Phase Two Environmental Site Assessment

14275 The Gore Road, Parcel 1

Bolton, Ontario

Prepared For:

Argo Development Corporation

4900 Palladium Way, Suite 105

Burlington, Ontario

L7M 0W7

DS Project No : 20-169-100

Date: 2021-01-08

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Executive Summary

DS Consultants Ltd. (DS) was retained by Argo Development Corporation to complete a Phase Two Environmental Site Assessment (ESA) of the Property referred to as "Parcel 1" associated with the municipal address of 14275 The Gore Road, Bolton, 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 future redevelopment of the Site.

The Phase Two ESA was completed in general accordance with 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 Two Property is a 39.2 hectare (96.8 acres) parcel of land situated within a rural neighbourhood in the Town of Bolton, Ontario. The Phase Two Property is located approximately 620 m north of the intersection of The Gore Road and King Street and was occupied by the Henry Family at the time of this investigation.

The Phase One ESA completed in October 2020 indicated that the Phase Two Property was first developed for residential and agricultural purposes prior to 1878 and has continued as such to present day. A total of five (5) Potentially Contaminating Activities (PCAs) were identified in the Phase One ESA, which were considered to be contributing to four (4) APECs on the Phase Two Property. 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 was completed in conjunction with the on-going geotechnical and hydrogeological investigations and involved the advancement of eight (8) boreholes, and the instrumentation of seven (7) monitoring wells in selected locations, which were completed between July 27 and 29, 2020. It should be noted that the geotechnical and hydrogeological investigations were completed on a larger parcel of land than the Phase Two Property alone. The boreholes advanced on Site were advanced to depths ranging from 6.7 to 8.2 metres below ground surface (mbgs) under the supervision of DS personnel. Additionally, six (6) surface soil samples were collected within the agricultural fields for soil analysis. Monitoring wells BH20-2 and BH20-4 were used for the collection of groundwater samples. The remaining monitoring wells were used for the assessment of groundwater flow direction.

The borehole locations were determined based on the findings of the Phase One ESA. Soil samples were submitted for chemical analysis as follows:

- Three (3) samples for analysis of metals and other regulated parameters (As, Sb, Se, B-HWS, CN-, EC, Cr (VI), Hg, low or high pH, SAR);
- Four (4) samples for analysis of petroleum hydrocarbons (PHCs) and benzene, toluene, ethylbenzene and xylenes (BTEX);
- Three (3) samples for analysis of volatile organic compounds (VOCs);
- Three (3) samples for analysis of polycyclic aromatic hydrocarbons (PAHs); and
- Six (6) samples for analysis of organochlorine pesticides (OCPs)

Groundwater samples were collected from monitoring wells BH20-2 and BH20-4 and submitted for analysis of metals and ORPs, PHCs (including BTEX) and VOCs.

The soil and groundwater analytical results were compared to the "Table 2: Table 2 SCS: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for Residential/Parkland/Institutional Use with coarse-textured soils" 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 2 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:

- A surficial layer of topsoil, ranging from 200 to 550 mm in thickness, was observed at the surface of all the boreholes, with the exception of BH20-4 which encountered 300mm of concrete. Fill/disturbed native material consisting of sandy silt to clayey silt was encountered in all the boreholes below the topsoil layer and extended to an approximate depth of 0.80 mbgs. Underlying the fill material in boreholes BH20-1, BH20-5, BH20-6, BH20-8 and BH20-9 clayey silt to silty clay till deposits were encountered to a depth ranging from 6.0 to 8.2 mbgs (explored depths in BH20-1 and BH20-6). In boreholes BH20-5, BH20-8 and BH20-9 a silty sand to sandy silt unit was encountered underlying the clayey silt to silty clay till deposits at depths ranging from 6.0 to 7.5 mbgs and extended to the maximum explored depths of 8.2 mbgs. In Boreholes BH20-2, and BH20-3 a clayey silt to silty clay till deposit was encountered below the fill and extended to a depth of 2.3 mbgs, followed by sandy silt to the maximum explored depths of 8.2 mbgs. Borehole BH20-4 encountered sandy silt below the fill material and expended to the explored depth of 6.7 mbgs.
- The depth to groundwater was measured in seven (7) monitoring wells installed on-site during the course of this investigation. The groundwater levels were found to

range between 3.38 to 6.84 mbgs, with corresponding elevations of 269.69 to 264.11 metres above sea level (masl) on October 22, 2020. Based on the groundwater elevations recorded, the groundwater flow direction appears to be east to southeast towards the Humber River. It is possible that the groundwater levels may vary seasonally. The groundwater levels may also be impacted by other factors such as historical infilling activities, subsurface utility trenches, and similar subsurface anomalies. The groundwater flow direction can only be confirmed through long term monitoring.

- The results of the chemical analyses conducted indicated that all soil samples analyzed met the applicable Site Condition Standards.
- The groundwater sample collected from BH20-2 met the MECP Table 2 SCS for all parameters analysed.
- The groundwater sample collected from BH20-4 met the MECP Table 2 SCS for all parameters analysed, with the exception of cobalt (result of 5.16 µg/L vs. criterion of 3.8 µg/L).

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

- The applicable site condition standards for soil have been met. Supplementary soil chemical analysis may be required in the future to meet the requirements of Ontario Regulation 406/19, which will impose mandatory sampling frequencies effective January 2022.
- Additional groundwater sampling is recommended to confirm the groundwater quality in BH20-4. It is possible that the sample result was influenced by sediment bias.
- Additional groundwater sampling and groundwater quality confirmation is required before a Record of Site Condition can be filed for the Phase Two Property.
- 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 Argo Development Corporation to complete a Phase Two Environmental Site Assessment (ESA) of the Property referred to as "Parcel 1" associated with the municipal address of 14275 The Gore Road, Bolton, 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 future redevelopment of the Site.

The intended future property use is not considered to be a more sensitive property use as defined under O.Reg. 153/04 (as amended) than the current residential use; 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.

The Phase Two ESA was completed in general accordance with 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 39.2 hectare (96.8 acres) parcel of land situated within a rural neighbourhood in the Town of Bolton, Ontario. The Phase Two Property is located approximately 620 m north of the intersection of The Gore Road and King Street and was occupied by the Henry Family at the time of this investigation. A Site Location Plan is provided in Figure 1.

For the purposes of this report, King Street is assumed to be aligned in an east-west orientation, and The Gore Road in a north-south orientation. A Plan of Survey for the Phase One Property was not available during this investigation.

The Phase Two Property is an irregular shaped parcel of land that majorly includes agricultural fields. The western portion of Property consists of a two-storey residential building (Site Building A), a barn (Site Building B), a workshop building (Site Building C), and a small shed (Site Building D). A Site Plan depicting the orientation of the buildings on-site is provided in Figure 2.

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 12, Concession 4, Albion as in VS172840 (Secondly), Except Parts 1 & 2, 43R1538 & Part 1, 43R2952; Town of Caledon	Parcel Register
PIN	14329-0016 (LT)	Parcel Register
Municipal Address	14275 The Gore Road, Parcel 1, Bolton, Ontario	Client
Current Site Occupants	Beth Henry's son and his family	Phase One Questionnaire
Site Area	39.2 hectares (96.8 acres)	Ontario Land Registry

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
Argo Development Corporation	4900 Palladium Way, Suite 105 Burlington, Ontario - L7M 0W7	Mr. Aaron Wisson Mobile: 416.991.5988 Email: aaron@argoland.com

1.3 Current and Proposed Future Use

The Phase Two Property is currently used for mixed residential and agricultural purposes, which is considered Residential Property Use under O.Reg. 153/04 (as amended). It is DS' 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 2 SCS: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for Residential/Parkland/Institutional Use with coarse-textured soils 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 2 SCS".

The selection of the Table 2 SCS is considered appropriate based on the following rationale:

- Domestic wells were identified within the Phase Two Study Area;
- 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 not 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 Lindsay Creek located at the south corner of the Property. However, this tributary is considered a permanent drainage structure, and not a "water body" as defined by O.Reg. 153/04. The nearest water body associated with the Lindsay Creek is located approximately 500m southwest from the Phase Two Property drains south towards the West Humber River, which is located approximately 3.2km to the south of the Phase One Property.

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

2.1.2 Topography and Surface Water Draining Features

The topography of the Phase One Property is generally rolling, sloped to the east/southeast, with surface elevation varying from 281 metres above sea level (masl) in the western portion to 275 masl in the eastern portion. The topography within the Phase One Study Area generally slopes to the east/southeast, towards the Humber River, located approximately 1.8 km east of the Phase One Property. Surface water flow associated with precipitation events is anticipated to run overland, percolate into the ground, and/or flow towards the Lindsay Creek Tributary (drainage feature) located at the southwestern corner of the Property, which is considered a permanent drainage feature.

2.2 Past Investigations

2.2.1 Previous Report Summary

DS reviewed the following environmental report prepared for the Property. The report was provided by the client to DS.

- *"Phase One ESA, 14275 The Gore Road, Bolton, Ontario",* prepared for Argo Development Corporation, prepared by SPL Consultants Ltd., dated August 13, 2014 (2014 SPL Phase One ESA)*;*

- *"Preliminary Geotechnical Investigation, 14275 The Gore Road, Town of Caledon, Ontario",* prepared for Argo Development Corporation, prepared by SPL Consultants Ltd., dated August 25, 2014 (2014 SPL Geotechnical Investigation)*; and*
- *"Preliminary Geotechnical Investigation, Proposed Development, Macville Community, In Connection with LOPA Application to Establish the Macville Community Secondary Plan Area, Bolton, Ontario",* prepared for Bolton Option 3 Landowners Group, prepared by DS Consultants Ltd., dated January 5, 2021 (2021 DS Geotechnical Investigation)*;*
- *"Phase One Environmental Site Assessment, 14275 The Gore Road, Parcel 1, Bolton, Ontario",* prepared for Argo Development Corporation, prepared by DS Consultants Ltd., dated January 8, 2021 (2020 DS Phase One ESA)*;*

These reports were reviewed in order to assess for the presence of known or suspected PCAs and APECs on the Phase One Property or on Properties within the Phase One Study Area.

2014 SPL Phase One ESA

The 2014 SPL Phase One ESA report was reportedly conducted in general conformance with Ontario Regulation 153/04 (O.Reg 153/04) and its amendments, 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:

- The Phase One Property was a 39.4 hectares land and has been a residential property with active agricultural fields and an orchard since first development prior to 1878.
- Due to the age of the buildings, SPL suspected potential presence of lead paint, mercury, asbestos containing material (ACMs), and polychlorinated biphenyls (PCB)-containing ballasts and materials.
- SPL confirmed the presence of MOE registered wells and a septic system on the Phase One Property during the site reconnaissance.
- Inferred application of pesticides and herbicides for agricultural purposes was identified as a PCA contributing towards an APEC.
- The Phase One Site Reconnaissance identified two (2) fuel oil ASTs in the basement of the residential building, each with a capacity of 1000 L.
- A small pile of fill material was observed on the northwestern exterior of a storage shed. SPL identified the fill material as a PCA but was not considered to be contributing

towards an APEC due to the small quantity and due to medium fine-textured soils beneath.

- The 2014 SPL Phase One ESA Identified a total of four (4) PCAs. Two (2) of the PCAs were considered to be contributing to two (2) APECs on the Phase One Property.

2014 SPL Geotechnical Investigation

The preliminary geotechnical investigation involved obtaining of preliminary information on the subsurface conditions by means of a limited number of boreholes to provide the preliminary geotechnical recommendations for due diligence purpose as well as for the planning and preliminary design of residential houses at the site. The following pertinent information was noted by DS:

- Topsoil approximately 300 mm in thickness was encountered in all the boreholes.
- Below the topsoil, a shallow layer of reworked till materials were encountered in all the boreholes.
- The native soils encountered at the site were predominantly glacial tills of both clayey and sandy texture underlain by native cohesionless soils (i.e. sand and silt to sandy silt and silt).
- Groundwater was encountered in the boreholes during drilling at depths varying from 5.7 to 8 mbgs.

2021 DS Geotechnical Investigation

The purpose of this geotechnical investigation was to obtain information about the subsurface conditions at boreholes locations and from the findings in the boreholes to make engineering recommendations pertaining to the geotechnical design of underground utilities, roads and to comment on the foundation conditions for the building construction. The geotechnical investigation was completed on a larger parcel of land than the Phase Two Property boundary. The following pertinent information with respect to the Phase Two Property was noted by DS:

- A total of eight (8) boreholes (BH20-1 to BH20-6, BH20-8 and BH20-9) were advanced to depths ranging from 6.70 to 9.7 m below the existing grade, across the Phase Two Property.
- Seven (7) monitoring wells of 50mm diameter were installed in selected boreholes across the site for the long-term groundwater levels monitoring.

