

Yours Very Truly,

DS Consultants Ltd.

Rick Fioravanti, B.Sc., P.Geo., QP$_{ESA}$
Manager – Environmental Services

Appendix C

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH19-1

PROJECT: Phase Two ESA
CLIENT: Derry Britannia Developments Ltd.
PROJECT LOCATION: Ninth Line, Mississauga, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Figure 4 N 4824306.5 E 598905.1

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: May-13-2019

REF. NO.: 18-692-100
ENCL NO.: 6

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
192.0												
0.0	**FILL:** sandy silt, some asphalt, concrete, trace organics, brown, very moist, compact		1	SS	13							HEX: 25ppm, IBL: 0ppm
191.2												
0.8	**FILL:** silty clay, trace topsoil, greyish brown, trace gravel, moist, loose (possibly weathered/disturbed native)		2	SS	5		191					HEX: 60ppm, IBL: 0ppm
190.4												
1.6	**CLAYEY SILT TILL:** sandy, trace gravel, occasional cobble/boulder, brown, moist, stiff		3	SS	14		190					HEX: 90ppm, IBL: 0ppm 8 22 51 19
189.7												
2.3	**SANDY SILT TILL:** some clay, occasional sand seams, trace gravel, brown to grey, moist, dense		4	SS	41		189					HEX: 50ppm, IBL: 0ppm
188.9												
3.1	**SILTY SAND TILL:** trace clay, trace gravel, occasional cobble/boulder, reddish brown, moist, very dense		5	SS	59		188					HEX: 90ppm, IBL: 0ppm 5 34 53 8
	wet below 4.6m		6	SS	98							HEX: 115ppm, IBL: 0ppm
187.0							187					
5.0	**END OF BOREHOLE:** Notes: 1) Water level at 4.6 mbgl during drilling.											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG 18-692-100, 9TH LINE MATTAMY - FINAL ENVIRONMENTAL.GPJ DS.GDT 19-6-28

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LOG OF BOREHOLE BH19-2

PROJECT: Phase Two ESA
CLIENT: Derry Britannia Developments Ltd.
PROJECT LOCATION: Ninth Line, Mississauga, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Figure 4 N 4824265.4 E 598859.3

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: May-13-2019

REF. NO.: 18-692-100
ENCL NO.: 7

ELEV / DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
192.3												
192.2	**TOPSOIL:** 125mm											
0.1	**FILL:** clayey silt, some organics, trace topsoil, dark grey to grey, very moist, compact		1	SS	10		192					HEX: 10ppm, IBL: 0ppm
1	possibly weathered/disturbed native below 0.8m		2	SS	11		191					HEX: 15ppm, IBL: 0ppm
190.8												
1.5	**CLAYEY SILT TILL:** sandy, trace gravel, occasional cobble/boulder, reddish brown, moist, hard		3	SS	34							HEX: 25ppm, IBL: 0ppm
2			4	SS	68		190					HEX: 45ppm, IBL: 0ppm
189.2												
3.1	**CLAYEY SILT TILL/ SHALE COMPLEX:** reddish brown, moist, hard		5	SS	58		189					HEX: 20ppm, IBL: 0ppm
189.0												
3.3	**END OF BOREHOLE:**											

Notes:
1) Borehole dry upon completion.

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

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LOG OF BOREHOLE BH19-3

PROJECT: Phase Two ESA
CLIENT: Derry Britannia Developments Ltd.
PROJECT LOCATION: Ninth Line, Mississauga, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Figure 4 N 4824425.6 E 598780.34

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: May-14-2019

REF. NO.: 18-692-100
ENCL NO.: 8

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
193.9												
0.0 / 193.7	**TOPSOIL:** 150mm											
0.2 / 193.1	**FILL:** sandy silt, trace rootlets, brown, moist to very moist, loose		1	SS	8				○			HEX: 0ppm, IBL: 0ppm
0.8 / 192.4	**FILL:** clayey silt, some topsoil, dark brown, moist, compact (possibly weathered/disturbed native)		2	SS	13		193		○			HEX: 0ppm, IBL: 0ppm
1.5	**CLAYEY SILT TILL:** sandy, trace gravel, occasional cobble/boulder, reddish brown, moist, very stiff to hard		3	SS	17		192		○			HEX: 5ppm, IBL: 0ppm
	grey below 2.3m		4	SS	27				○			HEX: 0ppm, IBL: 0ppm
			5	SS	50/ 100mm		191		○			HEX: 0ppm, IBL: 0ppm
							190					
4.6 / 189.3												
4.8 / 189.1	**SHALE:** weathered, reddish brown		6	SS	50/ 125mm				○			HEX: 0ppm, IBL: 0ppm
4.8	**END OF BOREHOLE:** Notes: 1) Borehole dry upon completion											

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG 18-692-100, 9TH LINE MATTAMY - FINAL ENVIRONMENTAL.GPJ DS.GDT 19-6-28

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LOG OF BOREHOLE BH19-4

PROJECT: Phase Two ESA
CLIENT: Derry Britannia Developments Ltd.
PROJECT LOCATION: Ninth Line, Mississauga, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Figure 4 N 4824458.5 E 598788.2

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: May-14-2019

REF. NO.: 18-692-100
ENCL NO.: 9

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
193.9 / 0.0	**TOPSOIL:** 150mm											
0.2 / 193.1	**FILL:** silty sand, trace gravel, trace organics, grey, wet, very loose		1	SS	1							HEX: 25ppm, IBL: 0ppm
0.8 / 192.4	**CLAYEY SILT:** some sand, grey, moist, stiff		2	SS	11		193					HEX: 15ppm, IBL: 0ppm
1.5 / 190.8	**CLAYEY SILT TILL:** sandy, occasional sand seams, trace gravel, occasional cobble/boulder, reddish brown, moist, very stiff		3	SS	21		192					HEX: 25ppm, IBL: 0ppm
	grey below 2.3m		4	SS	25		191					HEX: 25ppm, IBL: 0ppm
3.1 / 189.3	**SANDY SILT TO SILTY SAND TILL:** trace clay, trace gravel, grey, occasional cobble/boulder, moist to very moist, very dense		5	SS	60		190					HEX: 30ppm, IBL: 0ppm
4.6 / 189.1	**SHALE:** weathered, reddish brown		6	SS	50/125mm							HEX: 0ppm, IBL: 0ppm
4.8	**END OF BOREHOLE:** Notes: 1) Borehole dry upon completion.											

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG 18-692-100, 9TH LINE MATTAMY - FINAL ENVIRONMENTAL.GPJ DS.GDT 19-6-28

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LOG OF BOREHOLE BH19-5

PROJECT: Phase Two ESA
CLIENT: Derry Britannia Developments Ltd.
PROJECT LOCATION: Ninth Line, Mississauga, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Figure 4 N 4824437.8 E 598809.9

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: May-14-2019

REF. NO.: 18-692-100
ENCL NO.: 10

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
193.2												
0.0 / 192.9	**TOPSOIL:** 300mm						193					
0.3 / 192.4	**FILL:** sandy silt, trace wood pieces, trace organics/rootlets, brown, wet, very loose		1	SS	2							HEX: 25ppm, IBL: 0ppm
0.8	**CLAYEY SILT TILL:** sandy, trace gravel, reddish brown, moist, hard to very stiff		2	SS	31							HEX: 35ppm, IBL: 0ppm
1							192					
	grey below 1.5m		3	SS	25							HEX: 25ppm, IBL: 0ppm
2 / 190.9							191					
2.3	**SANDY SILT TO SILTY SAND TILL:** trace clay, trace gravel, occasional cobble/boulder, grey, moist, very dense		4	SS	56							HEX: 35ppm, IBL: 0ppm
3			5	SS	50/ 25mm		190					HEX: 20ppm, IBL: 0ppm
4							189					
188.6												
4.6 / 188.4	**SHALE:** weathered, reddish brown		6	SS	50/ 100mm							HEX: 20ppm, IBL: 0ppm
4.8	**END OF BOREHOLE:** Notes: 1) Borehole dry upon completion.											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG 18-692-100, 9TH LINE MATTAMY - FINAL ENVIRONMENTAL.GPJ DS.GDT 19-6-28

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LOG OF BOREHOLE BH19-6

PROJECT: Phase Two ESA
CLIENT: Derry Britannia Developments Ltd.
PROJECT LOCATION: Ninth Line, Mississauga, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Figure 4 N 4824280 E 598941.9

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: May-14-2019

REF. NO.: 18-692-100
ENCL NO.: 11

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
191.7												
0.0 / 191.5	**TOPSOIL:** 200mm											
0.2 / 190.9	**FILL:** clayey silt, trace sand, trace topsoil/ rootlets, brown, moist, very loose		1	SS	2		W. L. 191.4 m May 17, 2019 W. L. 191.2 m May 22, 2019		○			HEX: 15ppm, IBL: 0ppm
0.8 / 188.6	**CLAYEY SILT TILL:** sandy, trace gravel, occasional cobble, brown, moist, stiff to hard		2	SS	12		190		○			HEX: 30ppm, IBL: 0ppm
			3	SS	18				○			HEX: 45ppm, IBL: 0ppm
			4	SS	41		189		○			HEX: 25ppm, IBL: 0ppm
3.1 / 183.8	**SANDY SILT TO SILTY SAND TILL:** trace clay, trace gravel, occasional/ cobble boulder, brown, moist, dense to very dense wet below 4.6m		5	SS	80		188		○			HEX: 45ppm, IBL: 0ppm
			6	SS	46		187		○			8 41 48 3 HEX: 60ppm, IBL: 0ppm
			7	SS	50/ 10mm		186		○			HEX: 30ppm, IBL: 0ppm
			8	SS	50/ 50mm		185		○			HEX: 25ppm, IBL: 0ppm
7.9	**END OF BOREHOLE:**						184					

Notes:
1) 50 mm dia. monitoring well installed upon completion

Date	Water Level(m)
May 17, 2019	0.25 mbgs
May 22, 2019	0.49 mbgs

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG 18-692-100, 9TH LINE MATTAMY - FINAL ENVIRONMENTAL.GPJ DS.GDT 19-6-28

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LOG OF BOREHOLE TP1

PROJECT: Phase Two ESA
CLIENT: Derry Britannia Developments Ltd.
PROJECT LOCATION: Ninth Line, Mississauga, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Figure 4

DRILLING DATA
Method:
Diameter:
Date: May-15-2019

REF. NO.: 18-692-100
ENCL NO.: 36

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m							GR SA SI CL
0.0	**TOPSOIL:** 300mm											
0.3	**END OF BOREHOLE**											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG 18-692-100, 9TH LINE MATTAMY - FINAL ENIVRONMENTAL.GPJ DS.GDT 19-6-28

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LOG OF BOREHOLE TP15

PROJECT: Phase Two ESA
CLIENT: Derry Britannia Developments Ltd.
PROJECT LOCATION: Ninth Line, Mississauga, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Figure 4

DRILLING DATA
Method:
Diameter:
Date: May-15-2019

REF. NO.: 18-692-100
ENCL NO.: 50

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m							GR SA SI CL
0.0	**TOPSOIL:** 300mm											
0.3	**END OF BOREHOLE**											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

DS SOIL LOG 18-692-100, 9TH LINE MATTAMY - FINAL ENIVRONMENTAL.GPJ DS.GDT 19-6-28

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LOG OF BOREHOLE TP2

PROJECT: Phase Two ESA
CLIENT: Derry Britannia Developments Ltd.
PROJECT LOCATION: Ninth Line, Mississauga, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Figure 4

DRILLING DATA
Method:
Diameter:
Date: May-15-2019

REF. NO.: 18-692-100
ENCL NO.: 37

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m							GR SA SI CL
0.0	**TOPSOIL:** 300mm											
0.3	**END OF BOREHOLE**											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

DS SOIL LOG 18-692-100, 9TH LINE MATTAMY - FINAL ENIVRONMENTAL.GPJ DS.GDT 19-6-28

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LOG OF BOREHOLE TP3

PROJECT: Phase Two ESA
CLIENT: Derry Britannia Developments Ltd.
PROJECT LOCATION: Ninth Line, Mississauga, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Figure 4

DRILLING DATA
Method:
Diameter:
Date: May-15-2019

REF. NO.: 18-692-100
ENCL NO.: 38

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0.0	**TOPSOIL:** 300mm										
0.3	**END OF BOREHOLE**										

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

DS SOIL LOG 18-692-100, 9TH LINE MATTAMY - FINAL ENVIRONMENTAL.GPJ DS.GDT 19-6-28

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LOG OF BOREHOLE TP4

PROJECT: Phase Two ESA
CLIENT: Derry Britannia Developments Ltd.
PROJECT LOCATION: Ninth Line, Mississauga, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Figure 4

DRILLING DATA
Method:
Diameter:
Date: May-15-2019

REF. NO.: 18-692-100
ENCL NO.: 39

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m							GR SA SI CL
0.0	**TOPSOIL:** 300mm											
0.3	**END OF BOREHOLE**											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

DS SOIL LOG 18-692-100, 9TH LINE MATTAMY - FINAL ENIVRONMENTAL.GPJ DS.GDT 19-6-28

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LOG OF BOREHOLE TP5

PROJECT: Phase Two ESA
CLIENT: Derry Britannia Developments Ltd.
PROJECT LOCATION: Ninth Line, Mississauga, ON
DATUM: Geodetic
BOREHOLE LOCATION: See Figure 4

DRILLING DATA
Method:
Diameter:
Date: May-15-2019

REF. NO.: 18-692-100
ENCL NO.: 40

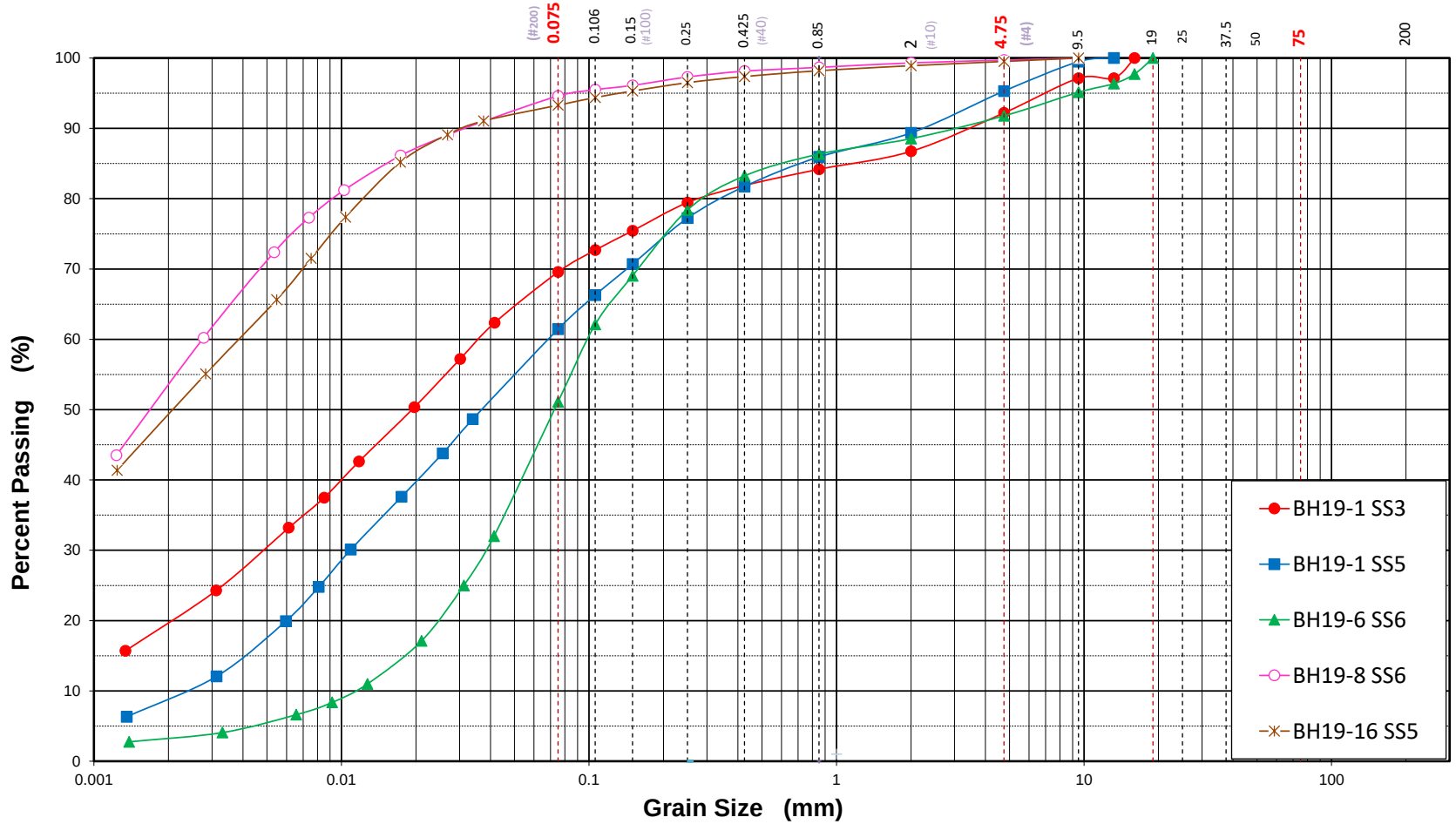
SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa): ○ UNCONFINED, ● QUICK TRIAXIAL, + FIELD VANE & Sensitivity, × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L; WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m						GR SA SI CL
0.0	**TOPSOIL:** 300mm										
0.3	**END OF BOREHOLE**										

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε_f=3% Strain at Failure

DS SOIL LOG 18-692-100, 9TH LINE MATTAMY - FINAL ENVIRONMENTAL.GPJ DS.GDT 19-6-28

Particle Size Distribution (ASTM-D421/D422)



Silt and Clay		Sand			Gravel		Cobble +
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse	

DS CONSULTANTS LTD.
6221 Highway 7, Unit 16
Vaughan, Ontario, L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Project	**Ninth Line Properties**	Project No	**18-692-100**
Location	**Mississauga, ON**	Date	**Jun-01-2019**
Client	**Derry Britannia Developments Limited**	Figure No	25

Appendix D

Maxxam
A Bureau Veritas Group Company

Your Project #: 18-692-100
Your C.O.C. #: na

Attention: Tanner Leonhardt

DS Consultants Limited
6221 Highway 7, Unit 16
Vaughan, ON
CANADA L4H 0K8

Report Date: 2019/05/22
Report #: R5720919
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B9C9821
Received: 2019/05/15, 08:00

Sample Matrix: Soil
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum	6	N/A	2019/05/21	CAM SOP-00301	EPA 8270D m
Hot Water Extractable Boron	5	2019/05/17	2019/05/17	CAM SOP-00408	R153 Ana. Prot. 2011
Hot Water Extractable Boron	2	2019/05/17	2019/05/21	CAM SOP-00408	R153 Ana. Prot. 2011
Free (WAD) Cyanide	5	2019/05/16	2019/05/17	CAM SOP-00457	OMOE E3015 m
Free (WAD) Cyanide	2	2019/05/17	2019/05/21	CAM SOP-00457	OMOE E3015 m
Conductivity	5	2019/05/17	2019/05/17	CAM SOP-00414	OMOE E3530 v1 m
Conductivity	2	2019/05/21	2019/05/21	CAM SOP-00414	OMOE E3530 v1 m
Hexavalent Chromium in Soil by IC (1)	5	2019/05/16	2019/05/21	CAM SOP-00436	EPA 3060/7199 m
Hexavalent Chromium in Soil by IC (1)	2	2019/05/17	2019/05/21	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydro. CCME F1 & BTEX in Soil (2)	3	N/A	2019/05/16	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (3)	3	2019/05/16	2019/05/16	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS	7	2019/05/17	2019/05/17	CAM SOP-00447	EPA 6020B m
Moisture	10	N/A	2019/05/16	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	6	2019/05/18	2019/05/18	CAM SOP-00318	EPA 8270D m
pH CaCl2 EXTRACT	5	2019/05/16	2019/05/16	CAM SOP-00413	EPA 9045 D m
pH CaCl2 EXTRACT	2	2019/05/17	2019/05/17	CAM SOP-00413	EPA 9045 D m
Sodium Adsorption Ratio (SAR)	5	N/A	2019/05/17	CAM SOP-00102	EPA 6010C
Sodium Adsorption Ratio (SAR)	2	N/A	2019/05/21	CAM SOP-00102	EPA 6010C

Remarks:

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

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

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

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Your Project #: 18-692-100
Your C.O.C. #: na

Attention: Tanner Leonhardt

DS Consultants Limited
6221 Highway 7, Unit 16
Vaughan, ON
CANADA L4H 0K8

Report Date: 2019/05/22
Report #: R5720919
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B9C9821
Received: 2019/05/15, 08:00

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Soils are reported on a dry weight basis unless otherwise specified.
(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Ashton Gibson
Project Manager
22 May 2019 17:52:34

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ashton Gibson, Project Manager
Email: AGibson@maxxam.ca
Phone# (905)817-5765

==========

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

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Maxxam Job #: B9C9821
Report Date: 2019/05/22

DS Consultants Limited
Client Project #: 18-692-100
Sampler Initials: TL

O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		JSJ965		JSJ967		JSJ969	JSJ970		
Sampling Date		2019/05/13		2019/05/13		2019/05/13	2019/05/13		
COC Number		na		na		na	na		
	UNITS	BH19-1 SS2	QC Batch	BH19-2 SS2	QC Batch	BH19-3 SS2	BH19-4 SS2	RDL	QC Batch
Calculated Parameters									
Sodium Adsorption Ratio	N/A	0.51	6122931	3.5	6122931	0.23	0.33		6122931
Inorganics									
Conductivity	mS/cm	0.27	6127145	0.86	6130745	0.27	0.15	0.002	6127145
Available (CaCl2) pH	pH	7.22	6124984	8.16	6127666	6.97	7.86		6124984
WAD Cyanide (Free)	ug/g	0.01	6125224	<0.01	6128793	0.02	<0.01	0.01	6125224
Chromium (VI)	ug/g	<0.2	6124999	0.2	6128655	<0.2	<0.2	0.2	6124999
Metals									
Hot Water Ext. Boron (B)	ug/g	0.28	6127319	0.14	6127882	0.34	0.086	0.050	6127319
Acid Extractable Antimony (Sb)	ug/g	<0.20	6127389	<0.20	6127859	<0.20	<0.20	0.20	6127389
Acid Extractable Arsenic (As)	ug/g	4.4	6127389	6.7	6127859	4.8	4.4	1.0	6127389
Acid Extractable Barium (Ba)	ug/g	190	6127389	71	6127859	95	83	0.50	6127389
Acid Extractable Beryllium (Be)	ug/g	1.0	6127389	0.90	6127859	0.86	0.54	0.20	6127389
Acid Extractable Boron (B)	ug/g	9.2	6127389	8.9	6127859	7.0	9.4	5.0	6127389
Acid Extractable Cadmium (Cd)	ug/g	0.19	6127389	0.12	6127859	0.28	0.12	0.10	6127389
Acid Extractable Chromium (Cr)	ug/g	28	6127389	26	6127859	24	18	1.0	6127389
Acid Extractable Cobalt (Co)	ug/g	12	6127389	16	6127859	13	10	0.10	6127389
Acid Extractable Copper (Cu)	ug/g	30	6127389	34	6127859	19	31	0.50	6127389
Acid Extractable Lead (Pb)	ug/g	14	6127389	15	6127859	19	9.2	1.0	6127389
Acid Extractable Molybdenum (Mo)	ug/g	1.4	6127389	0.51	6127859	0.57	<0.50	0.50	6127389
Acid Extractable Nickel (Ni)	ug/g	27	6127389	34	6127859	22	20	0.50	6127389
Acid Extractable Selenium (Se)	ug/g	<0.50	6127389	<0.50	6127859	<0.50	<0.50	0.50	6127389
Acid Extractable Silver (Ag)	ug/g	<0.20	6127389	<0.20	6127859	<0.20	<0.20	0.20	6127389
Acid Extractable Thallium (Tl)	ug/g	0.16	6127389	0.13	6127859	0.15	0.11	0.050	6127389
Acid Extractable Uranium (U)	ug/g	4.0	6127389	1.1	6127859	2.0	0.81	0.050	6127389
Acid Extractable Vanadium (V)	ug/g	40	6127389	35	6127859	38	26	5.0	6127389
Acid Extractable Zinc (Zn)	ug/g	66	6127389	75	6127859	72	45	5.0	6127389
Acid Extractable Mercury (Hg)	ug/g	0.063	6127389	<0.050	6127859	<0.050	<0.050	0.050	6127389