- A surficial layer of topsoil, ranging from 200 to 550 mm in thickness, was observed at the surface of all the boreholes, with the exception of BH20-4 which encountered 300mm of concrete.
- "Fill" (re-worked native) material consisting of clayey silt and sandy silt soils were detected in all the boreholes below the topsoil layer and extended to approximate depth of 0.80 m below the existing ground surface. The fill was brown to dark brown in color and contained and trace of topsoil/organics, gravel and rootlets.
- Clayey silt to silty till deposit was encountered below the fill layer in all the boreholes except Borehole BH20-4 and extended to approximate depths ranging from 1.50 to 7.70 m in Boreholes BH20-1 to BH20-3, BH20-5, BH20-8, BH20-9, BH20-11 to BH20-13 and BH20-16 and to the maximum explored depth of Boreholes BH20-6, BH20-7, BH20-10, BH20-14 and BH20-15.
- Lower deposit of silt to sandy silt silty sand soils with some to trace of clay and gravel was encountered underlying clayey silt to silty clay till deposit in Boreholes BH20-1 to BH20- 3, BH20-5, BH20-8, BH20-9, BH20-11 to BH20-13 and BH20-16 and extending to the maximum explored depths of boreholes.
- A summary of groundwater level measurements is presented in the Table below:

Table 2-1: Summary of Groundwater Level Measurements in Monitoring Wells

BH No.	Ground Surface Elevation (m)	Date of Drilling	Date of Observation	Depth of Groundwater (m)	Elevation of Groundwater (m)
BH 20- 1	279.8	July 27, 2020	Aug 6, 2020	4.1	275.7
BH 20-2	278.8	July 27, 2020	Aug 6, 2020	6.1	272.7
BH 20-3	278.6	July 27, 2020	Aug 6, 2020	6.0	272.6
BH 20-4	277.1	July 27, 2020	Aug 6, 2020	4.6	272.5
BH 20-5	273.0	July 29, 2020	Aug 6, 2020	2.8	270.2
BH 20-6	271.0	July 28, 2020	Aug 6, 2020	6.8	264.2
BH 20-7	261.7	July 31, 2020	Aug 6, 2020	Dry	Dry
BH 20-9	274.1	July 28, 2020	Aug 6, 2020	4.4	269.7
BH 20-11	270.1	July 29, 2020	Aug 6, 2020	3.4	266.7
BH 20-12	264.9	July 31, 2020	Aug 6, 2020	0.2	264.7
BH 20-14	267.7	July 30, 2020	Aug 6, 2020	3.3	264.4
BH 20-15	264.1	July 30, 2020	Aug 6, 2020	3.7	260.4
BH 20-16	265.5	July 31, 2020	Aug 6, 2020	2.1	263.4

2021 DS Phase One ESA

The 2021 DS Phase One ESA report was completed in accordance with Ontario Regulation 153/04 (O.Reg 153/04) and its amendments, 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:

- The neighbouring properties within the Phase One Study Area appear to have been used for agricultural and residential purposes since prior to 1880s.
- The Phase One Property has been used for agricultural purposes since 1878, and the current tenant of the Property indicated that Pesticides have been used on the site for farming crops.
- Two (2) fuel oil tanks were identified in the basement of the Site Building A, each with a capacity of 1000 L.
- ERIS report identified the Phase One Property as a waste generator for light fuels associated with the farming wholesaler and distributor.
- Fill material was identified during the 2014 SPL Phase One Investigation.
- Based on a review of the information available at this time it is concluded that five (5) PCAs were identified on the Phase One Property and within the Phase One Study Areawhich are considered to be contributing to four (4) APECs in, on, or under the Phase One Property.

Further details regarding the Phase One ESA findings are provided in Section 3.3.

2.2.2 Use of Previous Analytical Results

No previous analytical results were available at the time of this investigation.

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 eight (8) boreholes on the Phase Two Property, to depths ranging between 6.7 to 9.7 mbgs between July 27 and 29, 2020. Seven (7) selected boreholes were instrumented with groundwater monitoring wells 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 RKI Eagle 2 MultiGas Detector, and examined for visual and olfactory indications of soil impacts;
- The eight (8) boreholes were completed on the Phase Two Property in conjunction with the geotechnical investigation which was completed on a larger parcel of land (which included the Phase Two Property).
- 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;
- Six (6) surface samples were collected by DS personnel using hand tools on September 11, 2020 for laboratory analysis of OC Pesticides to assess the topsoil quality with respect to APEC-1.
- 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).

3.2 Media Investigated

3.2.1 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 the historical operations conducted on-Site.

Media	Included or Excluded	Rationale
Sediment	Excluded	Sediment is not present on the Phase Two Property.
Surface Water	Excluded	Surface water is not present on the Phase Two Property.

3.2.2 Overview of Field Investigation of Media

Table 3-2: Field Investigation of Media

Media	Methodology of Investigation
Soil	A total of eight (8) boreholes were advanced on the Phase Two Property, to depths ranging from 6.7 to 9.7mbgs, and six (6) surface samples were collected. Soil samples were collected and submitted for analysis of all relevant COPCs.
Groundwater	A total of seven (7) monitoring wells were present on the Phase Two Property at the time of the investigation. Representative groundwater samples were collected from each monitoring well and submitted for analysis of all relevant COPCs.

3.3 Phase One Conceptual Site Model

A Conceptual Site Model was developed for the Phase One Property, located at 14275 The Gore Road, Parcel 1, Bolton, Ontario. The Phase One Conceptual Site Model is presented in Drawings 2 to 5 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

3.3.1 Potentially Contaminating Activity Affecting the Phase One Property

All PCAs identified within the Phase One Study Area are presented on Figure 4. 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 ID No.	PCA Description (Per. Table 2, Schedule D of O.Reg. 153/04)	Description	Contributing to APEC (Y/N)
PCA-1	#40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents)	Inferred large scale application of pesticides for agricultural purposes on the Phase One Property.	Yes – APEC-1

PCA ID No.	PCA Description (Per. Table 2, Schedule D of O.Reg. 153/04)	Description	Contributing to APEC (Y/N)
	Manufacturing, Processing, Bulk Storage and Large-Scale Applications		
PCA-2	#28 – Gasoline and associated products storage in fixed tanks	The SPL Phase One Site Reconnaissance identified two (2) fuel oil ASTs in the basement of the residential building, each with a capacity of 1000 L.	Yes – APEC-2
PCA-3	#30 – Importation of Fill Material of Unknown Quality	Fill material was identified in the 2014 SPL Geotechnical Investigation in one (1) borehole. Fill material may have been used during construction of the structures on-site.	Yes – APEC-3
PCA-4	#27 – Garages, and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	The ERIS report identified the site as a light fuel waste generator for Pat Watson, Farm Wholesaler-Distributors	Yes – APEC-4

3.3.2 Contaminants of Potential Concern

The following contaminants of potential concern were identified for the Phase One Property: PHCs, VOCs, BTEX, Metals, As, Sb, Se, B-HWS, CN-, EC, Cr (VI), Hg, low or high pH, SAR, PAHs, and OC Pesticides.

3.3.3 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.

Underground utilities were identified at the Phase One Property, including water, natural gas, and sewer services to the existing Site Building. Plans were not available to confirm the depths of these utilities, however they are estimated to be installed at depths ranging from 2 to 3 metres below ground surface.

The depth to groundwater at the Phase One Property is inferred to be approximately 4 to 7 metres below ground surface, therefore the utility corridors are expected to be well above the water table and would not act as preferential pathways for contaminant distribution and transport in the event that shallow subsurface contaminants exist at the Phase One Property.

3.3.4 Geological and Hydrogeological Information

The topography of the Phase One Property is generally rolling, sloped to the east/southeast, with surface elevation varying from 281 metres above sea level (masl) in the western portion

to 275 masl in the eastern portion. The topography within the Phase One Study Area generally slopes to the east/southeast, towards the Humber River, located approximately 1.8 km east of the Phase One Property. The nearest body of water is a tributary of Lindsay Creek located at the south corner of the Property. The Lindsay Creek drains south towards the West Humber River, which is located approximately 3.2km to the south of the Phase One Property. Based on a review of the MECP well records, the depth to groundwater in the vicinity of the Phase One Property is approximately 4 m to 7 m. The shallow groundwater flow direction within the Phase One Study Area is inferred to be east towards the West Humber River

The Site is situated within a drumlinized till plain physiographic region. The surficial geology in the vicinity of the Site is described as "glaciolacustrine deposits or shale, which may include clay to silt-textured till". The underlying bedrock within the area generally consists of shale, limestone, dolostone, and siltstone of the Queenston Formation. The bedrock in the vicinity of the Site is anticipated at depths greater than 90 mbgs, based on available well records and previous ESAs completed for the Site.

3.3.5 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, with the exception of the MECP FOI request and the City Directory Search. If the MECP FOI request produces information which may alter the conclusions of this report, an addendum will be provided to the Client. Similarly, the City Directory search could not be completed due to the closure of library services in response to the Covid-19 pandemic. Once City Directories are available for review, the client will be updated and an addendum will be provided. 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.

3.4 Deviations from Sampling and Analysis Plan

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

3.5 Impediments

The SAP was designed in consideration of the existing access limitations which prohibited the advancement of boreholes within the Site Building. Exterior borehole locations were selected in order to investigate the soil and groundwater quality at the Phase Two Property.

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 5. 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	Davis Drilling Ltd.
Drilling Dates	July 27, 2020 to July 29, 2020
Drilling Equipment Used	Truck-mounted CME 55
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

Parameter	Details
	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; ◆ Surface soil samples were retrieved using shovel. Equipment was washed between sampling locations. ◆ 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 3.1 mbgs, followed by one sample per 1.5 m 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 B. Additional detail regarding the lithology encountered in the boreholes is presented under Section 5.1.

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 vapour 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 presented in the borehole logs, refer to Appendix B.

4.5 Groundwater Monitoring Well Installation

Seven (7) monitoring wells were installed upon completion of boreholes advanced on the Phase Two Property. The monitoring wells were constructed of 51-millimetre (2-inch) inner diameter (ID) flush-threaded schedule 40 polyvinyl chloride (PVC) risers, equipped with 1.5 m or 3.1 m length of No. 10 slot PVC screen. The well screens were 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 wells were 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 B.

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 wells were developed on September 3, 2020. In accordance with DS SOPs for monitoring well development, the wells were 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) 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 monitoring wells could not be sampled using low flow methodology due to the low yield and recovery of the monitoring wells. The monitoring wells were purged to dryness at the lower possible pumping rate. The monitoring wells were allowed to recover prior to sampling. The samples were collected using a peristaltic pump with dedicated 6.4 mm ID polyethylene tubing.

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 SGS Canada Inc. (SGS) under chain of custody protocols. SGS is an independent laboratory accredited by the Canadian Association for Laboratory Accreditation. SGS 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 left adjacent to the borehole locations for 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 for disposal by a MECP approved waste-hauler for disposal at a MECP-approved waste management facility.

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 were surveyed using a Sokkia GCX-2 GNSS RTK receiver, based on global positioning system satellites. The ground surface elevations can be found on the borehole logs presented in Appendix B.

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 OCPs	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
	Inorganics	500 mL high density polyethylene bottle (unpreserved)
	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

All field screening devices (i.e. RKI Eagle 2, 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 B.

A surficial layer of topsoil, ranging from 200 to 550 mm in thickness, was observed at the surface of all the boreholes, with the exception of BH20-4 which encountered 300mm of concrete. Disturbed native material consisting of sandy silt to clayey silt was encountered in all the boreholes below the topsoil layer and extended to an approximate depth of 0.80 mbgs. Underlying the disturbed native material in boreholes BH20-1, BH20-5, BH20-6, BH20-8 and BH20-9 clayey silt to silty clay till deposits were encountered and extended to depths ranging from 6.0 to 8.2 mbgs (explored depths in BH20-1 and BH20-6). In boreholes BH20-5, BH20-8 and BH20-9 a silty sand to sandy silt unit was encountered underlying the clayey silt to silty clay till deposits at depths ranging from 6.0 to 7.5 mbgs and extended to the maximum explored depths of 8.2 mbgs. In Boreholes BH20-2, and BH20-3 a clayey silt to silty clay till deposit was encountered below the fill and extended to a depth of 2.3 mbgs, followed by sandy silt to the maximum explored depths of 8.2 mbgs. Borehole BH20-4 encountered sandy silt below the fill material and expended to the explored depth of 6.7 mbgs.