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B9C9821
Report Date: 2019/05/22

DS Consultants Limited
Client Project #: 18-692-100
Sampler Initials: TL

O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		JSJ971		JSJ972			JSJ974		
Sampling Date		2019/05/13		2019/05/13			2019/05/13		
COC Number		na		na			na		
	UNITS	BH19-5 SS2	QC Batch	BH19-6 SS2	RDL	QC Batch	DUP-1	RDL	QC Batch
Calculated Parameters									
Sodium Adsorption Ratio	N/A	0.40	6122931	2.4		6122931	3.8		6122931
Inorganics									
Conductivity	mS/cm	0.18	6130745	0.24	0.002	6127145	1.1	0.002	6127145
Moisture	%						18	1.0	6124834
Available (CaCl2) pH	pH	7.88	6127666	7.70		6124984	7.75		6124984
WAD Cyanide (Free)	ug/g	<0.01	6128793	<0.01	0.01	6125224	0.01	0.01	6125224
Chromium (VI)	ug/g	<0.2	6128655	<0.2	0.2	6124999	<0.2	0.2	6124999
Metals									
Hot Water Ext. Boron (B)	ug/g	0.23	6127882	0.32	0.050	6127319	0.10	0.050	6127319
Acid Extractable Antimony (Sb)	ug/g	<0.20	6127859	<0.20	0.20	6127389	<0.20	0.20	6127389
Acid Extractable Arsenic (As)	ug/g	4.9	6127859	4.2	1.0	6127389	6.0	1.0	6127389
Acid Extractable Barium (Ba)	ug/g	71	6127859	86	0.50	6127389	130	0.50	6127389
Acid Extractable Beryllium (Be)	ug/g	0.64	6127859	0.72	0.20	6127389	1.0	0.20	6127389
Acid Extractable Boron (B)	ug/g	10	6127859	9.6	5.0	6127389	11	5.0	6127389
Acid Extractable Cadmium (Cd)	ug/g	<0.10	6127859	<0.10	0.10	6127389	0.15	0.10	6127389
Acid Extractable Chromium (Cr)	ug/g	20	6127859	21	1.0	6127389	31	1.0	6127389
Acid Extractable Cobalt (Co)	ug/g	11	6127859	12	0.10	6127389	16	0.10	6127389
Acid Extractable Copper (Cu)	ug/g	31	6127859	38	0.50	6127389	32	0.50	6127389
Acid Extractable Lead (Pb)	ug/g	10	6127859	10	1.0	6127389	15	1.0	6127389
Acid Extractable Molybdenum (Mo)	ug/g	0.65	6127859	<0.50	0.50	6127389	<0.50	0.50	6127389
Acid Extractable Nickel (Ni)	ug/g	24	6127859	25	0.50	6127389	37	0.50	6127389
Acid Extractable Selenium (Se)	ug/g	<0.50	6127859	<0.50	0.50	6127389	<0.50	0.50	6127389
Acid Extractable Silver (Ag)	ug/g	<0.20	6127859	<0.20	0.20	6127389	<0.20	0.20	6127389
Acid Extractable Thallium (Tl)	ug/g	0.12	6127859	0.13	0.050	6127389	0.17	0.050	6127389
Acid Extractable Uranium (U)	ug/g	0.95	6127859	1.2	0.050	6127389	1.6	0.050	6127389
Acid Extractable Vanadium (V)	ug/g	28	6127859	32	5.0	6127389	42	5.0	6127389
Acid Extractable Zinc (Zn)	ug/g	54	6127859	56	5.0	6127389	80	5.0	6127389
Acid Extractable Mercury (Hg)	ug/g	<0.050	6127859	<0.050	0.050	6127389	<0.050	0.050	6127389

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B9C9821
Report Date: 2019/05/22

DS Consultants Limited
Client Project #: 18-692-100
Sampler Initials: TL

O.REG 153 PAHS (SOIL)

Maxxam ID		JSJ965	JSJ967	JSJ969	JSJ970	JSJ971	JSJ972		
Sampling Date		2019/05/13	2019/05/13	2019/05/13	2019/05/13	2019/05/13	2019/05/13		
COC Number		na	na	na	na	na	na		
	UNITS	BH19-1 SS2	BH19-2 SS2	BH19-3 SS2	BH19-4 SS2	BH19-5 SS2	BH19-6 SS2	RDL	QC Batch
Inorganics									
Moisture	%	18	20	14	13	12	13	1.0	6125161
Calculated Parameters									
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	0.0071	6122412
Polyaromatic Hydrocarbons									
Acenaphthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Acenaphthylene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Benzo(a)anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Benzo(a)pyrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Benzo(b/j)fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Benzo(g,h,i)perylene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Benzo(k)fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Chrysene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Dibenz(a,h)anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Fluorene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Naphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Phenanthrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Pyrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	6129522
Surrogate Recovery (%)									
D10-Anthracene	%	104	102	95	108	107	105		6129522
D14-Terphenyl (FS)	%	97	99	90	97	100	101		6129522
D8-Acenaphthylene	%	110	105	99	107	107	107		6129522

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B9C9821
Report Date: 2019/05/22

DS Consultants Limited
Client Project #: 18-692-100
Sampler Initials: TL

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		JSJ966			JSJ966			JSJ968	JSJ973		
Sampling Date		2019/05/13			2019/05/13			2019/05/13	2019/05/13		
COC Number		na			na			na	na		
	UNITS	BH19-1 SS6	RDL	QC Batch	BH19-1 SS6 Lab-Dup	RDL	QC Batch	BH19-2 SS4	BH19-6 SS6	RDL	QC Batch
Inorganics											
Moisture	%	9.3	1.0	6125078	8.8	1.0	6125078	13	12	1.0	6125161
BTEX & F1 Hydrocarbons											
Benzene	ug/g	<0.020	0.020	6125353				<0.020	<0.020	0.020	6125353
Toluene	ug/g	<0.020	0.020	6125353				<0.020	<0.020	0.020	6125353
Ethylbenzene	ug/g	<0.020	0.020	6125353				<0.020	<0.020	0.020	6125353
o-Xylene	ug/g	<0.020	0.020	6125353				<0.020	<0.020	0.020	6125353
p+m-Xylene	ug/g	<0.040	0.040	6125353				<0.040	<0.040	0.040	6125353
Total Xylenes	ug/g	<0.040	0.040	6125353				<0.040	<0.040	0.040	6125353
F1 (C6-C10)	ug/g	<10	10	6125353				<10	<10	10	6125353
F1 (C6-C10) - BTEX	ug/g	<10	10	6125353				<10	<10	10	6125353
F2-F4 Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	6125178				<10	<10	10	6125178
F3 (C16-C34 Hydrocarbons)	ug/g	<50	50	6125178				<50	<50	50	6125178
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	6125178				<50	<50	50	6125178
Reached Baseline at C50	ug/g	Yes		6125178				Yes	Yes		6125178
Surrogate Recovery (%)											
1,4-Difluorobenzene	%	101		6125353				101	102		6125353
4-Bromofluorobenzene	%	99		6125353				99	97		6125353
D10-Ethylbenzene	%	100		6125353				109	107		6125353
D4-1,2-Dichloroethane	%	90		6125353				89	90		6125353
o-Terphenyl	%	87		6125178				95	93		6125178

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

Maxxam Job #: B9C9821
Report Date: 2019/05/22

DS Consultants Limited
Client Project #: 18-692-100
Sampler Initials: TL

TEST SUMMARY

Maxxam ID: JSJ965
Sample ID: BH19-1 SS2
Matrix: Soil

Collected: 2019/05/13
Shipped:
Received: 2019/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6122412	N/A	2019/05/21	Automated Statchk
Hot Water Extractable Boron	ICP	6127319	2019/05/17	2019/05/17	Archana Patel
Free (WAD) Cyanide	TECH	6125224	2019/05/16	2019/05/17	Barbara Kalbasi Esfahani
Conductivity	AT	6127145	2019/05/17	2019/05/17	Kazzandra Adeva
Hexavalent Chromium in Soil by IC	IC/SPEC	6124999	2019/05/16	2019/05/21	Rupinder Sihota
Strong Acid Leachable Metals by ICPMS	ICP/MS	6127389	2019/05/17	2019/05/17	Viviana Canzonieri
Moisture	BAL	6125161	N/A	2019/05/16	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6129522	2019/05/18	2019/05/18	Mitesh Raj
pH CaCl2 EXTRACT	AT	6124984	2019/05/16	2019/05/16	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	6122931	N/A	2019/05/17	Automated Statchk

Maxxam ID: JSJ966
Sample ID: BH19-1 SS6
Matrix: Soil

Collected: 2019/05/13
Shipped:
Received: 2019/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6125353	N/A	2019/05/16	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6125178	2019/05/16	2019/05/16	Prabhjot Gulati
Moisture	BAL	6125078	N/A	2019/05/16	Min Yang

Maxxam ID: JSJ966 Dup
Sample ID: BH19-1 SS6
Matrix: Soil

Collected: 2019/05/13
Shipped:
Received: 2019/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	6125078	N/A	2019/05/16	Min Yang

Maxxam ID: JSJ967
Sample ID: BH19-2 SS2
Matrix: Soil

Collected: 2019/05/13
Shipped:
Received: 2019/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6122412	N/A	2019/05/21	Automated Statchk
Hot Water Extractable Boron	ICP	6127882	2019/05/17	2019/05/21	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	6128793	2019/05/17	2019/05/21	Barbara Kalbasi Esfahani
Conductivity	AT	6130745	2019/05/21	2019/05/21	Kazzandra Adeva
Hexavalent Chromium in Soil by IC	IC/SPEC	6128655	2019/05/17	2019/05/21	Rupinder Sihota
Strong Acid Leachable Metals by ICPMS	ICP/MS	6127859	2019/05/17	2019/05/17	Daniel Teclu
Moisture	BAL	6125161	N/A	2019/05/16	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6129522	2019/05/18	2019/05/18	Mitesh Raj
pH CaCl2 EXTRACT	AT	6127666	2019/05/17	2019/05/17	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	6122931	N/A	2019/05/21	Automated Statchk

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Maxxam Job #: B9C9821
Report Date: 2019/05/22

DS Consultants Limited
Client Project #: 18-692-100
Sampler Initials: TL

TEST SUMMARY

Maxxam ID: JSJ968
Sample ID: BH19-2 SS4
Matrix: Soil

Collected: 2019/05/13
Shipped:
Received: 2019/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6125353	N/A	2019/05/16	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6125178	2019/05/16	2019/05/16	Prabhjot Gulati
Moisture	BAL	6125161	N/A	2019/05/16	Min Yang

Maxxam ID: JSJ969
Sample ID: BH19-3 SS2
Matrix: Soil

Collected: 2019/05/13
Shipped:
Received: 2019/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6122412	N/A	2019/05/21	Automated Statchk
Hot Water Extractable Boron	ICP	6127319	2019/05/17	2019/05/17	Archana Patel
Free (WAD) Cyanide	TECH	6125224	2019/05/16	2019/05/17	Barbara Kalbasi Esfahani
Conductivity	AT	6127145	2019/05/17	2019/05/17	Kazzandra Adeva
Hexavalent Chromium in Soil by IC	IC/SPEC	6124999	2019/05/16	2019/05/21	Rupinder Sihota
Strong Acid Leachable Metals by ICPMS	ICP/MS	6127389	2019/05/17	2019/05/17	Viviana Canzonieri
Moisture	BAL	6125161	N/A	2019/05/16	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6129522	2019/05/18	2019/05/18	Mitesh Raj
pH CaCl2 EXTRACT	AT	6124984	2019/05/16	2019/05/16	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	6122931	N/A	2019/05/17	Automated Statchk

Maxxam ID: JSJ970
Sample ID: BH19-4 SS2
Matrix: Soil

Collected: 2019/05/13
Shipped:
Received: 2019/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6122412	N/A	2019/05/21	Automated Statchk
Hot Water Extractable Boron	ICP	6127319	2019/05/17	2019/05/17	Archana Patel
Free (WAD) Cyanide	TECH	6125224	2019/05/16	2019/05/17	Barbara Kalbasi Esfahani
Conductivity	AT	6127145	2019/05/17	2019/05/17	Kazzandra Adeva
Hexavalent Chromium in Soil by IC	IC/SPEC	6124999	2019/05/16	2019/05/21	Rupinder Sihota
Strong Acid Leachable Metals by ICPMS	ICP/MS	6127389	2019/05/17	2019/05/17	Viviana Canzonieri
Moisture	BAL	6125161	N/A	2019/05/16	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6129522	2019/05/18	2019/05/18	Mitesh Raj
pH CaCl2 EXTRACT	AT	6124984	2019/05/16	2019/05/16	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	6122931	N/A	2019/05/17	Automated Statchk

Maxxam ID: JSJ971
Sample ID: BH19-5 SS2
Matrix: Soil

Collected: 2019/05/13
Shipped:
Received: 2019/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6122412	N/A	2019/05/21	Automated Statchk
Hot Water Extractable Boron	ICP	6127882	2019/05/17	2019/05/21	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	6128793	2019/05/17	2019/05/21	Barbara Kalbasi Esfahani
Conductivity	AT	6130745	2019/05/21	2019/05/21	Kazzandra Adeva
Hexavalent Chromium in Soil by IC	IC/SPEC	6128655	2019/05/17	2019/05/21	Rupinder Sihota

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Maxxam Job #: B9C9821
Report Date: 2019/05/22

DS Consultants Limited
Client Project #: 18-692-100
Sampler Initials: TL

TEST SUMMARY

Maxxam ID: JSJ971 **Collected:** 2019/05/13
Sample ID: BH19-5 SS2 **Shipped:**
Matrix: Soil **Received:** 2019/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6127859	2019/05/17	2019/05/17	Daniel Teclu
Moisture	BAL	6125161	N/A	2019/05/16	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6129522	2019/05/18	2019/05/18	Mitesh Raj
pH CaCl2 EXTRACT	AT	6127666	2019/05/17	2019/05/17	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	6122931	N/A	2019/05/21	Automated Statchk

Maxxam ID: JSJ972 **Collected:** 2019/05/13
Sample ID: BH19-6 SS2 **Shipped:**
Matrix: Soil **Received:** 2019/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6122412	N/A	2019/05/21	Automated Statchk
Hot Water Extractable Boron	ICP	6127319	2019/05/17	2019/05/17	Archana Patel
Free (WAD) Cyanide	TECH	6125224	2019/05/16	2019/05/17	Barbara Kalbasi Esfahani
Conductivity	AT	6127145	2019/05/17	2019/05/17	Kazzandra Adeva
Hexavalent Chromium in Soil by IC	IC/SPEC	6124999	2019/05/16	2019/05/21	Rupinder Sihota
Strong Acid Leachable Metals by ICPMS	ICP/MS	6127389	2019/05/17	2019/05/17	Viviana Canzonieri
Moisture	BAL	6125161	N/A	2019/05/16	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6129522	2019/05/18	2019/05/18	Mitesh Raj
pH CaCl2 EXTRACT	AT	6124984	2019/05/16	2019/05/16	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	6122931	N/A	2019/05/17	Automated Statchk

Maxxam ID: JSJ973 **Collected:** 2019/05/13
Sample ID: BH19-6 SS6 **Shipped:**
Matrix: Soil **Received:** 2019/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6125353	N/A	2019/05/16	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6125178	2019/05/16	2019/05/16	Prabhjot Gulati
Moisture	BAL	6125161	N/A	2019/05/16	Min Yang

Maxxam ID: JSJ974 **Collected:** 2019/05/13
Sample ID: DUP-1 **Shipped:**
Matrix: Soil **Received:** 2019/05/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	6127319	2019/05/17	2019/05/17	Archana Patel
Free (WAD) Cyanide	TECH	6125224	2019/05/16	2019/05/17	Barbara Kalbasi Esfahani
Conductivity	AT	6127145	2019/05/17	2019/05/17	Kazzandra Adeva
Hexavalent Chromium in Soil by IC	IC/SPEC	6124999	2019/05/16	2019/05/21	Rupinder Sihota
Strong Acid Leachable Metals by ICPMS	ICP/MS	6127389	2019/05/17	2019/05/17	Viviana Canzonieri
Moisture	BAL	6124834	N/A	2019/05/16	Min Yang
pH CaCl2 EXTRACT	AT	6124984	2019/05/16	2019/05/16	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	6122931	N/A	2019/05/17	Automated Statchk

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Maxxam Job #: B9C9821
Report Date: 2019/05/22

DS Consultants Limited
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GENERAL COMMENTS

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

Package 1	6.0°C

Results relate only to the items tested.

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Maxxam Job #: B9C9821
Report Date: 2019/05/22

QUALITY ASSURANCE REPORT

DS Consultants Limited
Client Project #: 18-692-100
Sampler Initials: TL

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6125178	o-Terphenyl	2019/05/16	93	60 - 130	87	60 - 130	94	%		
6125353	1,4-Difluorobenzene	2019/05/16	102	60 - 140	101	60 - 140	100	%		
6125353	4-Bromofluorobenzene	2019/05/16	101	60 - 140	100	60 - 140	99	%		
6125353	D10-Ethylbenzene	2019/05/16	108	60 - 140	92	60 - 140	94	%		
6125353	D4-1,2-Dichloroethane	2019/05/16	98	60 - 140	97	60 - 140	94	%		
6129522	D10-Anthracene	2019/05/18	104	50 - 130	112	50 - 130	109	%		
6129522	D14-Terphenyl (FS)	2019/05/18	100	50 - 130	98	50 - 130	103	%		
6129522	D8-Acenaphthylene	2019/05/18	106	50 - 130	112	50 - 130	109	%		
6124834	Moisture	2019/05/16							5.5	20
6124984	Available (CaCl2) pH	2019/05/16			101	97 - 103			0.054	N/A
6124999	Chromium (VI)	2019/05/21	80	70 - 130	88	80 - 120	<0.2	ug/g	NC	35
6125078	Moisture	2019/05/16							5.5	20
6125161	Moisture	2019/05/16							3.5	20
6125178	F2 (C10-C16 Hydrocarbons)	2019/05/16	95	50 - 130	87	80 - 120	<10	ug/g	NC	30
6125178	F3 (C16-C34 Hydrocarbons)	2019/05/16	92	50 - 130	85	80 - 120	<50	ug/g	NC	30
6125178	F4 (C34-C50 Hydrocarbons)	2019/05/16	91	50 - 130	84	80 - 120	<50	ug/g	NC	30
6125224	WAD Cyanide (Free)	2019/05/17	94	75 - 125	97	80 - 120	<0.01	ug/g	NC	35
6125353	Benzene	2019/05/16	94	60 - 140	94	60 - 140	<0.020	ug/g	NC	50
6125353	Ethylbenzene	2019/05/16	92	60 - 140	93	60 - 140	<0.020	ug/g	NC	50
6125353	F1 (C6-C10) - BTEX	2019/05/16					<10	ug/g	NC	30
6125353	F1 (C6-C10)	2019/05/16	97	60 - 140	87	80 - 120	<10	ug/g	NC	30
6125353	o-Xylene	2019/05/16	88	60 - 140	88	60 - 140	<0.020	ug/g	NC	50
6125353	p+m-Xylene	2019/05/16	92	60 - 140	91	60 - 140	<0.040	ug/g	NC	50
6125353	Toluene	2019/05/16	92	60 - 140	93	60 - 140	<0.020	ug/g	3.1	50
6125353	Total Xylenes	2019/05/16					<0.040	ug/g	NC	50
6127145	Conductivity	2019/05/17			104	90 - 110	<0.002	mS/cm	0.73	10
6127319	Hot Water Ext. Boron (B)	2019/05/17	101	75 - 125	95	75 - 125	<0.050	ug/g	3.3	40
6127389	Acid Extractable Antimony (Sb)	2019/05/17	97	75 - 125	101	80 - 120	<0.20	ug/g		
6127389	Acid Extractable Arsenic (As)	2019/05/17	106	75 - 125	105	80 - 120	<1.0	ug/g	2.7	30
6127389	Acid Extractable Barium (Ba)	2019/05/17	NC	75 - 125	103	80 - 120	<0.50	ug/g		
6127389	Acid Extractable Beryllium (Be)	2019/05/17	98	75 - 125	98	80 - 120	<0.20	ug/g		
6127389	Acid Extractable Boron (B)	2019/05/17	101	75 - 125	97	80 - 120	<5.0	ug/g		

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Maxxam Job #: B9C9821
Report Date: 2019/05/22

QUALITY ASSURANCE REPORT(CONT'D)