Table 5-1: Summary of Geologic Units Investigated

Geologic Unit	Inferred Thickness (m)	Top Elevation (masl)	Bottom Elevation (masl)	Properties
Topsoil	0.2 – 0.6	279.8	273.6	-
Re-worked native	0.2 – 0.6	279.5	270.2	Brown, moist, trace organics
Clayey Silt to Silty Clay Till	1.5 – 7.4+	279.0	>262.8	Brown to grey, moist to wet, water bearing zone
Sandy Silt to Silty Sand	0.7 – 5.9+	276.5	>263.3	Brown to grey, moist to wet, water bearing zone

5.2 Ground Water Elevations and Flow Direction

5.2.1 Rationale for Monitoring Well Location and Well Screen Intervals

A total of seven (7) monitoring wells were installed on the Phase Two Property for the purpose of assessing the groundwater level and flow direction. Monitoring wells BH20-2 and BH20-4 were used to assess the environmental quality of the shallow groundwater in relation to APEC-2 and APEC-4. The COPCs associated with these APECs were PHCs, VOCs, and PAHs. These monitoring wells were 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. Details of the monitoring well screen installation details can be found under Table 1 (enclosed)

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 range between 1.15 to 6.36 mbgs on September 8, 2020 and between 3.38 to 6.48 mbgs on October 22, 2020. 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 264.18 to 275.72 masl in the upper aquifer investigated.

5.2.5 Groundwater Flow Direction

The groundwater flow direction was interpreted using the groundwater elevations calculated for the monitoring wells installed on the Phase Two Property. Based on the groundwater elevations calculated, the groundwater flow direction is interpreted to be east towards the Humber River. The groundwater elevation contours and flow direction are presented on Figure 6.

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 2.78 to 6.84 mbgs on the Phase Two Property. Buried utility services are present on the Phase Two Property, and are inferred to be situated approximately 2 to 3 mbgs. The utility trenches may be a potential preferential pathway for contaminant migration in groundwater, as the utility beds are situated above the water table.

5.3 Ground Water Hydraulic Gradients

5.3.1 Horizontal Hydraulic Gradient

The horizontal hydraulic gradient was calculated based on the groundwater levels recorded on September 4, 2020.

Table 5-2: Summary of Horizontal Hydraulic Gradient Calculations

Hydrogeological Unit	Calculated Horizontal Hydraulic Gradient
Overburden – (clayey silt to silty till)	Minimum: 0.00703 Average: 0.00956 Maximum: 0.01337

5.3.2 Vertical Hydraulic Gradient

The vertical hydraulic gradient was not calculated as no monitoring well nests are present on-site.

5.4 Fine-Medium Soil Texture

5.4.1 Rational for use of Fine-Medium Soil Texture Category

A total of nine (9) grain size analyses were conducted as part of this investigation. The results of the grain size analyses indicate that more than one-third of the soils encountered are coarse 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 5-3: Summary of Grain Size Analyses

Sample	% Gravel	% Sand	% Silt	% Clay	Classification
BH20-7 SS4	15	18	38	29	Medium-fine textured
BH20-8 SS4	2	2	85	11	Medium-fine textured
BH20-12 SS7	0	1	94	5	Medium-fine textured
BH20-5 SS8	0	51	47	2	Coarse textured
BH20-11 SS8	1	11	80	8	Medium-fine textured
BH20-16 SS7	3	61	26	10	Coarse textured
BH20-16 SS6	42	37	15	6	Coarse textured
BH20-16 SS4	22	64	10	4	Coarse textured
BH20-8 SS7	0	27	67	6	Medium-fine textured

5.4.3 Rational for the Number of Samples Collected and Analyzed

The grain size analyses were conducted for the purposes of this Phase Two ESA, in addition to a geotechnical investigation which was conducted concurrently. In general, at least one sample was analyzed per stratigraphic unit encountered in order to characterize the various strata encountered.

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 B). The soil vapour headspace readings were collected using calibrated RKI Eagle 2 (operating in methane elimination

mode) equipped with a dual photoionization detector (PID) and combustible gas detector (CGD). The PID readings for all samples screened were 0 ppm. The CGD readings ranged between 0 and 55 ppm. The results of the organic vapour measurements are considered to be within the background range.

The soil samples were also screened for visual and olfactory indicators of impacts (e.g. staining, odours). 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.

5.6 Soil Quality

The results of the chemical analyses conducted are presented in Tables 5 through 9. A visual summary of the location of the sample locations is provided in Figures 7A through 7E. The laboratory certificates of analysis have been provided under Appendix C.

5.6.1 Metals and ORPs

A total of three (3) samples were submitted for analysis of metals and ORPs. The results of the analyses are tabulated in Table 5 and presented on Figure 7A. The results of the chemical analyses conducted indicated that all samples analyzed met the applicable Site Condition Standards.

5.6.2 Petroleum Hydrocarbons

A total of four (4) samples were submitted for analysis of PHCs (incl. BTEX). The results of the analyses are tabulated in Table 6 and presented on Figure 7B. The results of the chemical analyses conducted indicated that all samples analyzed met the applicable Site Condition Standards.

5.6.3 Volatile Organic Compounds

A total of three (3) samples were submitted for analysis of VOCs. The results of the analyses are tabulated in Table 7 and presented on Figure 7C. The results of the chemical analyses conducted indicated that all samples analyzed met the applicable Site Condition Standards.

5.6.4 Polycyclic Aromatic Hydrocarbons

A total of three (3) samples were submitted for analysis of PAHs. The results of the analyses are tabulated in Table 8 and presented on Figure 7D. The results of the chemical analyses conducted indicated that all samples analyzed met the applicable Site Condition Standards.

5.6.5 OC Pesticides

A total of six (6) samples were submitted for analysis of OC Pesticides. The results of the analyses are tabulated in Table 8 and presented on Figure 7E. The results of the chemical analyses conducted indicated that all samples analyzed met the applicable Site Condition Standards. It is noted that there were non-detectable concentrations of OC pesticides in all of the samples analysed.

5.6.6 Commentary on Soil Quality

The results of the soil analyses completed to date indicate that the Site Condition Standards for Soil have been met.

5.7 Ground Water Quality

The results of the chemical analyses conducted are presented in Tables 10 through 12. A visual summary of the location of the sample locations is provided in Figures 8A through 8C. The laboratory certificates of analysis have been provided under Appendix C.

5.7.1 Metals and ORPs

A total of three (3) samples, including one (1) field duplicate for QA/QC purposes were submitted for analysis of metals and ORPs. The results of the analyses are tabulated in Table 10, and presented on Figure 8A. The groundwater samples transferred into the metals, mercury, and hexavalent chromium bottles were field filtered using a 0.45-micron in-line filter. The results of the analyses indicated the following exceedances of the Table 2 SCS:

Table 5-4: Summary of Metals and ORPs Exceedances in Groundwater

Sample ID	Well Screen Interval (mbgs)	Parameter	Units	Table 2 SCS	Reported Value
BH20-4	3.0-6.1	Cobalt	µg/g	3.8	**5.16**
Dup-1 (BH20-4)	3.0-6.1	Cobalt	µg/g	3.8	**4.77**

5.7.2 Petroleum Hydrocarbons

A total of three (3) samples, including one (1) field duplicate plus a trip blank for QA/QC purposes were submitted for analysis of PHCs (incl. BTEX). The results of the analyses are tabulated in Table 11, and presented on Figure 8B. The results of the chemical analyses conducted indicated that all samples analyzed met the applicable Site Condition Standards.

5.7.3 Volatile Organic Compounds

A total of three (3) samples, including one (1) field duplicate plus a trip blank for QA/QC purposes were submitted for analysis of VOCs. The results of the analyses are tabulated in Table 12, and presented on Figure 8C. The results of the chemical analyses conducted indicated that all samples analyzed met the applicable Site Condition Standards.

5.7.4 Commentary on Groundwater Quality

The groundwater sample collected from monitoring well BH20-4 was identified to be impacted with cobalt. It is possible that this result is attributable to sediment bias. Additional groundwater sampling is recommended to confirm if the impact was a true representation of the groundwater quality.

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 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 5-5: Summary of QA/QC Results

Sample ID	QA/QC duplicate	Medium	Parameter Analyzed	QA/QC Result
Dup-1	BH20-4	Groundwater	Metals, PHCs, VOCs	All results were within the analytical protocol criteria for RPD

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.

SGS routinely conducts internal QA/QC analyses in order to satisfy regulatory QA/QC requirements. The results of the SGS 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 C.

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.

6.0 Conclusions

This Phase Two ESA involved the advancement of eight (8) boreholes, the installation of seven (7) monitoring wells on the Phase Two Property, collection of six (6) surface soil samples from the agricultural fields, and the collection of soil and groundwater samples for analysis of the potential contaminants of concern, including: PHCs, VOCs, BTEX, Metals, As, Sb, Se, B-HWS, CN-, EC, Cr (VI), Hg, low or high pH, SAR, PAHs, and OC Pesticides.

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

- The applicable site condition standards for soil have been met. Supplementary soil chemical analysis may be required in the future to meet the requirements of Ontario Regulation 406/19, which will impose mandatory sampling frequencies effective January 2022.

- Additional groundwater sampling is recommended to confirm the groundwater quality in BH20-4. It is possible that the sample result was influenced by sediment bias.
- Additional groundwater sampling and groundwater quality confirmation is required before a Record of Site Condition can be filed for the Phase Two Property.
- All monitoring wells should be decommissioned in accordance with O.Reg. 903 when no longer required.

6.1 Qualifications of the Assessors

Sarth Sheth, M.Sc., EIT

Mr. Sheth is an Engineer-in-Training (EIT) with DS Consultants Ltd. Sarth holds a Master's Degree in Water Security from the University of Saskatchewan and has several years of experience working in the environmental industry. Sarth has experience in conducting Phase One and Phase Two Environmental Site Assessments, soil and groundwater remediation, and has supported several risk assessment projects.

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 nine years of environmental consulting experience and has conducted and/or managed hundreds of 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).

Drew Doak, B.Sc.E., P.Eng., QP_{ESA}

Mr. Doak is an Environmental Project Manager with DS Consultants Limited. Drew holds a Bachelor of Science in Engineering from Queen's University, and is a practicing member of the Professional Engineers of Ontario (PEO). Drew has five years of environmental consulting experience and has conducted and/or managed a multitude of projects in his professional experience. Drew 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, and supported many risk assessments and Records of Site Conditions with the Ministry of Environment, Conservation and Parks. He has also conducted a variety of Hydrogeological investigations within the GTA. Drew 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

Sarth Sheth, M.Sc., EIT
Environmental EIT

LICENSED PROFESSIONAL ENGINEER
J. D. DOAK
100214921
2021-02-11
PROVINCE OF ONTARIO

Drew Doak, B.Sc.E., P.Eng., QP_{ESA}
Environmental Project Manager

Patrick Fioravanti, B.Sc., P.Geo., QP_{ESA}
Manager – Environmental Services

6.3 Limitations

This report was prepared for the sole use of Argo Development Corporation and is intended to provide an assessment of the environmental condition on the property located at 14275 The Gore Road, Parcel 1, Bolton, 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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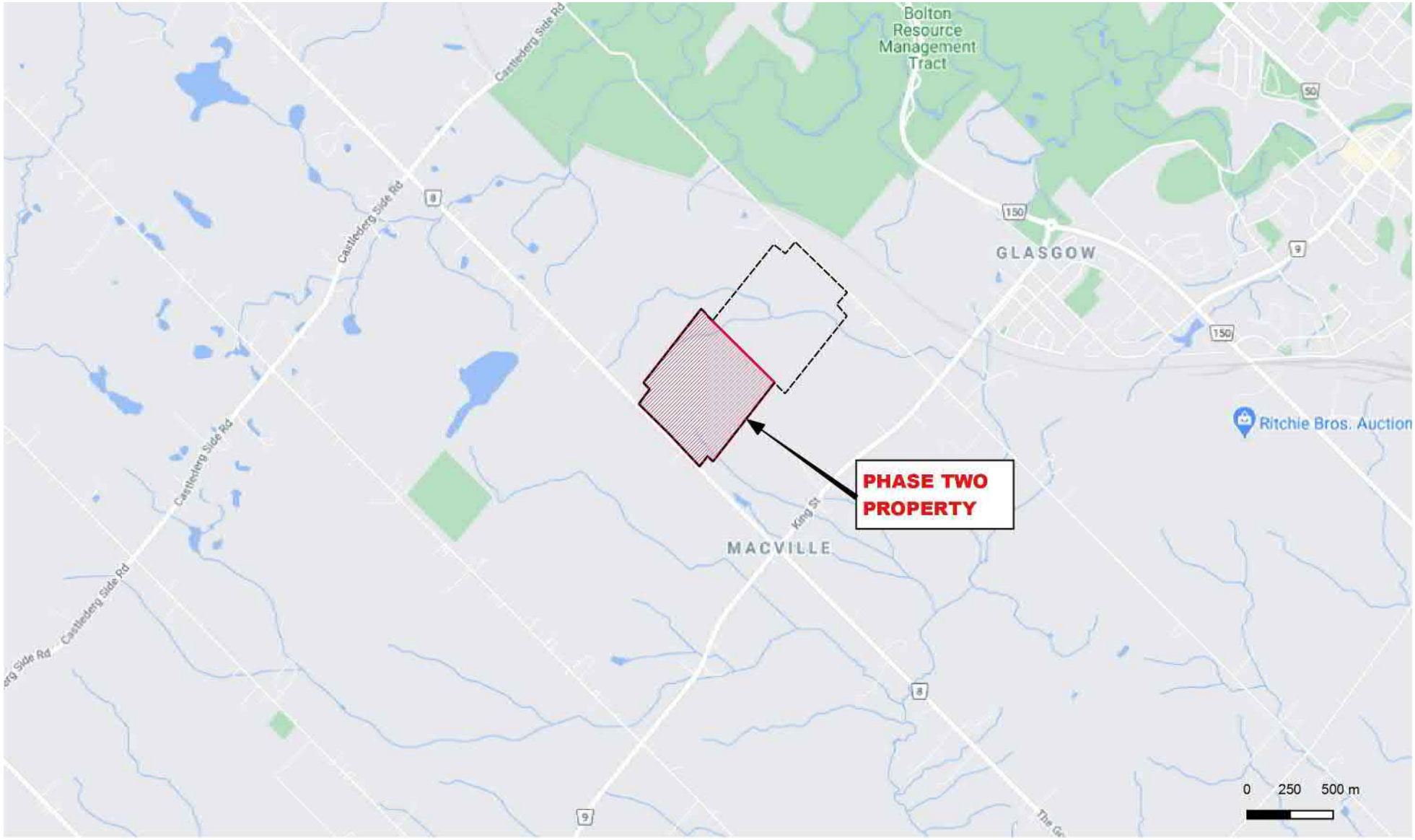
- *"Phase One ESA, 14275 The Gore Road, Bolton, Ontario",* prepared for Argo Development Corporation, prepared by SPL Consultants Ltd., dated August 13, 2014
- *"Preliminary Geotechnical Investigation, 14275 The Gore Road, Town of Caledon, Ontario",* prepared for Argo Development Corporation, prepared by SPL Consultants Ltd., dated August 25, 2014
- *"Preliminary Geotechnical Investigation, Proposed Development, Macville Community, In Connection with LOPA Application to Establish the Macville Community Secondary Plan Area, Bolton, Ontario",* prepared for Bolton Option 3 Landowners Group, prepared by DS Consultants Ltd., dated January 5, 2021 (2021 DS Geotechnical Investigation)*;*
- *"Phase One Environmental Site Assessment, 14275 The Gore Road, Parcel 1, Bolton, Ontario",* prepared for Argo Development Corporation, prepared by DS Consultants Ltd., dated January 8, 2021 (2020 DS Phase One ESA)*;*