DS Consultants Limited
Client Project #: 18-692-100
Sampler Initials: TL

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6127389	Acid Extractable Cadmium (Cd)	2019/05/17	98	75 - 125	101	80 - 120	<0.10	ug/g		
6127389	Acid Extractable Chromium (Cr)	2019/05/17	107	75 - 125	99	80 - 120	<1.0	ug/g		
6127389	Acid Extractable Cobalt (Co)	2019/05/17	97	75 - 125	101	80 - 120	<0.10	ug/g		
6127389	Acid Extractable Copper (Cu)	2019/05/17	96	75 - 125	102	80 - 120	<0.50	ug/g		
6127389	Acid Extractable Lead (Pb)	2019/05/17	94	75 - 125	98	80 - 120	<1.0	ug/g		
6127389	Acid Extractable Mercury (Hg)	2019/05/17	90	75 - 125	94	80 - 120	<0.050	ug/g		
6127389	Acid Extractable Molybdenum (Mo)	2019/05/17	102	75 - 125	102	80 - 120	<0.50	ug/g		
6127389	Acid Extractable Nickel (Ni)	2019/05/17	100	75 - 125	104	80 - 120	<0.50	ug/g		
6127389	Acid Extractable Selenium (Se)	2019/05/17	99	75 - 125	105	80 - 120	<0.50	ug/g		
6127389	Acid Extractable Silver (Ag)	2019/05/17	99	75 - 125	101	80 - 120	<0.20	ug/g		
6127389	Acid Extractable Thallium (Tl)	2019/05/17	94	75 - 125	98	80 - 120	<0.050	ug/g		
6127389	Acid Extractable Uranium (U)	2019/05/17	96	75 - 125	97	80 - 120	<0.050	ug/g		
6127389	Acid Extractable Vanadium (V)	2019/05/17	NC	75 - 125	104	80 - 120	<5.0	ug/g		
6127389	Acid Extractable Zinc (Zn)	2019/05/17	NC	75 - 125	99	80 - 120	<5.0	ug/g		
6127666	Available (CaCl2) pH	2019/05/17			100	97 - 103			0.29	N/A
6127859	Acid Extractable Antimony (Sb)	2019/05/21	96	75 - 125	103	80 - 120	<0.20	ug/g	NC	30
6127859	Acid Extractable Arsenic (As)	2019/05/21	107	75 - 125	104	80 - 120	<1.0	ug/g	0.42	30
6127859	Acid Extractable Barium (Ba)	2019/05/21	NC	75 - 125	98	80 - 120	<0.50	ug/g	3.9	30
6127859	Acid Extractable Beryllium (Be)	2019/05/21	105	75 - 125	99	80 - 120	<0.20	ug/g	2.6	30
6127859	Acid Extractable Boron (B)	2019/05/21	113	75 - 125	98	80 - 120	<5.0	ug/g	0.99	30
6127859	Acid Extractable Cadmium (Cd)	2019/05/21	105	75 - 125	101	80 - 120	<0.10	ug/g	NC	30
6127859	Acid Extractable Chromium (Cr)	2019/05/21	108	75 - 125	98	80 - 120	<1.0	ug/g	7.1	30
6127859	Acid Extractable Cobalt (Co)	2019/05/21	104	75 - 125	100	80 - 120	<0.10	ug/g	2.1	30
6127859	Acid Extractable Copper (Cu)	2019/05/21	104	75 - 125	101	80 - 120	<0.50	ug/g	3.6	30
6127859	Acid Extractable Lead (Pb)	2019/05/21	102	75 - 125	102	80 - 120	<1.0	ug/g	0.95	30
6127859	Acid Extractable Mercury (Hg)	2019/05/21	95	75 - 125	98	80 - 120	<0.050	ug/g	NC	30
6127859	Acid Extractable Molybdenum (Mo)	2019/05/21	107	75 - 125	101	80 - 120	<0.50	ug/g	NC	30
6127859	Acid Extractable Nickel (Ni)	2019/05/21	105	75 - 125	101	80 - 120	<0.50	ug/g	0.42	30
6127859	Acid Extractable Selenium (Se)	2019/05/21	104	75 - 125	101	80 - 120	<0.50	ug/g	NC	30
6127859	Acid Extractable Silver (Ag)	2019/05/21	104	75 - 125	101	80 - 120	<0.20	ug/g	NC	30
6127859	Acid Extractable Thallium (Tl)	2019/05/21	101	75 - 125	103	80 - 120	<0.050	ug/g	3.1	30
6127859	Acid Extractable Uranium (U)	2019/05/21	100	75 - 125	100	80 - 120	<0.050	ug/g	0.90	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6127859	Acid Extractable Vanadium (V)	2019/05/21	111	75 - 125	100	80 - 120	<5.0	ug/g	2.4	30
6127859	Acid Extractable Zinc (Zn)	2019/05/21	NC	75 - 125	101	80 - 120	<5.0	ug/g	9.3	30
6127882	Hot Water Ext. Boron (B)	2019/05/21	99	75 - 125	96	75 - 125	<0.050	ug/g	0.042	40
6128655	Chromium (VI)	2019/05/21	73	70 - 130	87	80 - 120	<0.2	ug/g	NC	35
6128793	WAD Cyanide (Free)	2019/05/21	98	75 - 125	105	80 - 120	<0.01	ug/g	NC	35
6129522	1-Methylnaphthalene	2019/05/18	138 (1)	50 - 130	126	50 - 130	<0.0050	ug/g	16	40
6129522	2-Methylnaphthalene	2019/05/18	128	50 - 130	113	50 - 130	<0.0050	ug/g	NC	40
6129522	Acenaphthene	2019/05/18	97	50 - 130	108	50 - 130	<0.0050	ug/g	130 (2)	40
6129522	Acenaphthylene	2019/05/18	117	50 - 130	114	50 - 130	<0.0050	ug/g	22	40
6129522	Anthracene	2019/05/18	90	50 - 130	103	50 - 130	<0.0050	ug/g	155 (3)	40
6129522	Benzo(a)anthracene	2019/05/18	92	50 - 130	117	50 - 130	<0.0050	ug/g	74 (3)	40
6129522	Benzo(a)pyrene	2019/05/18	110	50 - 130	116	50 - 130	<0.0050	ug/g	53 (3)	40
6129522	Benzo(b/j)fluoranthene	2019/05/18	90	50 - 130	111	50 - 130	<0.0050	ug/g	62 (3)	40
6129522	Benzo(g,h,i)perylene	2019/05/18	125	50 - 130	118	50 - 130	<0.0050	ug/g	25	40
6129522	Benzo(k)fluoranthene	2019/05/18	102	50 - 130	92	50 - 130	<0.0050	ug/g	37	40
6129522	Chrysene	2019/05/18	72	50 - 130	98	50 - 130	<0.0050	ug/g	66 (3)	40
6129522	Dibenz(a,h)anthracene	2019/05/18	131 (1)	50 - 130	114	50 - 130	<0.0050	ug/g	NC	40
6129522	Fluoranthene	2019/05/18	80	50 - 130	107	50 - 130	<0.0050	ug/g	98 (3)	40
6129522	Fluorene	2019/05/18	102	50 - 130	109	50 - 130	<0.0050	ug/g	120 (3)	40
6129522	Indeno(1,2,3-cd)pyrene	2019/05/18	133 (1)	50 - 130	125	50 - 130	<0.0050	ug/g	33	40
6129522	Naphthalene	2019/05/18	102	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
6129522	Phenanthrene	2019/05/18	66	50 - 130	108	50 - 130	<0.0050	ug/g	158 (3)	40
6129522	Pyrene	2019/05/18	85	50 - 130	104	50 - 130	<0.0050	ug/g	78 (3)	40

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6130745	Conductivity	2019/05/21			102	90 - 110	<0.002	mS/cm	5.2	10

N/A = Not Applicable

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

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

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

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

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

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

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

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

(2) Duplicate results exceeded RPD acceptance criteria due to the sample heterogeneity. The variability in the results for flagged analytes may be more pronounced.

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

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Report Date: 2019/05/22

DS Consultants Limited
Client Project #: 18-692-100
Sampler Initials: TL

VALIDATION SIGNATURE PAGE

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

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

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

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Maxxam
A Bureau Veritas Group Company

Your Project #: 18-692-100
Site Location: BCD
Your C.O.C. #: na

Attention: Tanner Leonhardt

DS Consultants Limited
6221 Highway 7, Unit 16
Vaughan, ON
CANADA L4H 0K8

Report Date: 2019/05/30
Report #: R5732347
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B9D4505
Received: 2019/05/21, 11:30

Sample Matrix: Soil
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Moisture	5	N/A	2019/05/23	CAM SOP-00445	Carter 2nd ed 51.2 m
OC Pesticides (Selected) & PCB (1)	5	2019/05/28	2019/05/29	CAM SOP-00307	SW846 8081, 8082
OC Pesticides Summed Parameters	5	N/A	2019/05/24	CAM SOP-00307	EPA 8081/8082 m

Remarks:

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

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Chlordane (Total) = Alpha Chlordane + Gamma Chlordane

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Your Project #: 18-692-100
Site Location: BCD
Your C.O.C. #: na

Attention: Tanner Leonhardt

DS Consultants Limited
6221 Highway 7, Unit 16
Vaughan, ON
CANADA L4H 0K8

Report Date: 2019/05/30
Report #: R5732347
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B9D4505
Received: 2019/05/21, 11:30

Encryption Key

Ashton Gibson
Project Manager
22 May 2019 17:52:34

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ashton Gibson, Project Manager
Email: AGibson@maxxam.ca
Phone# (905)817-5765

==========

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

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Maxxam Job #: B9D4505
Report Date: 2019/05/30

DS Consultants Limited
Client Project #: 18-692-100
Site Location: BCD
Sampler Initials: TL

O.REG 153 OC PESTICIDES (SOIL)

Maxxam ID		JTM398	JTM399		JTM400			JTM400		
Sampling Date		2019/05/13	2019/05/13		2019/05/13			2019/05/13		
COC Number		na	na		na			na		
	UNITS	TP1	TP2	RDL	TP3	RDL	QC Batch	TP3 Lab-Dup	RDL	QC Batch
Inorganics										
Moisture	%	20	26	1.0	30	1.0	6135500	31	1.0	6135500
Calculated Parameters										
Chlordane (Total)	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6131621			
o,p-DDD + p,p-DDD	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6131621			
o,p-DDE + p,p-DDE	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6131621			
o,p-DDT + p,p-DDT	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6131621			
Total Endosulfan	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6131621			
Total PCB	ug/g	<0.015	<0.015	0.015	<0.023	0.023	6131621			
Pesticides & Herbicides										
Aldrin	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
a-Chlordane	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
g-Chlordane	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
o,p-DDD	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
p,p-DDD	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
o,p-DDE	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
p,p-DDE	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
o,p-DDT	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
p,p-DDT	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
Dieldrin	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
Lindane	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
Endosulfan I (alpha)	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
Endosulfan II (beta)	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
Endrin	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
Heptachlor	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
Heptachlor epoxide	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
Hexachlorobenzene	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
Hexachlorobutadiene	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
Hexachloroethane	ug/g	<0.0020	<0.0020	0.0020	<0.0030	0.0030	6144322			
Methoxychlor	ug/g	<0.0050	<0.0050	0.0050	<0.0075	0.0075	6144322			
Aroclor 1242	ug/g	<0.015	<0.015	0.015	<0.023	0.023	6144322			
Aroclor 1248	ug/g	<0.015	<0.015	0.015	<0.023	0.023	6144322			

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

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Maxxam Job #: B9D4505
Report Date: 2019/05/30

DS Consultants Limited
Client Project #: 18-692-100
Site Location: BCD
Sampler Initials: TL

O.REG 153 OC PESTICIDES (SOIL)

Maxxam ID		JTM398	JTM399		JTM400			JTM400		
Sampling Date		2019/05/13	2019/05/13		2019/05/13			2019/05/13		
COC Number		na	na		na			na		
	UNITS	TP1	TP2	RDL	TP3	RDL	QC Batch	TP3 Lab-Dup	RDL	QC Batch
Aroclor 1254	ug/g	<0.015	<0.015	0.015	<0.023	0.023	6144322			
Aroclor 1260	ug/g	<0.015	<0.015	0.015	<0.023	0.023	6144322			
Surrogate Recovery (%)										
2,4,5,6-Tetrachloro-m-xylene	%	75	85		81		6144322			
Decachlorobiphenyl	%	95	83		108		6144322			

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

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Maxxam Job #: B9D4505
Report Date: 2019/05/30

DS Consultants Limited
Client Project #: 18-692-100
Site Location: BCD
Sampler Initials: TL

O.REG 153 OC PESTICIDES (SOIL)

Maxxam ID		JTM401	JTM402		
Sampling Date		2019/05/13	2019/05/13		
COC Number		na	na		
	UNITS	TP4	TP5	RDL	QC Batch
Inorganics					
Moisture	%	29	30	1.0	6135500
Calculated Parameters					
Chlordane (Total)	ug/g	<0.0020	<0.0020	0.0020	6131621
o,p-DDD + p,p-DDD	ug/g	<0.0020	<0.0020	0.0020	6131621
o,p-DDE + p,p-DDE	ug/g	<0.0020	<0.0020	0.0020	6131621
o,p-DDT + p,p-DDT	ug/g	<0.0020	<0.0020	0.0020	6131621
Total Endosulfan	ug/g	<0.0020	<0.0020	0.0020	6131621
Total PCB	ug/g	<0.015	<0.015	0.015	6131621
Pesticides & Herbicides					
Aldrin	ug/g	<0.0020	<0.0020	0.0020	6144322
a-Chlordane	ug/g	<0.0020	<0.0020	0.0020	6144322
g-Chlordane	ug/g	<0.0020	<0.0020	0.0020	6144322
o,p-DDD	ug/g	<0.0020	<0.0020	0.0020	6144322
p,p-DDD	ug/g	<0.0020	<0.0020	0.0020	6144322
o,p-DDE	ug/g	<0.0020	<0.0020	0.0020	6144322
p,p-DDE	ug/g	<0.0020	<0.0020	0.0020	6144322
o,p-DDT	ug/g	<0.0020	<0.0020	0.0020	6144322
p,p-DDT	ug/g	<0.0020	<0.0020	0.0020	6144322
Dieldrin	ug/g	<0.0020	<0.0020	0.0020	6144322
Lindane	ug/g	<0.0020	<0.0020	0.0020	6144322
Endosulfan I (alpha)	ug/g	<0.0020	<0.0020	0.0020	6144322
Endosulfan II (beta)	ug/g	<0.0020	<0.0020	0.0020	6144322
Endrin	ug/g	<0.0020	<0.0020	0.0020	6144322
Heptachlor	ug/g	<0.0020	<0.0020	0.0020	6144322
Heptachlor epoxide	ug/g	<0.0020	<0.0020	0.0020	6144322
Hexachlorobenzene	ug/g	<0.0020	<0.0020	0.0020	6144322
Hexachlorobutadiene	ug/g	<0.0020	<0.0020	0.0020	6144322
Hexachloroethane	ug/g	<0.0020	<0.0020	0.0020	6144322
Methoxychlor	ug/g	<0.0050	<0.0050	0.0050	6144322
Aroclor 1242	ug/g	<0.015	<0.015	0.015	6144322
Aroclor 1248	ug/g	<0.015	<0.015	0.015	6144322
Aroclor 1254	ug/g	<0.015	<0.015	0.015	6144322

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B9D4505
Report Date: 2019/05/30

DS Consultants Limited
Client Project #: 18-692-100
Site Location: BCD
Sampler Initials: TL

O.REG 153 OC PESTICIDES (SOIL)

Maxxam ID		JTM401	JTM402		
Sampling Date		2019/05/13	2019/05/13		
COC Number		na	na		
	UNITS	TP4	TP5	RDL	QC Batch
Aroclor 1260	ug/g	<0.015	<0.015	0.015	6144322
Surrogate Recovery (%)					
2,4,5,6-Tetrachloro-m-xylene	%	72	84		6144322
Decachlorobiphenyl	%	83	98		6144322

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B9D4505
Report Date: 2019/05/30

DS Consultants Limited
Client Project #: 18-692-100
Site Location: BCD
Sampler Initials: TL

TEST SUMMARY

Maxxam ID: JTM398
Sample ID: TP1
Matrix: Soil

Collected: 2019/05/13
Shipped:
Received: 2019/05/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	6135500	N/A	2019/05/23	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	6144322	2019/05/28	2019/05/29	Li Peng
OC Pesticides Summed Parameters	CALC	6131621	N/A	2019/05/24	Automated Statchk

Maxxam ID: JTM399
Sample ID: TP2
Matrix: Soil

Collected: 2019/05/13
Shipped:
Received: 2019/05/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	6135500	N/A	2019/05/23	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	6144322	2019/05/28	2019/05/29	Li Peng
OC Pesticides Summed Parameters	CALC	6131621	N/A	2019/05/24	Automated Statchk

Maxxam ID: JTM400
Sample ID: TP3
Matrix: Soil

Collected: 2019/05/13
Shipped:
Received: 2019/05/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	6135500	N/A	2019/05/23	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	6144322	2019/05/28	2019/05/29	Li Peng
OC Pesticides Summed Parameters	CALC	6131621	N/A	2019/05/24	Automated Statchk

Maxxam ID: JTM400 Dup
Sample ID: TP3
Matrix: Soil

Collected: 2019/05/13
Shipped:
Received: 2019/05/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	6135500	N/A	2019/05/23	Prgya Panchal

Maxxam ID: JTM401
Sample ID: TP4
Matrix: Soil

Collected: 2019/05/13
Shipped:
Received: 2019/05/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	6135500	N/A	2019/05/23	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	6144322	2019/05/28	2019/05/29	Li Peng
OC Pesticides Summed Parameters	CALC	6131621	N/A	2019/05/24	Automated Statchk

Maxxam ID: JTM402
Sample ID: TP5
Matrix: Soil

Collected: 2019/05/13
Shipped:
Received: 2019/05/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	6135500	N/A	2019/05/23	Prgya Panchal
OC Pesticides (Selected) & PCB	GC/ECD	6144322	2019/05/28	2019/05/29	Li Peng
OC Pesticides Summed Parameters	CALC	6131621	N/A	2019/05/24	Automated Statchk

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Maxxam Job #: B9D4505
Report Date: 2019/05/30

DS Consultants Limited
Client Project #: 18-692-100
Site Location: BCD
Sampler Initials: TL

GENERAL COMMENTS

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

Package 1	7.7°C

Sample JTM400 [TP3] : OC Pesticide Analysis: Detection limits were adjusted for high moisture content.

Results relate only to the items tested.

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Maxxam Job #: B9D4505
Report Date: 2019/05/30

QUALITY ASSURANCE REPORT

DS Consultants Limited
Client Project #: 18-692-100
Site Location: BCD
Sampler Initials: TL

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6144322	2,4,5,6-Tetrachloro-m-xylene	2019/05/28	90	50 - 130	80	50 - 130	81	%		
6144322	Decachlorobiphenyl	2019/05/28	103	50 - 130	86	50 - 130	100	%		
6135500	Moisture	2019/05/23							0.33	20
6144322	a-Chlordane	2019/05/29	99	50 - 130	91	50 - 130	<0.0020	ug/g	NC	40
6144322	Aldrin	2019/05/29	98	50 - 130	83	50 - 130	<0.0020	ug/g	NC	40
6144322	Aroclor 1242	2019/05/29					<0.015	ug/g	NC	40
6144322	Aroclor 1248	2019/05/29					<0.015	ug/g	NC	40
6144322	Aroclor 1254	2019/05/29					<0.015	ug/g	NC	40
6144322	Aroclor 1260	2019/05/29					<0.015	ug/g	NC	40
6144322	Dieldrin	2019/05/29	100	50 - 130	107	50 - 130	<0.0020	ug/g	NC	40
6144322	Endosulfan I (alpha)	2019/05/29	85	50 - 130	83	50 - 130	<0.0020	ug/g	NC	40
6144322	Endosulfan II (beta)	2019/05/29	127	50 - 130	91	50 - 130	<0.0020	ug/g	NC	40
6144322	Endrin	2019/05/29	91	50 - 130	94	50 - 130	<0.0020	ug/g	NC	40
6144322	g-Chlordane	2019/05/29	98	50 - 130	87	50 - 130	<0.0020	ug/g	NC	40
6144322	Heptachlor epoxide	2019/05/29	88	50 - 130	88	50 - 130	<0.0020	ug/g	NC	40
6144322	Heptachlor	2019/05/29	96	50 - 130	84	50 - 130	<0.0020	ug/g	NC	40
6144322	Hexachlorobenzene	2019/05/29	97	50 - 130	95	50 - 130	<0.0020	ug/g	NC	40
6144322	Hexachlorobutadiene	2019/05/29	85	50 - 130	99	50 - 130	<0.0020	ug/g	NC	40
6144322	Hexachloroethane	2019/05/29	68	50 - 130	84	50 - 130	<0.0020	ug/g	NC	40
6144322	Lindane	2019/05/29	88	50 - 130	79	50 - 130	<0.0020	ug/g	NC	40
6144322	Methoxychlor	2019/05/29	169 (1)	50 - 130	130	50 - 130	<0.0050	ug/g	NC	40
6144322	o,p-DDD	2019/05/29	101	50 - 130	104	50 - 130	<0.0020	ug/g	NC	40
6144322	o,p-DDE	2019/05/29	96	50 - 130	89	50 - 130	<0.0020	ug/g	NC	40
6144322	o,p-DDT	2019/05/29	112	50 - 130	99	50 - 130	<0.0020	ug/g	NC	40
6144322	p,p-DDD	2019/05/29	98	50 - 130	97	50 - 130	<0.0020	ug/g	NC	40
6144322	p,p-DDE	2019/05/29	95	50 - 130	84	50 - 130	<0.0020	ug/g	NC	40

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Maxxam Job #: B9D4505
Report Date: 2019/05/30

QUALITY ASSURANCE REPORT(CONT'D)

DS Consultants Limited
Client Project #: 18-692-100
Site Location: BCD
Sampler Initials: TL

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6144322	p,p-DDT	2019/05/29	127	50 - 130	102	50 - 130	<0.0020	ug/g	NC	40

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

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

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

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

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

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

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

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

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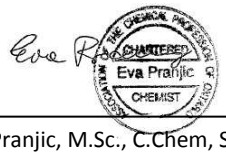
Maxxam Job #: B9D4505
Report Date: 2019/05/30

DS Consultants Limited
Client Project #: 18-692-100
Site Location: BCD
Sampler Initials: TL

VALIDATION SIGNATURE PAGE

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



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

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

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Your Project #: 18-692-100
Site Location: PARCEL BCD
Your C.O.C. #: N/A

Attention: Tanner Leonhardt

DS Consultants Limited
6221 Highway 7, Unit 16
Vaughan, ON
CANADA L4H 0K8

Report Date: 2019/06/04
Report #: R5738672
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9E4165
Received: 2019/05/29, 12:24

Sample Matrix: Soil
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Hot Water Extractable Boron	4	2019/05/31	2019/06/03	CAM SOP-00408	R153 Ana. Prot. 2011
Free (WAD) Cyanide	4	2019/05/30	2019/05/31	CAM SOP-00457	OMOE E3015 m
Conductivity	4	2019/05/31	2019/05/31	CAM SOP-00414	OMOE E3530 v1 m
Hexavalent Chromium in Soil by IC (1)	4	2019/05/30	2019/05/31	CAM SOP-00436	EPA 3060/7199 m
Strong Acid Leachable Metals by ICPMS	4	2019/05/31	2019/05/31	CAM SOP-00447	EPA 6020B m
Moisture	4	N/A	2019/05/30	CAM SOP-00445	Carter 2nd ed 51.2 m
pH CaCl2 EXTRACT	4	2019/05/31	2019/05/31	CAM SOP-00413	EPA 9045 D m
Sodium Adsorption Ratio (SAR)	4	N/A	2019/06/03	CAM SOP-00102	EPA 6010C

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Soils are reported on a dry weight basis unless otherwise specified.