Figures

C:\0Sharon\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel I\Figure 1 - Site Location Plan.qgs Jan-07 08:28



Legend

- Approx Development Boundary
- Approx Property Boundary

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Parcel I - Residential Development, North Bolton, ON

Title: **SITE LOCATION PLAN**

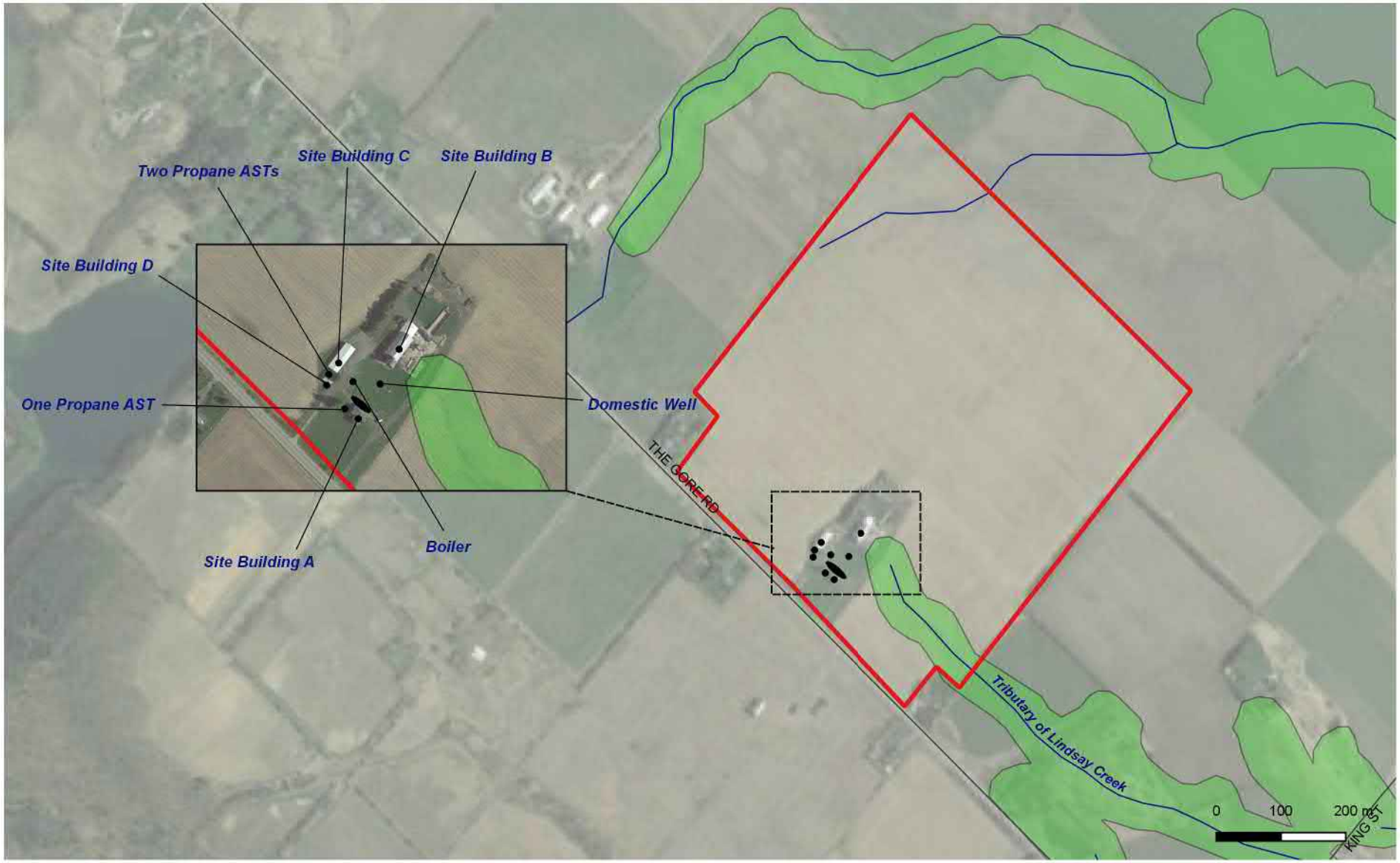
N

Client: BOLTON OPTION 3 LANDOWNERS GROUP
c/o GLEN SCHNARR & ASSOCIATES

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	D.D	S.Y	January 2021
Rev: 0	Scale: As Shown	Project No.: 20-169-100	Figure No.: 1

Image/Map Source: *Google Street Map*

C:\0Sharon\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel I\Figure 2 - Phase Two Property Site Plan.qgs Jan-07 19:19



Legend

- Approx Development Boundary
- Approx Property Boundary
- TRCA Regulated Area
- Approx. Location of Former AST in basement

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Parcel I - Residential Development, North Bolton, ON

Title: **PHASE TWO PROPERTY SITE PLAN**

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Image/Map Source: *Google Street Map*

C:\0Sharon\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel I\Figure 3 - Phase One Study Area.qgs Jan-07 08:13

Legend

- Approx Property Boundary
- 250m Buffer
- Residential
- Agricultural

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Parcel I - Residential Development, North Bolton, ON

Title: **PHASE ONE STUDY AREA**

N

Client: BOLTON OPTION 3 LANDOWNERS GROUP
c/o GLEN SCHNARR & ASSOCIATES

Size:	Approved By:	Drawn By:	Date:
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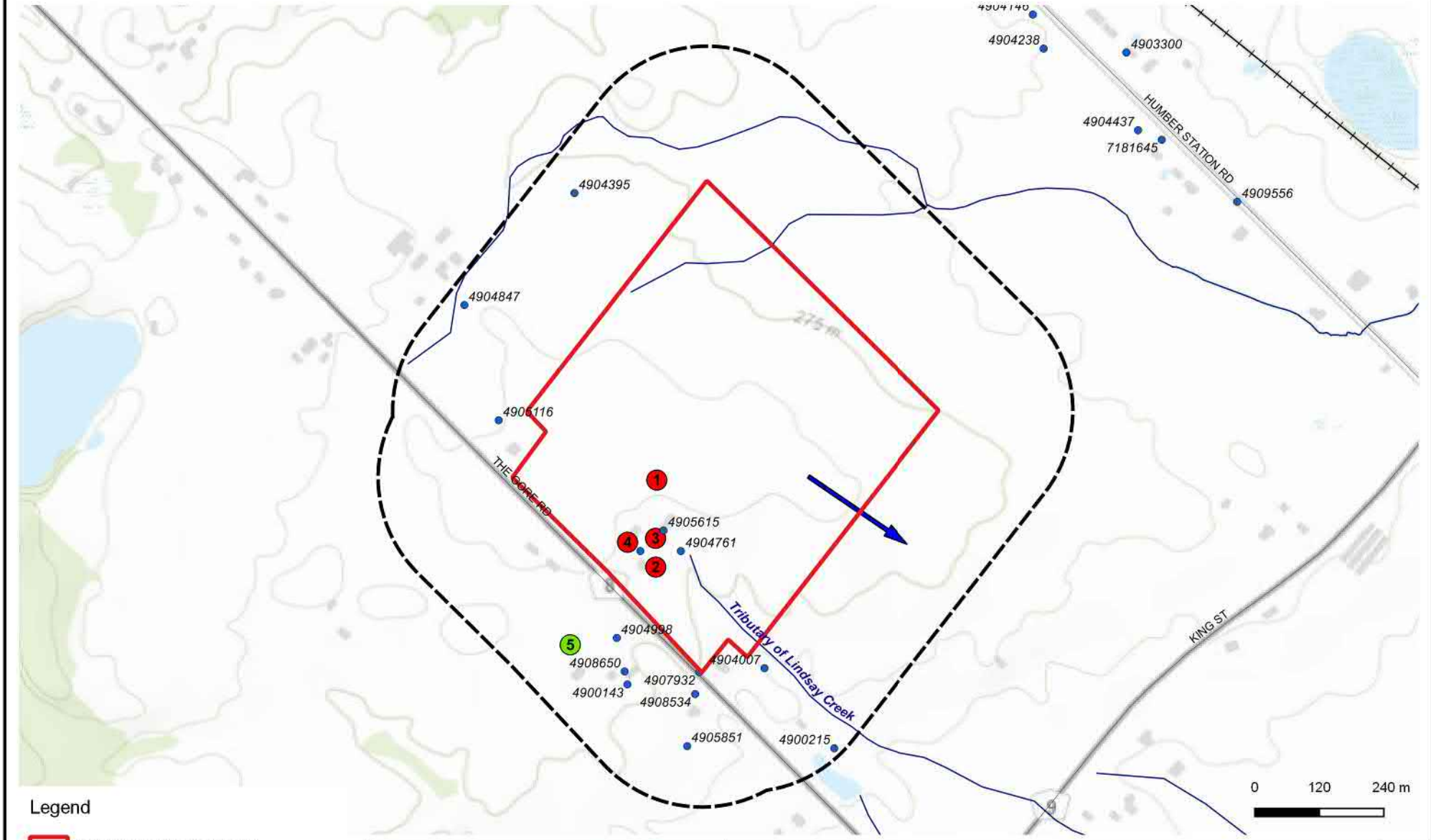
Image/Map Source: *Google Satellite Image*

C:\0Sharon\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel I\Figure 4 - PCA within Phase One Study Area.qgs Jan-07 19:22



Legend

- Approx Property Boundary
- 250m Buffer
- Registered Water Well (MECP WWR)
- PCA not contributing to APEC
- PCA contributing to APEC
- Inferred Groundwater Flow Direction

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Parcel 1 - Residential Development, North Bolton, ON