Your Project #: 18-692-100
Site Location: PARCEL BCD
Your C.O.C. #: N/A

Attention: Tanner Leonhardt

DS Consultants Limited
6221 Highway 7, Unit 16
Vaughan, ON
CANADA L4H 0K8

Report Date: 2019/06/04
Report #: R5738672
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9E4165
Received: 2019/05/29, 12:24

Encryption Key

Ashton Gibson
Project Manager
22 May 2019 17:52:34

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ashton Gibson, Project Manager
Email: Ashton.Gibson@bvlabs.com
Phone# (905)817-5765

==========

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

BV Labs Job #: B9E4165
Report Date: 2019/06/04

DS Consultants Limited
Client Project #: 18-692-100
Site Location: PARCEL BCD

O.REG 153 METALS & INORGANICS PKG (SOIL)

BV Labs ID		JVP550	JVP551	JVP552			JVP552		
Sampling Date		2019/05/27	2019/05/27	2019/05/27			2019/05/27		
COC Number		N/A	N/A	N/A			N/A		
	UNITS	TP1	TP5	TP15	RDL	QC Batch	TP15 Lab-Dup	RDL	QC Batch
Calculated Parameters									
Sodium Adsorption Ratio	N/A	0.27	0.26	0.22		6148228			
Inorganics									
Conductivity	mS/cm	0.13	0.24	0.18	0.002	6151603	0.18	0.002	6151603
Moisture	%	22	28	22	1.0	6149667			
Available (CaCl2) pH	pH	7.18	6.71	7.41		6151386			
WAD Cyanide (Free)	ug/g	0.01	0.05	<0.01	0.01	6150362			
Chromium (VI)	ug/g	<0.2	<0.2	<0.2	0.2	6150079			
Metals									
Hot Water Ext. Boron (B)	ug/g	0.68	1.5	0.52	0.050	6152062			
Acid Extractable Antimony (Sb)	ug/g	<0.20	<0.20	<0.20	0.20	6151488			
Acid Extractable Arsenic (As)	ug/g	4.0	4.1	4.1	1.0	6151488			
Acid Extractable Barium (Ba)	ug/g	110	130	99	0.50	6151488			
Acid Extractable Beryllium (Be)	ug/g	0.91	0.75	0.83	0.20	6151488			
Acid Extractable Boron (B)	ug/g	6.2	8.4	6.6	5.0	6151488			
Acid Extractable Cadmium (Cd)	ug/g	0.31	0.26	0.22	0.10	6151488			
Acid Extractable Chromium (Cr)	ug/g	25	22	23	1.0	6151488			
Acid Extractable Cobalt (Co)	ug/g	11	6.9	11	0.10	6151488			
Acid Extractable Copper (Cu)	ug/g	22	21	21	0.50	6151488			
Acid Extractable Lead (Pb)	ug/g	19	19	16	1.0	6151488			
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	0.52	<0.50	0.50	6151488			
Acid Extractable Nickel (Ni)	ug/g	22	19	22	0.50	6151488			
Acid Extractable Selenium (Se)	ug/g	<0.50	0.60	<0.50	0.50	6151488			
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	0.20	6151488			
Acid Extractable Thallium (Tl)	ug/g	0.17	0.15	0.17	0.050	6151488			
Acid Extractable Uranium (U)	ug/g	0.70	4.8	1.0	0.050	6151488			
Acid Extractable Vanadium (V)	ug/g	37	31	34	5.0	6151488			
Acid Extractable Zinc (Zn)	ug/g	73	80	76	5.0	6151488			
Acid Extractable Mercury (Hg)	ug/g	<0.050	<0.050	0.052	0.050	6151488			

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

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O.REG 153 METALS & INORGANICS PKG (SOIL)

BV Labs ID		JVP553		
Sampling Date		2019/05/27		
COC Number		N/A		
	UNITS	DUP-8	RDL	QC Batch
Calculated Parameters				
Sodium Adsorption Ratio	N/A	0.22		6148228
Inorganics				
Conductivity	mS/cm	0.19	0.002	6151603
Moisture	%	23	1.0	6149667
Available (CaCl2) pH	pH	7.36		6151386
WAD Cyanide (Free)	ug/g	<0.01	0.01	6150362
Chromium (VI)	ug/g	<0.2	0.2	6150079
Metals				
Hot Water Ext. Boron (B)	ug/g	0.52	0.050	6152062
Acid Extractable Antimony (Sb)	ug/g	<0.20	0.20	6151488
Acid Extractable Arsenic (As)	ug/g	4.1	1.0	6151488
Acid Extractable Barium (Ba)	ug/g	100	0.50	6151488
Acid Extractable Beryllium (Be)	ug/g	0.89	0.20	6151488
Acid Extractable Boron (B)	ug/g	6.3	5.0	6151488
Acid Extractable Cadmium (Cd)	ug/g	0.23	0.10	6151488
Acid Extractable Chromium (Cr)	ug/g	24	1.0	6151488
Acid Extractable Cobalt (Co)	ug/g	10	0.10	6151488
Acid Extractable Copper (Cu)	ug/g	21	0.50	6151488
Acid Extractable Lead (Pb)	ug/g	18	1.0	6151488
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	0.50	6151488
Acid Extractable Nickel (Ni)	ug/g	22	0.50	6151488
Acid Extractable Selenium (Se)	ug/g	<0.50	0.50	6151488
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	6151488
Acid Extractable Thallium (Tl)	ug/g	0.18	0.050	6151488
Acid Extractable Uranium (U)	ug/g	0.70	0.050	6151488
Acid Extractable Vanadium (V)	ug/g	35	5.0	6151488
Acid Extractable Zinc (Zn)	ug/g	70	5.0	6151488
Acid Extractable Mercury (Hg)	ug/g	<0.050	0.050	6151488

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9E4165
Report Date: 2019/06/04

DS Consultants Limited
Client Project #: 18-692-100
Site Location: PARCEL BCD

TEST SUMMARY

BV Labs ID: JVP550
Sample ID: TP1
Matrix: Soil

Collected: 2019/05/27
Shipped:
Received: 2019/05/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	6152062	2019/05/31	2019/06/03	Archana Patel
Free (WAD) Cyanide	TECH	6150362	2019/05/30	2019/05/31	Barbara Kalbasi Esfahani
Conductivity	AT	6151603	2019/05/31	2019/05/31	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	6150079	2019/05/30	2019/05/31	Sally Norouz
Strong Acid Leachable Metals by ICPMS	ICP/MS	6151488	2019/05/31	2019/05/31	Daniel Teclu
Moisture	BAL	6149667	N/A	2019/05/30	Mithunaa Sasitheepan
pH CaCl2 EXTRACT	AT	6151386	2019/05/31	2019/05/31	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	6148228	N/A	2019/06/03	Automated Statchk

BV Labs ID: JVP551
Sample ID: TP5
Matrix: Soil

Collected: 2019/05/27
Shipped:
Received: 2019/05/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	6152062	2019/05/31	2019/06/03	Archana Patel
Free (WAD) Cyanide	TECH	6150362	2019/05/30	2019/05/31	Barbara Kalbasi Esfahani
Conductivity	AT	6151603	2019/05/31	2019/05/31	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	6150079	2019/05/30	2019/05/31	Sally Norouz
Strong Acid Leachable Metals by ICPMS	ICP/MS	6151488	2019/05/31	2019/05/31	Daniel Teclu
Moisture	BAL	6149667	N/A	2019/05/30	Mithunaa Sasitheepan
pH CaCl2 EXTRACT	AT	6151386	2019/05/31	2019/05/31	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	6148228	N/A	2019/06/03	Automated Statchk

BV Labs ID: JVP552
Sample ID: TP15
Matrix: Soil

Collected: 2019/05/27
Shipped:
Received: 2019/05/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	6152062	2019/05/31	2019/06/03	Archana Patel
Free (WAD) Cyanide	TECH	6150362	2019/05/30	2019/05/31	Barbara Kalbasi Esfahani
Conductivity	AT	6151603	2019/05/31	2019/05/31	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	6150079	2019/05/30	2019/05/31	Sally Norouz
Strong Acid Leachable Metals by ICPMS	ICP/MS	6151488	2019/05/31	2019/05/31	Daniel Teclu
Moisture	BAL	6149667	N/A	2019/05/30	Mithunaa Sasitheepan
pH CaCl2 EXTRACT	AT	6151386	2019/05/31	2019/05/31	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	6148228	N/A	2019/06/03	Automated Statchk

BV Labs ID: JVP552 Dup
Sample ID: TP15
Matrix: Soil

Collected: 2019/05/27
Shipped:
Received: 2019/05/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	6151603	2019/05/31	2019/05/31	Neil Dassanayake

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BV Labs Job #: B9E4165
Report Date: 2019/06/04

DS Consultants Limited
Client Project #: 18-692-100
Site Location: PARCEL BCD

TEST SUMMARY

BV Labs ID: JVP553
Sample ID: DUP-8
Matrix: Soil

Collected: 2019/05/27
Shipped:
Received: 2019/05/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	6152062	2019/05/31	2019/06/03	Archana Patel
Free (WAD) Cyanide	TECH	6150362	2019/05/30	2019/05/31	Barbara Kalbasi Esfahani
Conductivity	AT	6151603	2019/05/31	2019/05/31	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	6150079	2019/05/30	2019/05/31	Sally Norouz
Strong Acid Leachable Metals by ICPMS	ICP/MS	6151488	2019/05/31	2019/05/31	Daniel Teclu
Moisture	BAL	6149667	N/A	2019/05/30	Mithunaa Sasitheepan
pH CaCl2 EXTRACT	AT	6151386	2019/05/31	2019/05/31	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	6148228	N/A	2019/06/03	Automated Statchk

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GENERAL COMMENTS

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

Package 1	4.3°C

Cooler custody seal was not present.

Sample JVP550 [TP1] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample JVP552 [TP15] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample JVP553 [DUP-8] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Results relate only to the items tested.

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BV Labs Job #: B9E4165
Report Date: 2019/06/04

QUALITY ASSURANCE REPORT

DS Consultants Limited
Client Project #: 18-692-100
Site Location: PARCEL BCD

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6149667	Moisture	2019/05/30							0	20
6150079	Chromium (VI)	2019/05/31	86	70 - 130	90	80 - 120	<0.2	ug/g	NC	35
6150362	WAD Cyanide (Free)	2019/05/31	92	75 - 125	92	80 - 120	<0.01	ug/g	NC	35
6151386	Available (CaCl2) pH	2019/05/31			100	97 - 103			0.84	N/A
6151488	Acid Extractable Antimony (Sb)	2019/05/31	111	75 - 125	100	80 - 120	<0.20	ug/g	NC	30
6151488	Acid Extractable Arsenic (As)	2019/05/31	103	75 - 125	99	80 - 120	<1.0	ug/g	2.6	30
6151488	Acid Extractable Barium (Ba)	2019/05/31	115	75 - 125	98	80 - 120	<0.50	ug/g	6.6	30
6151488	Acid Extractable Beryllium (Be)	2019/05/31	104	75 - 125	98	80 - 120	<0.20	ug/g	NC	30
6151488	Acid Extractable Boron (B)	2019/05/31	106	75 - 125	100	80 - 120	<5.0	ug/g	NC	30
6151488	Acid Extractable Cadmium (Cd)	2019/05/31	107	75 - 125	97	80 - 120	<0.10	ug/g	NC	30
6151488	Acid Extractable Chromium (Cr)	2019/05/31	106	75 - 125	96	80 - 120	<1.0	ug/g	15	30
6151488	Acid Extractable Cobalt (Co)	2019/05/31	101	75 - 125	95	80 - 120	<0.10	ug/g	2.1	30
6151488	Acid Extractable Copper (Cu)	2019/05/31	106	75 - 125	97	80 - 120	<0.50	ug/g	3.8	30
6151488	Acid Extractable Lead (Pb)	2019/05/31	112	75 - 125	105	80 - 120	<1.0	ug/g	5.6	30
6151488	Acid Extractable Mercury (Hg)	2019/05/31	102	75 - 125	98	80 - 120	<0.050	ug/g	NC	30
6151488	Acid Extractable Molybdenum (Mo)	2019/05/31	109	75 - 125	97	80 - 120	<0.50	ug/g	NC	30
6151488	Acid Extractable Nickel (Ni)	2019/05/31	102	75 - 125	98	80 - 120	<0.50	ug/g	8.7	30
6151488	Acid Extractable Selenium (Se)	2019/05/31	112	75 - 125	104	80 - 120	<0.50	ug/g	NC	30
6151488	Acid Extractable Silver (Ag)	2019/05/31	106	75 - 125	100	80 - 120	<0.20	ug/g	NC	30
6151488	Acid Extractable Thallium (Tl)	2019/05/31	109	75 - 125	104	80 - 120	<0.050	ug/g	12	30
6151488	Acid Extractable Uranium (U)	2019/05/31	109	75 - 125	104	80 - 120	<0.050	ug/g	8.3	30
6151488	Acid Extractable Vanadium (V)	2019/05/31	117	75 - 125	97	80 - 120	<5.0	ug/g	16	30
6151488	Acid Extractable Zinc (Zn)	2019/05/31	106	75 - 125	97	80 - 120	<5.0	ug/g	0.28	30
6151603	Conductivity	2019/05/31			102	90 - 110	<0.002	mS/cm	0.55	10
6152062	Hot Water Ext. Boron (B)	2019/06/03	106	75 - 125	109	75 - 125	<0.050	ug/g	2.7	40