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

N

Client: BOLTON OPTION 3 LANDOWNERS GROUP
c/o GLEN SCHNARR & ASSOCIATES

Size:	Approved By:	Drawn By:	Date:
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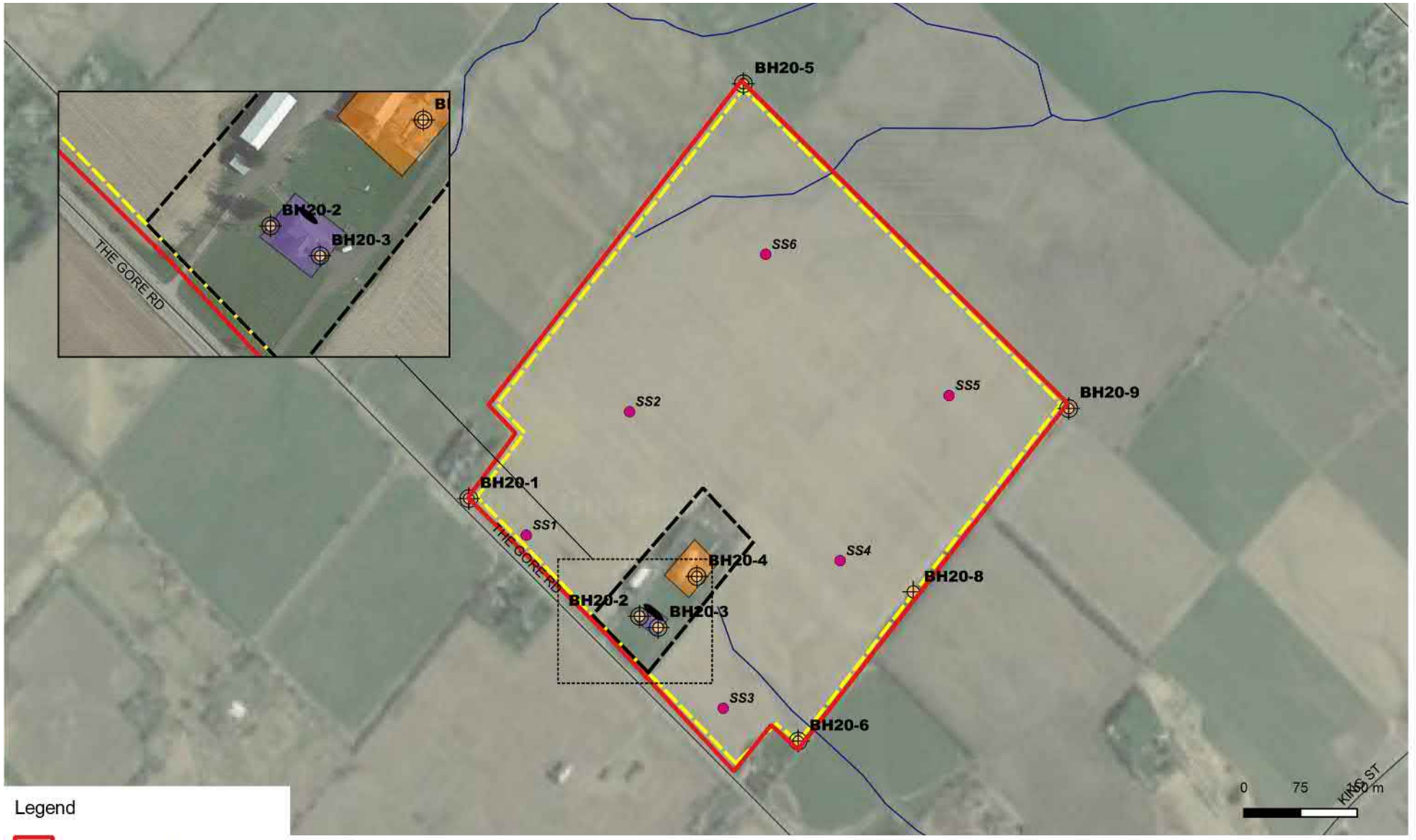
Rev:	Scale:	Project No.:	Figure No.:
0	As Shown	20-169-100	4

Image/Map Source: *Esri Topo Map*

C:\0Sharon\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel I\Figure 5 – Borehole Location Plan with APECs.qgs Jan-07 19:44



Legend

- Approx Property Boundary
- APEC-1
- APEC-2
- APEC-3
- APEC-4
- Approx. Location of Former AST in basement

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Title: **BOREHOLE LOCATION PLAN WITH APECs**

N

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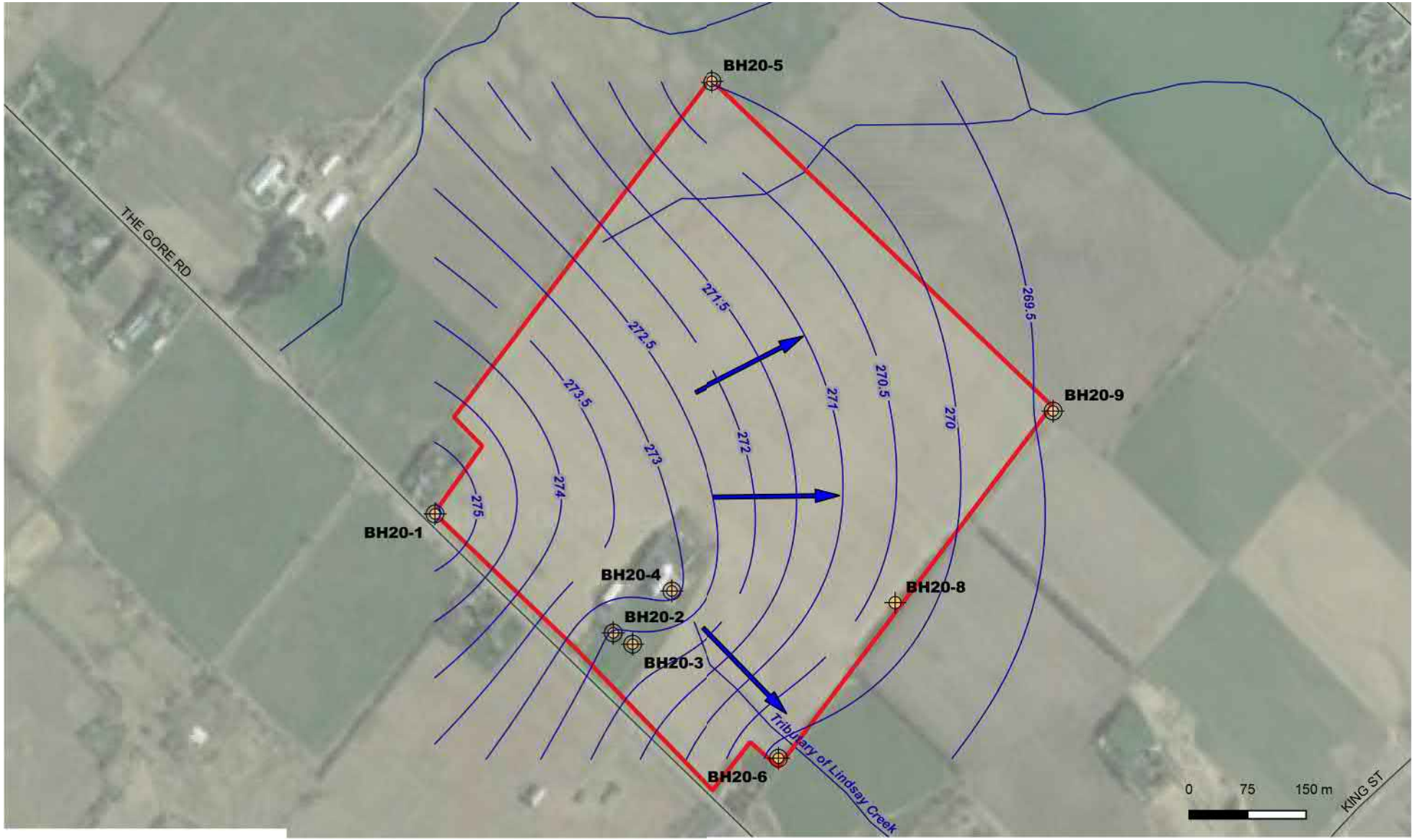
Rev: 0	Scale: As Shown	Project No.: 20-169-100	Figure No.: 5

Image/Map Source: *Google Satellite Image*

C:\0Sharon\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel I\Figure 6 – Groundwater Elevation Contours and Flow Direction.qgs Jan-08 16:38



Legend

- Approx Property Boundary
- Borehole
- Monitoring Well
- Groundwater Elevation Contour
- Groundwater Flow Direction

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
Parcel I - Residential Development, North Bolton, ON

Title: **GROUNDWATER ELEVATION CONTOURS AND FLOW DIRECTION**

N

Client: BOLTON OPTION 3 LANDOWNERS GROUP
c/o GLEN SCHNARR & ASSOCIATES

Size:	Approved By:	Drawn By:	Date:
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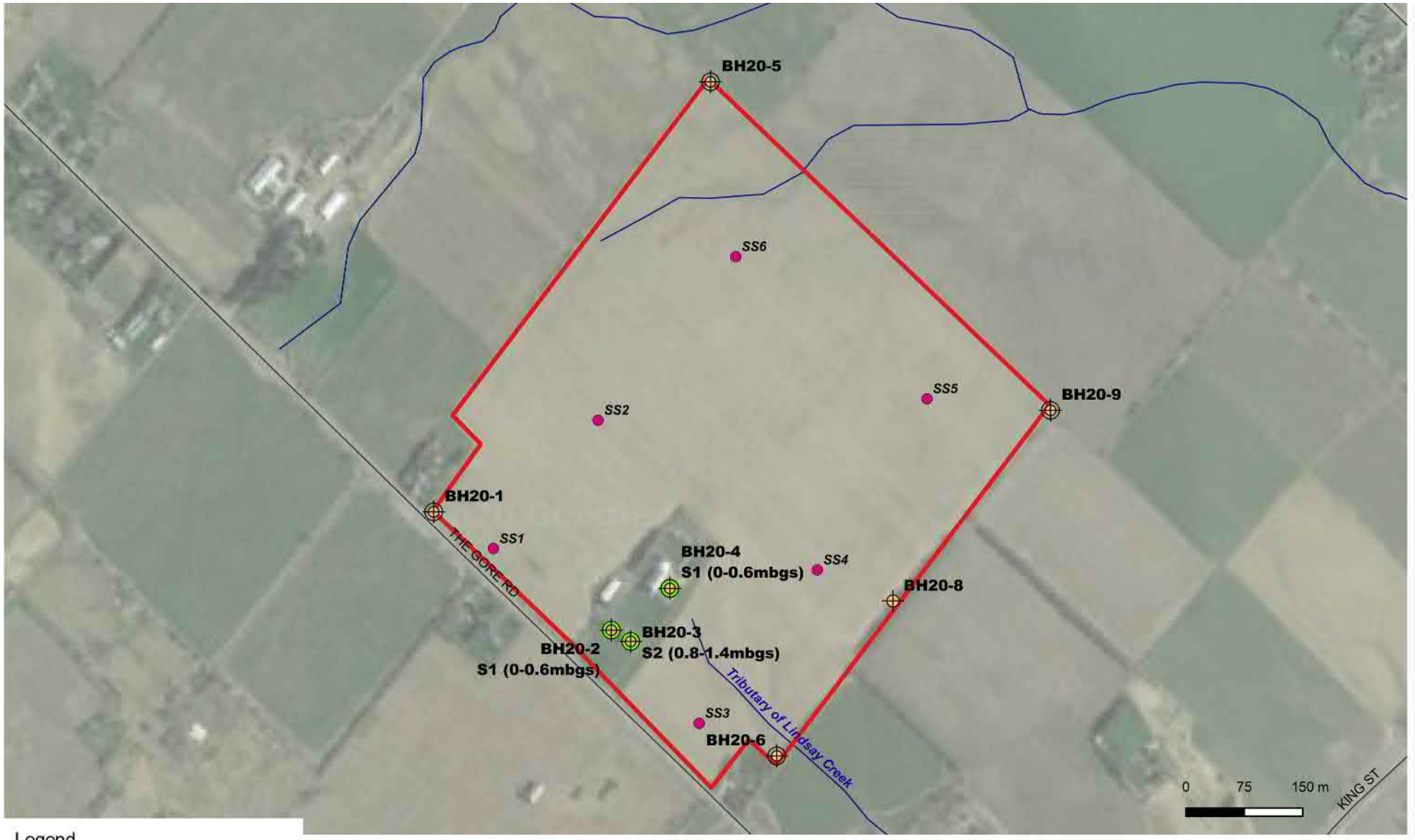
Rev: 0	Scale: As Shown	Project No.: 20-169-100	Figure No.: 6
	Image/Map Source: *Google Satellite Image*		

C:\0Sharon\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel I\Figure 7A – Summary of Metals and ORPs in Soil.qgs Jan-07 13:19



Legend

- Approx Property Boundary
- Borehole
- Monitoring Well
- Soil Sample Location
- Sample Met Applicable Standards

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
Parcel I - Residential Development, North Bolton, ON

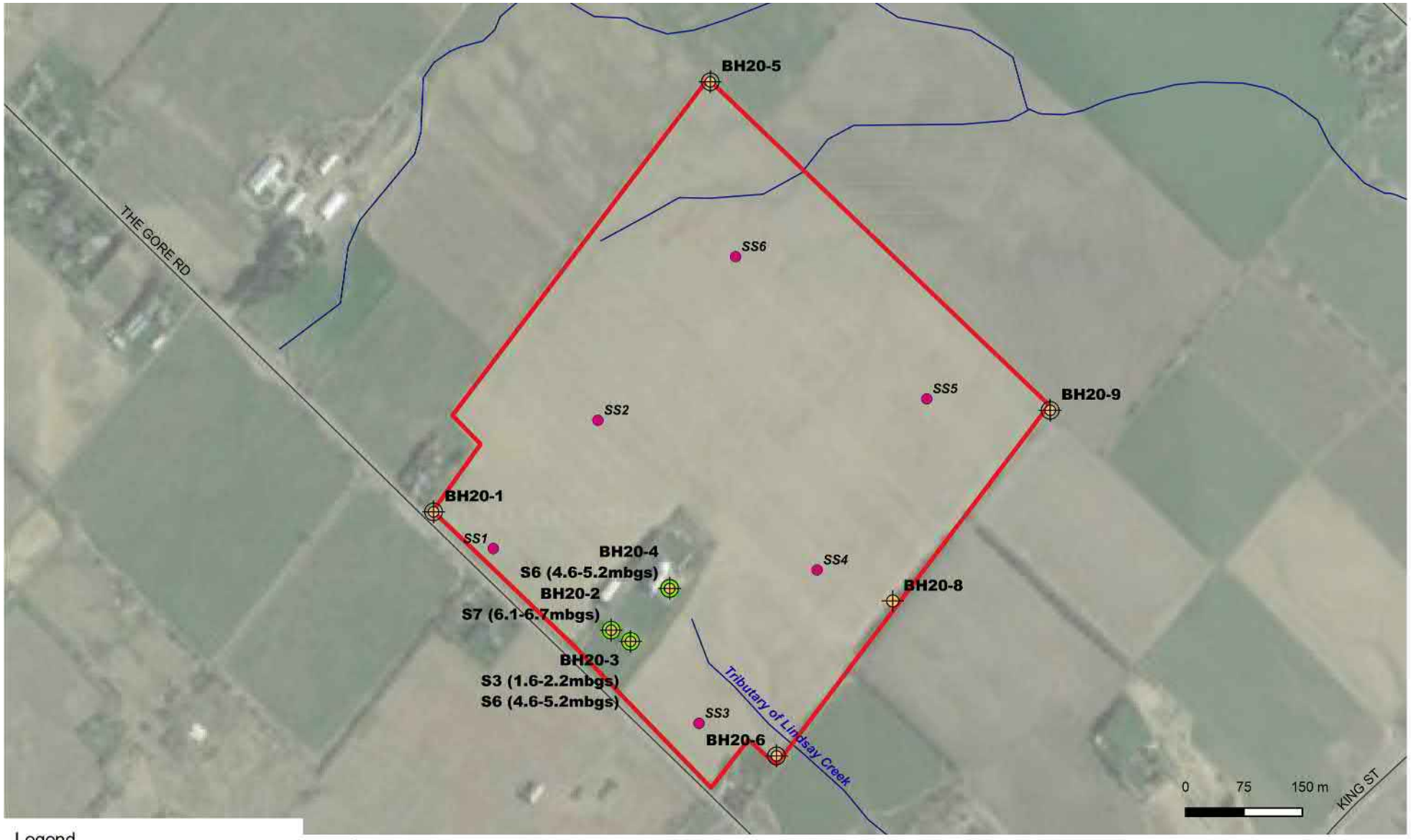
Title: **SOIL CHARACTERIZATION – METALS AND ORPs**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	D.D	S.Y	January 2021
Rev: 0	Scale: As Shown	Project No.: 20-169-100	Figure No.: 7A

Image/Map Source: *Google Satellite Image*

C:\0Sharon\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel I\Figure 7B –Summary of PHCs in Soil.qgs Jan-07 13:22



Legend

- Approx Property Boundary
- Borehole
- Monitoring Well
- Soil Sample Location
- Sample Met Applicable Standards

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Parcel I - Residential Development, North Bolton, ON

Title: **SOIL CHARACTERIZATION – PHCs**

N

Size:	Approved By:	Drawn By:	Date:
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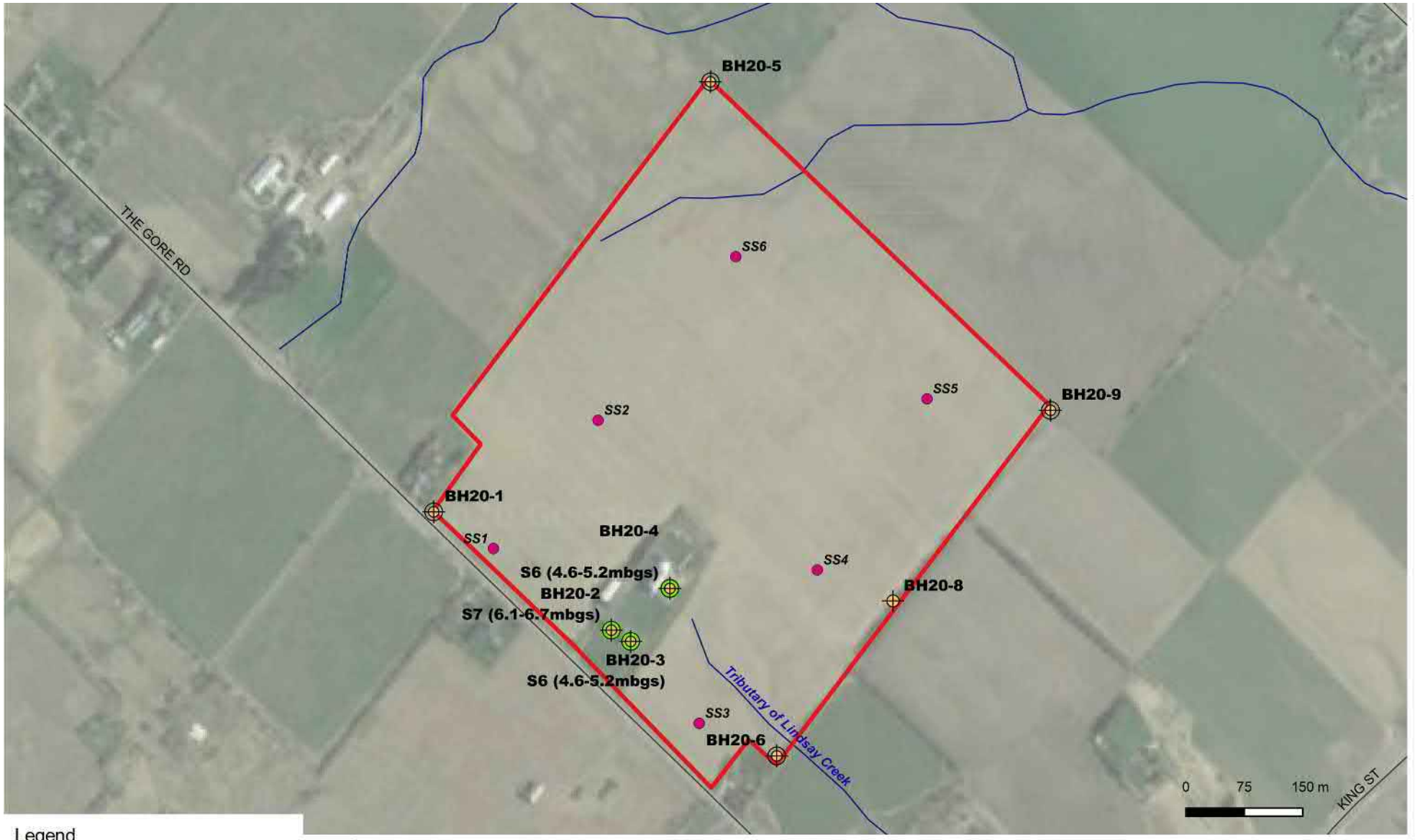
Image/Map Source: *Google Satellite Image*

C:\0Sharon\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel I\Figure 7C – Summary of VOCs in Soil.qgs Jan-07 13:23



Legend

- Approx Property Boundary
- Borehole
- Monitoring Well
- Soil Sample Location
- Sample Met Applicable Standards

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Parcel I - Residential Development, North Bolton, ON

Title: **SOIL CHARACTERIZATION – VOCs**

N

Client: BOLTON OPTION 3 LANDOWNERS GROUP
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Size:	Approved By:	Drawn By:	Date:
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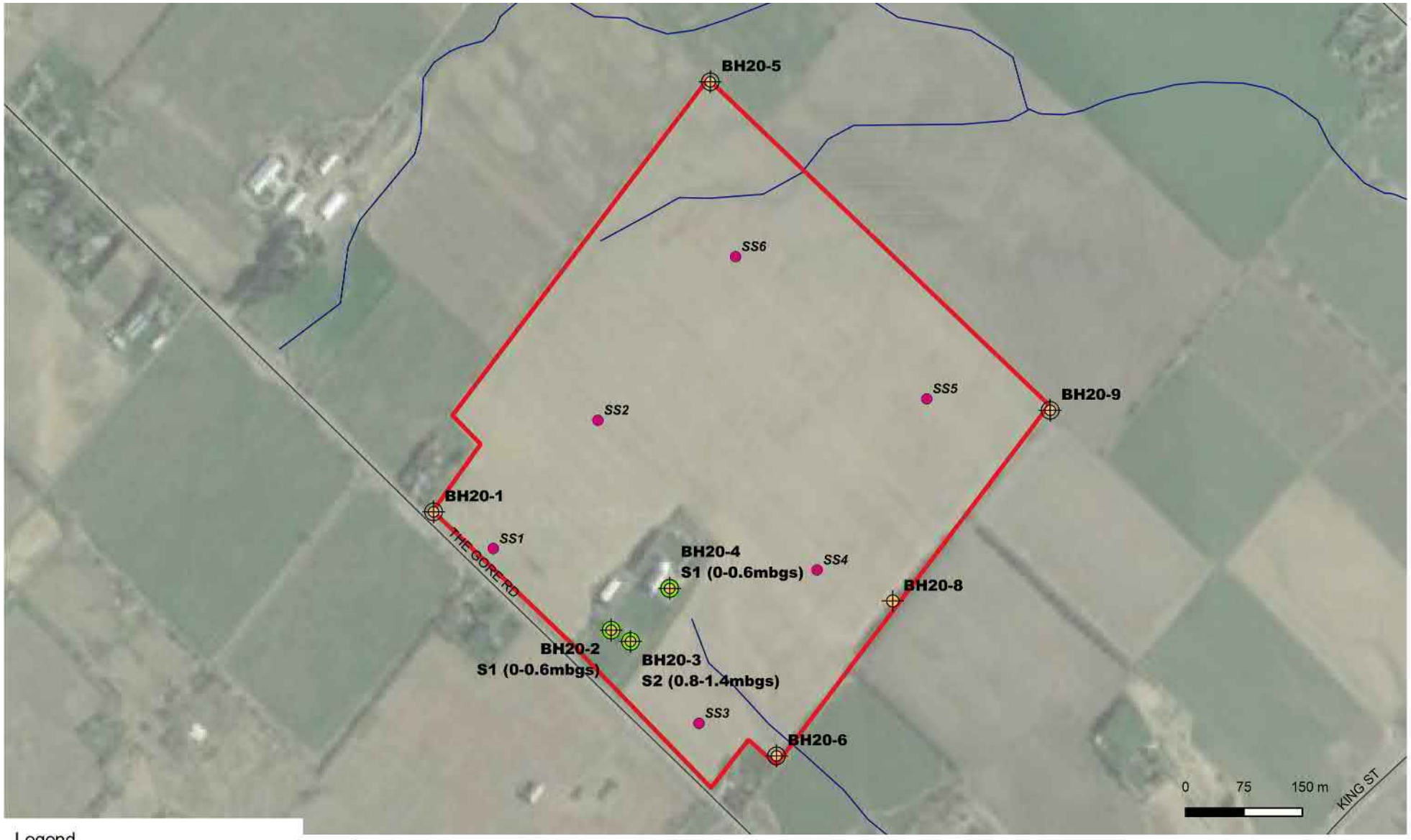
Rev: 0	Scale: As Shown	Project No.: 20-169-100	Figure No.: 7C

Image/Map Source: *Google Satellite Image*

C:\0Sharon\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel I\Figure 7D – Summary of PAHs in Soil.qgs Jan-07 13:24



Legend

- Approx Property Boundary
- Borehole
- Monitoring Well
- Soil Sample Location
- Sample Met Applicable Standards

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Title: **SOIL CHARACTERIZATION – PAHs**