N/A = Not Applicable

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

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

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

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

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

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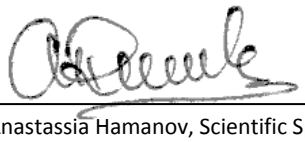
BV Labs Job #: B9E4165
Report Date: 2019/06/04

DS Consultants Limited
Client Project #: 18-692-100
Site Location: PARCEL BCD

VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, Scientific Specialist

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Maxxam
A Bureau Veritas Group Company

Your Project #: 18-692-100
Site#: Parcels B-D
Site Location: Derryl-Britannia Lands, Ninth Line
Your C.O.C. #: 85833

Attention: Rick Fioravanti

DS Consultants Limited
6221 Highway 7, Unit 16
Vaughan, ON
CANADA L4H 0K8

Report Date: 2019/05/28
Report #: R5728992
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B9D7907
Received: 2019/05/23, 14:35

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Petroleum Hydro. CCME F1 & BTEX in Water	2	N/A	2019/05/27	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydro. CCME F1 & BTEX in Water	1	N/A	2019/05/28	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1)	2	2019/05/27	2019/05/28	CAM SOP-00316	CCME PHC-CWS m

Remarks:

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

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.

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

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

Maxxam
A Bureau Veritas Group Company

Your Project #: 18-692-100
Site#: Parcels B-D
Site Location: Derryl-Britannia Lands, Ninth Line
Your C.O.C. #: 85833

Attention: Rick Fioravanti

DS Consultants Limited
6221 Highway 7, Unit 16
Vaughan, ON
CANADA L4H 0K8

Report Date: 2019/05/28
Report #: R5728992
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B9D7907
Received: 2019/05/23, 14:35

Encryption Key

Ashton Gibson
Project Manager
22 May 2019 17:52:34

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Ashton Gibson, Project Manager
Email: AGibson@maxxam.ca
Phone# (905)817-5765

==========

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Maxxam Job #: B9D7907
Report Date: 2019/05/28

DS Consultants Limited
Client Project #: 18-692-100
Site Location: Derryl-Britannia Lands, Ninth Line
Sampler Initials: GK

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			JUF599		
Sampling Date			2019/05/22		
COC Number			85833		
	UNITS	Criteria	Trip Blank#3630	RDL	QC Batch
BTEX & F1 Hydrocarbons					
Benzene	ug/L	0.5	<0.20	0.20	6142370
Toluene	ug/L	0.8	<0.20	0.20	6142370
Ethylbenzene	ug/L	0.5	<0.20	0.20	6142370
o-Xylene	ug/L	-	<0.20	0.20	6142370
p+m-Xylene	ug/L	-	<0.40	0.40	6142370
Total Xylenes	ug/L	72	<0.40	0.40	6142370
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	-	111		6142370
4-Bromofluorobenzene	%	-	101		6142370
D10-Ethylbenzene	%	-	84		6142370
D4-1,2-Dichloroethane	%	-	95		6142370

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 1: Full Depth Background Site Condition Standards
Ground Water - All Types of Property Uses

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Maxxam Job #: B9D7907
Report Date: 2019/05/28

DS Consultants Limited
Client Project #: 18-692-100
Site Location: Derryl-Britannia Lands, Ninth Line
Sampler Initials: GK

O.REG 153 PHCS, BTEX/F1-F4 (WATER)

Maxxam ID			JUF597			JUF597			JUF598		
Sampling Date			2019/05/22 11:00			2019/05/22 11:00			2019/05/22		
COC Number			85833			85833			85833		
	UNITS	Criteria	BH19-6	RDL	QC Batch	BH19-6 Lab-Dup	RDL	QC Batch	Dup-C	RDL	QC Batch
BTEX & F1 Hydrocarbons											
Benzene	ug/L	0.5	<0.20	0.20	6142370	<0.20	0.20	6142370	<0.20	0.20	6142370
Toluene	ug/L	0.8	<0.20	0.20	6142370	<0.20	0.20	6142370	<0.20	0.20	6142370
Ethylbenzene	ug/L	0.5	<0.20	0.20	6142370	<0.20	0.20	6142370	<0.20	0.20	6142370
o-Xylene	ug/L	-	<0.20	0.20	6142370	<0.20	0.20	6142370	<0.20	0.20	6142370
p+m-Xylene	ug/L	-	<0.40	0.40	6142370	<0.40	0.40	6142370	<0.40	0.40	6142370
Total Xylenes	ug/L	72	<0.40	0.40	6142370	<0.40	0.40	6142370	<0.40	0.40	6142370
F1 (C6-C10)	ug/L	420	<25	25	6142370	<25	25	6142370	<25	25	6142370
F1 (C6-C10) - BTEX	ug/L	420	<25	25	6142370	<25	25	6142370	<25	25	6142370
F2-F4 Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	ug/L	150	<100	100	6142810				<100	100	6142810
F3 (C16-C34 Hydrocarbons)	ug/L	500	<200	200	6142810				<200	200	6142810
F4 (C34-C50 Hydrocarbons)	ug/L	500	<200	200	6142810				<200	200	6142810
Reached Baseline at C50	ug/L	-	Yes		6142810				Yes		6142810
Surrogate Recovery (%)											
1,4-Difluorobenzene	%	-	96		6142370	113		6142370	112		6142370
4-Bromofluorobenzene	%	-	97		6142370	101		6142370	96		6142370
D10-Ethylbenzene	%	-	84		6142370	82		6142370	89		6142370
D4-1,2-Dichloroethane	%	-	89		6142370	100		6142370	100		6142370
o-Terphenyl	%	-	115		6142810				113		6142810

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 1: Full Depth Background Site Condition Standards
Ground Water - All Types of Property Uses

Maxxam Job #: B9D7907
Report Date: 2019/05/28

DS Consultants Limited
Client Project #: 18-692-100
Site Location: Derryl-Britannia Lands, Ninth Line
Sampler Initials: GK

TEST SUMMARY

Maxxam ID: JUF597
Sample ID: BH19-6
Matrix: Water

Collected: 2019/05/22
Shipped:
Received: 2019/05/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6142370	N/A	2019/05/27	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6142810	2019/05/27	2019/05/28	Prabhjot Gulati

Maxxam ID: JUF597 Dup
Sample ID: BH19-6
Matrix: Water

Collected: 2019/05/22
Shipped:
Received: 2019/05/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6142370	N/A	2019/05/27	Anca Ganea

Maxxam ID: JUF598
Sample ID: Dup-C
Matrix: Water

Collected: 2019/05/22
Shipped:
Received: 2019/05/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6142370	N/A	2019/05/27	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6142810	2019/05/27	2019/05/28	Prabhjot Gulati

Maxxam ID: JUF599
Sample ID: Trip Blank#3630
Matrix: Water

Collected: 2019/05/22
Shipped:
Received: 2019/05/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6142370	N/A	2019/05/28	Anca Ganea

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Maxxam Job #: B9D7907
Report Date: 2019/05/28

DS Consultants Limited
Client Project #: 18-692-100
Site Location: Derryl-Britannia Lands, Ninth Line
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GENERAL COMMENTS

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

Package 1	4.0°C
Package 2	3.3°C

Results relate only to the items tested.

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Maxxam Job #: B9D7907
Report Date: 2019/05/28

QUALITY ASSURANCE REPORT

DS Consultants Limited
Client Project #: 18-692-100
Site Location: Derryl-Britannia Lands, Ninth Line
Sampler Initials: GK

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6142370	1,4-Difluorobenzene	2019/05/27	105	70 - 130	93	70 - 130	104	%		
6142370	4-Bromofluorobenzene	2019/05/27	97	70 - 130	100	70 - 130	93	%		
6142370	D10-Ethylbenzene	2019/05/27	81	70 - 130	85	70 - 130	76	%		
6142370	D4-1,2-Dichloroethane	2019/05/27	88	70 - 130	87	70 - 130	89	%		
6142810	o-Terphenyl	2019/05/27	111	60 - 130	116	60 - 130	110	%		
6142370	Benzene	2019/05/27	88	70 - 130	80	70 - 130	<0.20	ug/L	NC	30
6142370	Ethylbenzene	2019/05/27	87	70 - 130	87	70 - 130	<0.20	ug/L	NC	30
6142370	F1 (C6-C10) - BTEX	2019/05/27					<25	ug/L	NC	30
6142370	F1 (C6-C10)	2019/05/27	102	70 - 130	112	70 - 130	<25	ug/L	NC	30
6142370	o-Xylene	2019/05/27	83	70 - 130	87	70 - 130	<0.20	ug/L	NC	30
6142370	p+m-Xylene	2019/05/27	85	70 - 130	87	70 - 130	<0.40	ug/L	NC	30
6142370	Toluene	2019/05/27	90	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
6142370	Total Xylenes	2019/05/27					<0.40	ug/L	NC	30
6142810	F2 (C10-C16 Hydrocarbons)	2019/05/28	NC	50 - 130	119	60 - 130	<100	ug/L	1.8	30
6142810	F3 (C16-C34 Hydrocarbons)	2019/05/28	120	50 - 130	138 (1)	60 - 130	<200	ug/L	NC	30
6142810	F4 (C34-C50 Hydrocarbons)	2019/05/28	130	50 - 130	139 (2)	60 - 130	<200	ug/L	NC	30

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

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

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

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

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

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

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

(1) The recovery of F3 in blank spike is outside the acceptance limits. However, the recovery of the other target compounds are within acceptable limits, and the recovery of F3 in matrix spike is within acceptable limits.

(2) The recovery of F4 in blank spike is outside the acceptance limits. However, the recovery of the other target compounds are within acceptable limits, and the recovery of F4 in matrix spike is within acceptable limits.

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Maxxam Job #: B9D7907
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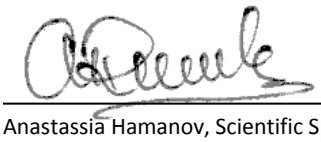
DS Consultants Limited
Client Project #: 18-692-100
Site Location: Derryl-Britannia Lands, Ninth Line
Sampler Initials: GK

VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, Scientific Specialist

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

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DS Consultants Limited
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Sampler Initials: GK

Exceedence Summary Table – Reg153/04 T1-GW

Result Exceedences

Sample ID	Maxxam ID	Parameter	Criteria	Result	DL	Units
No Exceedences						

The exceedence summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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