N

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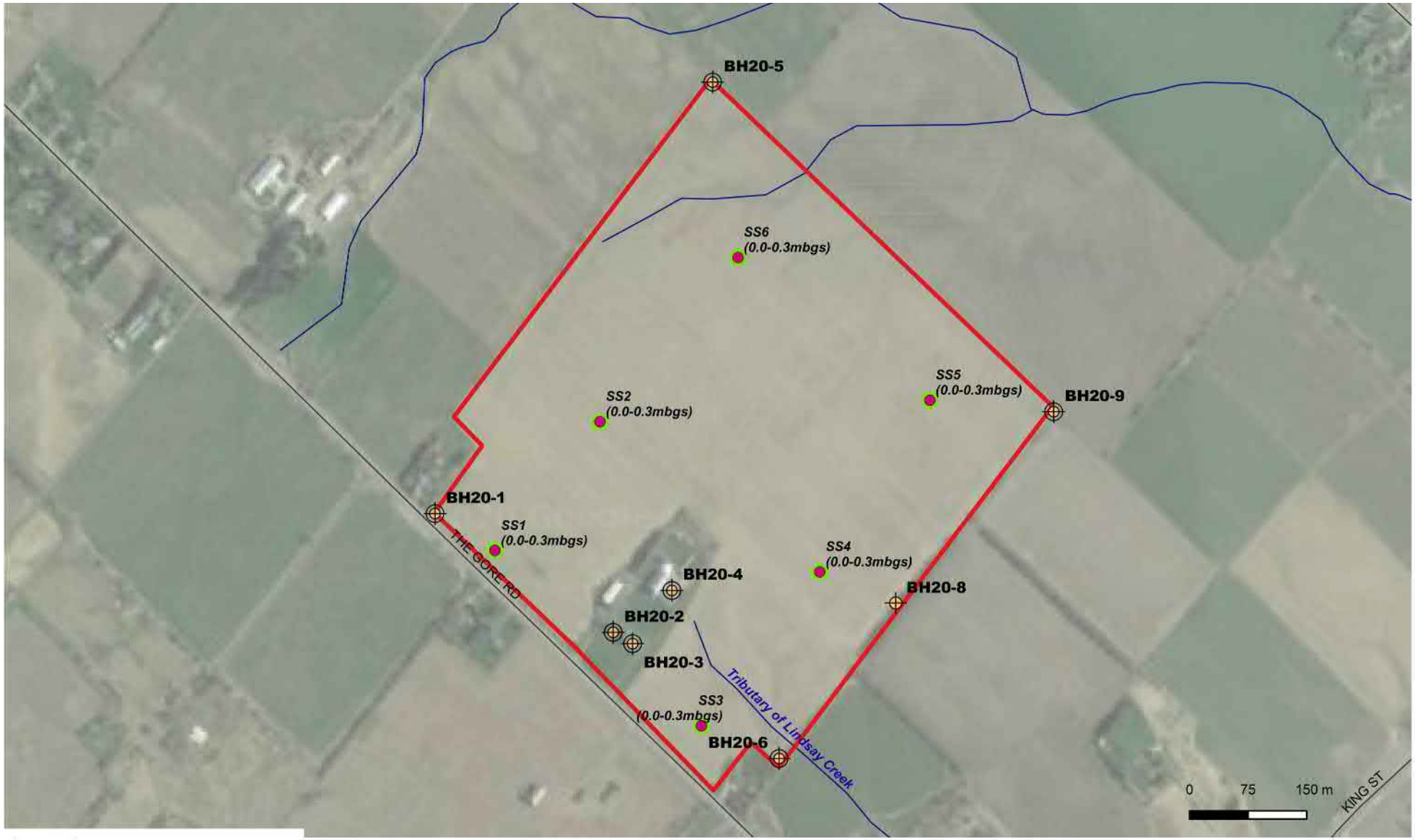
8.5 x 11	D.D	S.Y	January 2021
Rev: 0	Scale: As Shown	Project No.: 20-169-100	Figure No.: **7D**

Image/Map Source: *Google Satellite Image*

C:\0Sharon\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel I\Figure 7E – Summary of OCPs in Soil.qgs Jan-07 11:54



Legend

- Approx Property Boundary
- Borehole
- Monitoring Well
- Soil Sample Location
- Sample Met Applicable Standards

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Parcel I - Residential Development, North Bolton, ON

Title: **SOIL CHARACTERIZATION – OCPs**

N

Size:	Approved By:	Drawn By:	Date:
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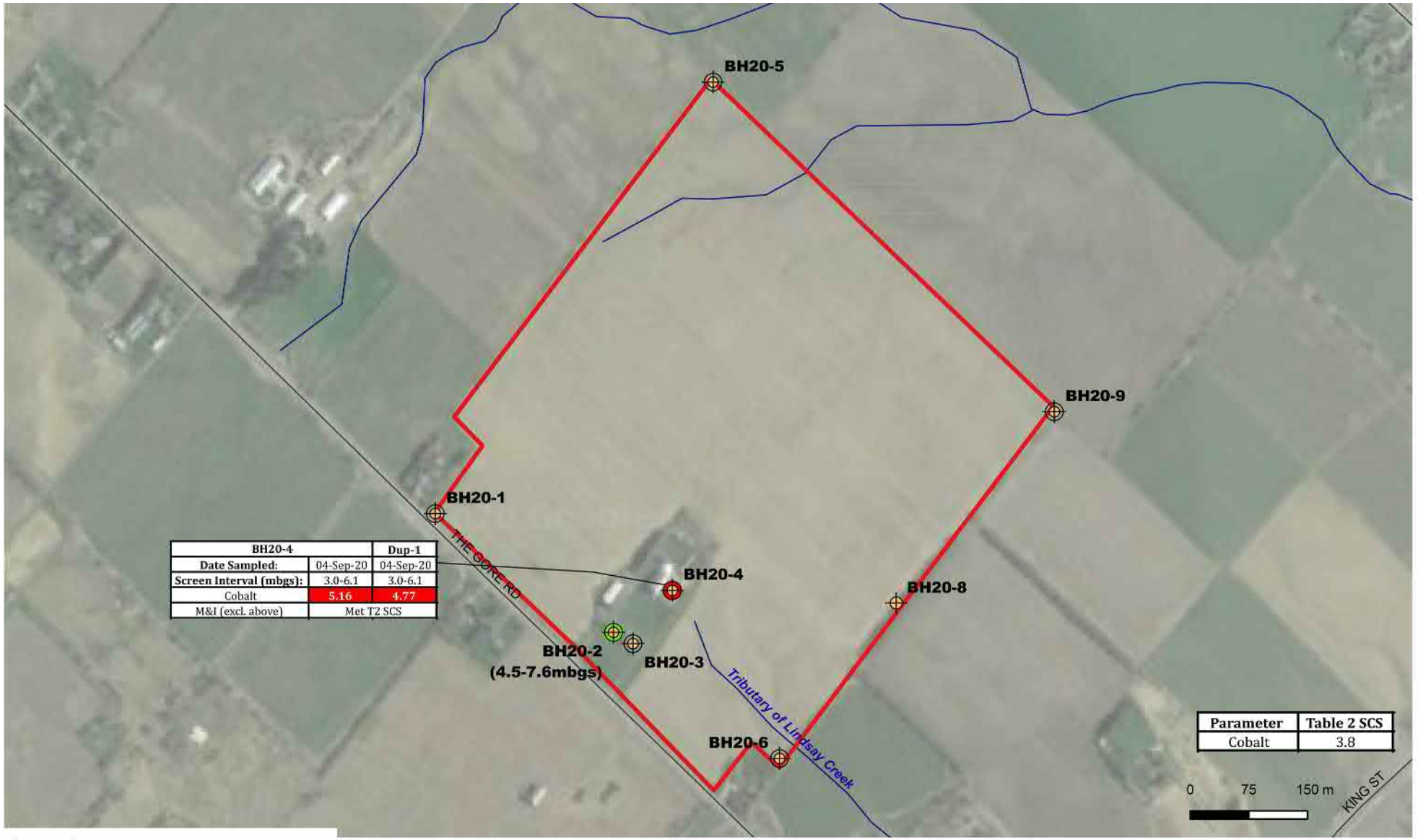
Rev: 0	Scale: As Shown	Project No.: 20-169-100	Figure No.: **7E**

Image/Map Source: *Google Satellite Image*

C:\0Sharon\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel I\Figure 8A – Summary of Metals and ORPs in GW.qgs Jan-08 14:35



BH20-4		Dup-1
Date Sampled:	04-Sep-20	04-Sep-20
Screen Interval (mbgs):	3.0-6.1	3.0-6.1
Cobalt	5.16	4.77
M&I (excl. above)	Met T2 SCS	

Parameter	Table 2 SCS
Cobalt	3.8

Legend

- Approx Property Boundary
- Borehole
- Monitoring Well
- Sample Exceeds Applicable Standards
- Sample Met Applicable Standards

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Parcel I - Residential Development, North Bolton, ON

Title: **GROUNDWATER CHARACTERIZATION – METALS AND ORPs**

N

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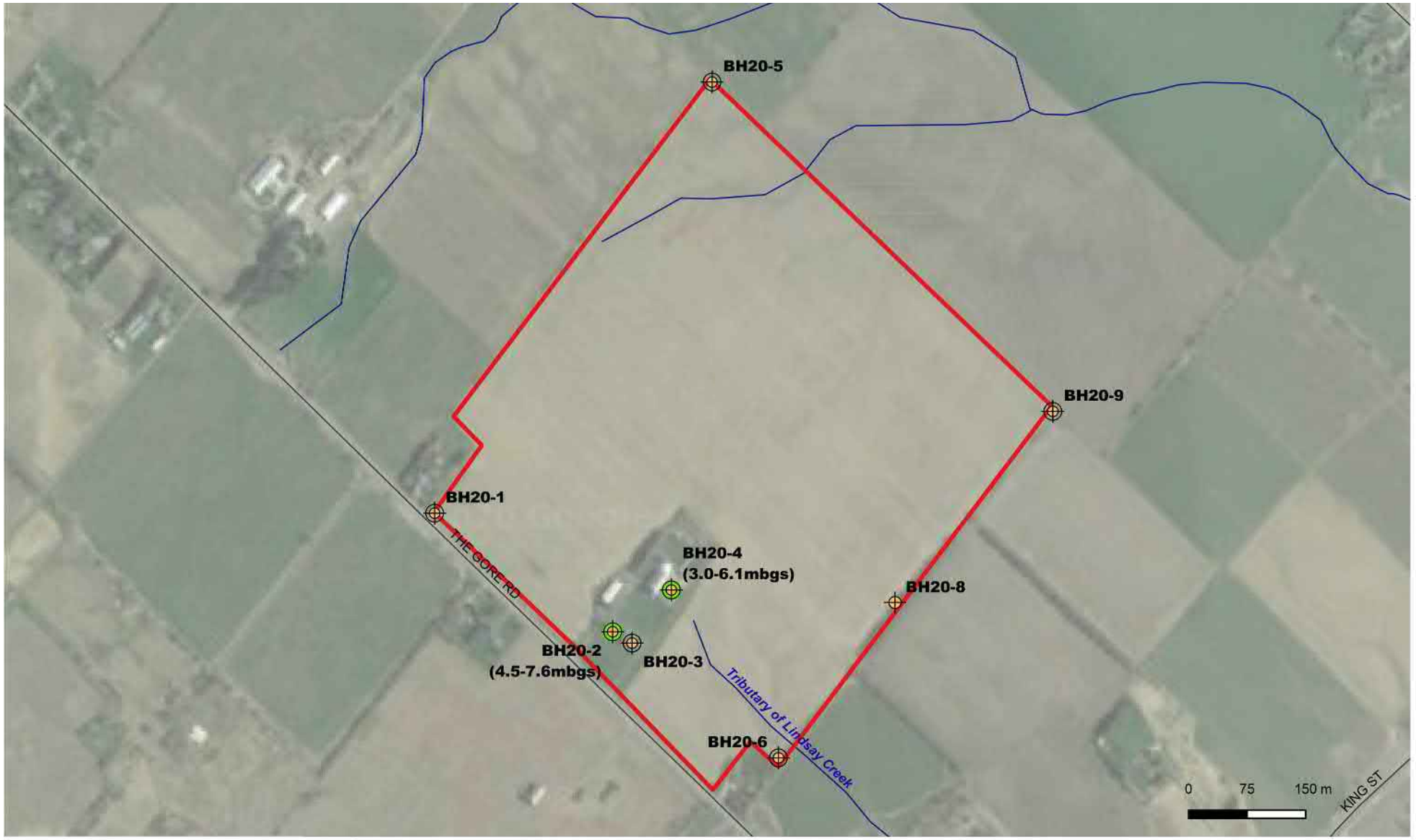
8.5 x 11	D.D	S.Y	January 2021
Rev: 0	Scale: As Shown	Project No.: 20-169-100	Figure No.: 8A

Image/Map Source: *Google Satellite Image*

C:\0Sharon\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel I\Figure 8B –Summary of PHCs in Groundwater.qgs Jan-08 14:37



Legend

- Approx Property Boundary
- Borehole
- Monitoring Well
- Sample Met Applicable Standards

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Parcel I - Residential Development, North Bolton, ON

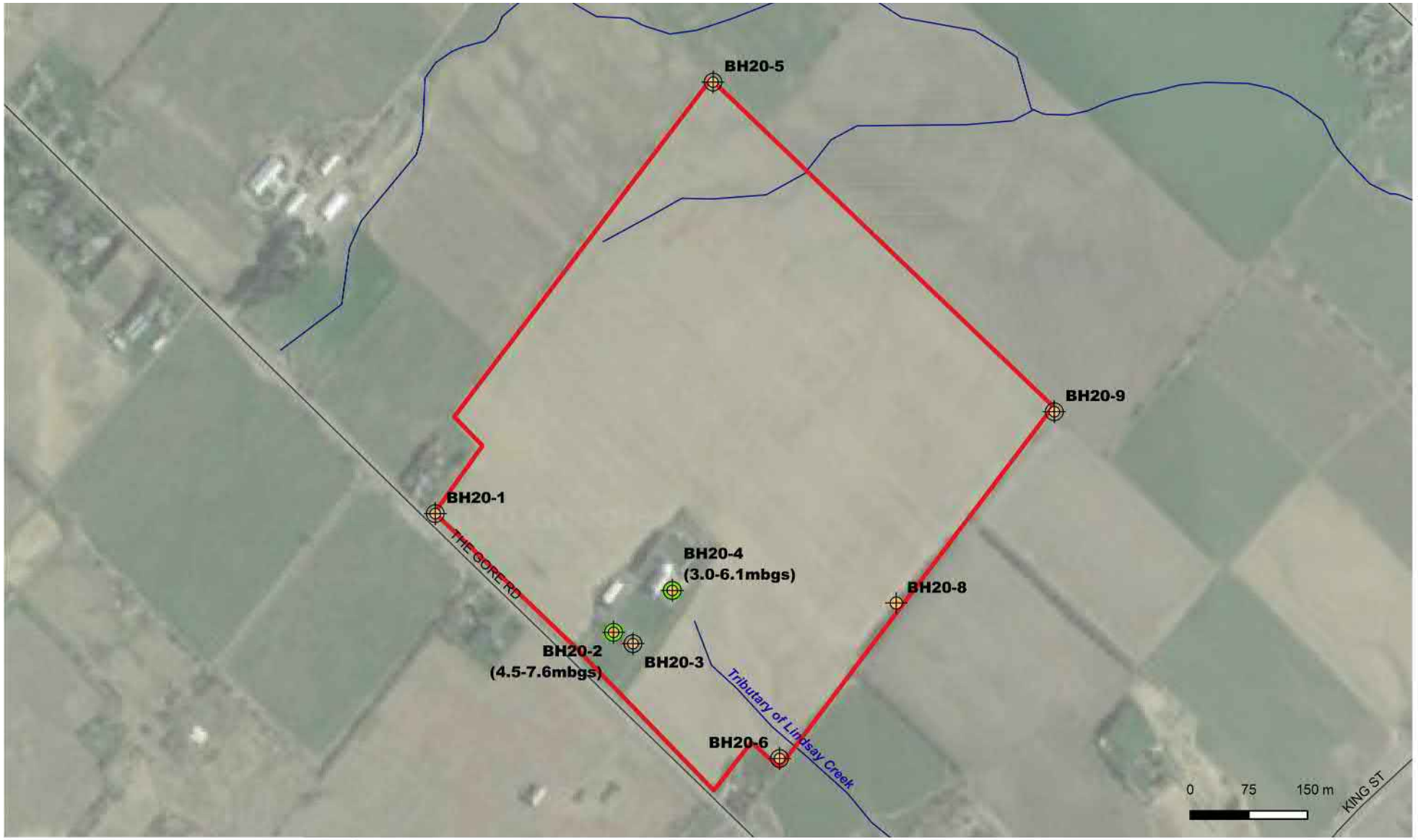
Title: **GROUNDWATER CHARACTERIZATION – PHCs**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	D.D	S.Y	January 2021
Rev: 0	Scale: As Shown	Project No.: 20-169-100	Figure No.: **8B**

Image/Map Source: *Google Satellite Image*

C:\0Sharon\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel I\Figure 8C –Summary of VOCs in Groundwater.qgs Jan-08 14:38



Legend

- Approx Property Boundary
- Borehole
- Monitoring Well
- Sample Met Applicable Standards

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Parcel I - Residential Development, North Bolton, ON

Title: **GROUNDWATER CHARACTERIZATION – VOCs**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	D.D	S.Y	January 2021
Rev: 0	Scale: As Shown	Project No.: 20-169-100	Figure No.: **8C**

Image/Map Source: *Google Satellite Image*

Tables

Table 1: Summary of Monitoring Well Installation and Groundwater Data

Well ID			BH20-1	BH20-2	BH20-3	BH20-4	BH20-5	BH20-6	BH20-9
Installed By:			DS	DS	DS	DS	DS	DS	DS
Installation Date:			27-Jul-20	27-Jul-20	27-Jul-20	27-Jul-20	29-Jul-20	28-Jul-20	29-Jul-20
Well Status:			Active	Active	Active	Active	Active	Active	Active
Inner Diameter		(mm)	50	50	50	50	50	50	50
Surface Elevation		(masl)	279.83	278.80	278.55	277.07	273.07	270.95	274.11
Stick-up Height		(m)	0.96	0.94	0.95	0.85	0.97	0.86	0.88
Bottom of Concrete Seal/Top of Bentonite Seal		mbgs	0.30	0.30	0.30	0.30	0.30	0.30	0.30
		masl	279.53	278.50	278.25	276.77	272.77	270.65	273.81
Bottom of Bentonite Seal/Top of Sand Pack		mbgs	5.50	3.90	2.40	2.40	5.50	5.50	5.50
		masl	274.33	274.90	276.15	274.67	267.57	265.45	268.61
Top of Well Screen		mbgs	6.10	4.50	3.00	3.00	6.10	6.10	6.10
		masl	273.73	274.30	275.55	274.07	266.97	264.85	268.01
Well Screen Length		m	1.5	3.10	3.10	3.10	1.50	1.50	1.50
Bottom of Well Screen		mbgs	7.6	7.60	6.10	6.10	7.60	7.60	7.60
		masl	272.23	271.20	272.45	270.67	265.17	263.05	266.21
GW Monitoring									
06-Aug-20	Depth to GW	mbgs	4.11	6.12	5.99	3.77	2.78	6.77	4.43
	GW Elevation	masl	275.72	272.68	272.56	273.30	270.29	264.18	269.68
08-Sep-20	Depth to GW	mbgs	4.24	6.36	dry	3.90	3.09	1.15	4.72
	GW Elevation	masl	275.59	272.44		273.17	269.98	269.80	269.39
22-Oct-20	Depth to GW	mbgs	4.51	6.48	dry	NM	3.38	NM	4.97
	GW Elevation	masl	275.32	272.32			269.69		269.14

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
BH20-2	S1	0.0 - 0.6	Fill - Sandy silt trace gravel	Metals and ORPs, PAHs	APEC-2,3
	S7	6.1 - 6.7	Sandy silt trace gravel	PHCs, VOCs	APEC-2,3
BH20-3	S2	0.8 - 1.4	Silty clay till sandy trace gravel	Metals and ORPs, PAHs	APEC-2,3
	S3	1.6 - 2.2	Silty clay till sandy trace gravel	PHCs	APEC-2,3
	S6	4.6 - 5.2	Silty sand trace clay	PHCs, VOCs	APEC-2,3
BH20-4	S1	0.0 - 0.6	Fill - clayey silt trace gravel	Metals and ORPs, PAHs	APEC-3,4
	S6	4.6 - 5.2	Sandy silt trace clay	PHCs, VOCs	APEC-3,4
SS1	-	0.0 - 0.3	-	OCPs	APEC-1
SS2	-	0.0 - 0.3	-	OCPs	APEC-1
SS3	-	0.0 - 0.3	-	OCPs	APEC-1
SS4	-	0.0 - 0.3	-	OCPs	APEC-1
SS5	-	0.0 - 0.3	-	OCPs	APEC-1
SS6	-	0.0 - 0.3	-	OCPs	APEC-1

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
BH20-2	271.20 - 274.30	25-Sep-20	Metals and ORPs, PHCs, VOCs	APPEC-2
BH20-4	270.67 - 274.07	04-Sep-20	Metals and ORPs, PHCs, VOCs	APPEC-4

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	IInferred large scale application of pesticides for agricultural purposes on the Phase One Property.	OCPs	Soil	SS1	-	OCPs
				SS2	-	OCPs
				SS3	-	OCPs
				SS4	-	OCPs
				SS5	-	OCPs
				SS6	-	OCPs
APEC-2	The SPL Phase One Site Reconnaissance identified two (2) fuel oil ASTs in the basement of the residential building, each with a capacity of 1000 L	PHCs, BTEX, PAHs	Soil	BH20-2	S1	PAH
					S7	PHCs, BTEX
				BH20-3	S2	PAHs
					S3	PHCs
					S6	PHCs, BTEX
			Groundwater	BH20-2	-	PHCs, BTEX
APEC-3	Fill material was identified in the 2014 SPL Geotechnical Investigation.	Metals and ORPs, PAHs	Soil	BH20-2	S1	Metals and ORPs, PAHs
				BH20-3	S2	Metals and ORPs, PAHs
				BH20-4	S1	Metals and ORPs, PAHs
APEC-4	Site was listed as generator of light fuels associated with farming activities.	PHCs, VOCs, PAHs	Soil	BH20-4	S1	PAHs
					S6	PHCs, VOCs
			Groundwater	BH20-2	-	PHCs, VOCs
				BH20-4	-	PHCs, VOCs

Table 5: Summary of Metals and ORPs in Soil

Parameter	MECP Table 2 SCS	BH20-2 S1	BH20-3 S2	BH20-4 S1
Date of Collection		28-Jul-20	28-Jul-20	28-Jul-20
Date Reported		07-Aug-20	07-Aug-20	07-Aug-20
Sampling Depth (mbgs)		0 - 0.6	0.8 - 1.4	0 - 0.6
Analytical Report Reference No.		CA15768-JUL20-9	CA15768-JUL20-11	CA15768-JUL20-14
Antimony	7.5	< 0.8	< 0.8	< 0.8
Arsenic	18	5.1	4	3.1
Barium	390	59	81	50
Beryllium	4	0.67	1.1	0.82
Boron (total)	120	6	10	6
Boron (Hot Water Soluble)	1.5	< 0.5	< 0.5	< 0.5
Cadmium	1.2	0.19	0.09	0.07
Chromium Total	160	15	21	17
Chromium VI	8	< 0.2	0.2	0.3
Cobalt	22	7.3	11	6.5
Copper	140	16	23	18
Cyanide (CN-)	0.051	< 0.05	< 0.05	< 0.05
Electrical Conductivity (mS/cm)	0.7	0.16	0.13	0.4
Lead	120	45	9.1	6.2
Mercury	0.27	0.09	< 0.05	< 0.05
Molybdenum	6.9	0.3	0.2	0.3
Nickel	100	13	24	15
Selenium	2.4	< 0.7	< 0.7	< 0.7
Silver	20	< 0.05	< 0.05	< 0.05
Sodium Adsorption Ratio	5	< 0.2	< 0.2	< 0.2
Thallium	1	0.1	0.13	0.08
Uranium	23	0.29	0.47	0.43
Vanadium	86	22	29	25
Zinc	340	57	49	32
pH	-	7.05	7.66	7.59

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 2 SCS	BH20-2 S7	BH20-3 S3	BH20-3 S6	BH20-4 S6
Date of Collection		28-Jul-20	28-Jul-20	28-Jul-20	28-Jul-20
Date Reported		07-Aug-20	07-Aug-20	07-Aug-20	07-Aug-20
Sampling Depth (mbgs)		6.1 - 6.7	1.6 - 2.2	4.6 - 5.2	4.6 - 5.2
Analytical Report Reference No.		CA15768-JUL20-10	CA15768-JUL20-12	CA15768-JUL20-13	CA15768-JUL20-15
Benzene	0.21	< 0.02	< 0.02	< 0.02	< 0.02
Ethylbenzene	1.1	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	2.3	< 0.05	< 0.05	< 0.05	< 0.05
Xylenes (Total)	3.1	< 0.05	< 0.05	< 0.05	< 0.05
F1-BTEX	55	<10	<10	<10	<10
F2 (C10-C16)	55	<10	<10	<10	<10
F3 (C16-C34)	300	<50	<50	<50	<50
F4 (C34-C50)	2800	<50	<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 VOCs in Soil

Parameter	MECP Table 2 SCS	BH20-2 S7	BH20-3 S6	BH20-4 S6
Date of Collection		28-Jul-20	28-Jul-20	28-Jul-20
Date Reported		07-Aug-20	07-Aug-20	07-Aug-20
Sampling Depth (mbgs)		6.1 - 6.7	4.6 - 5.2	4.6 - 5.2
Analytical Report Reference No.		CA15768-JUL20-10	CA15768-JUL20-13	CA15768-JUL20-15
Tetrachloroethane, 1,1,1,2-	0.058	< 0.05	< 0.05	< 0.05
Trichloroethane, 1,1,1-	0.38	< 0.05	< 0.05	< 0.05
Tetrachloroethane, 1,1,2,2-	0.05	< 0.05	< 0.05	< 0.05
Trichloroethane, 1,1,2-	0.05	< 0.05	< 0.05	< 0.05
Dichloroethane, 1,1-	0.47	< 0.05	< 0.05	< 0.05
Dichloroethylene, 1,1-	0.05	< 0.05	< 0.05	< 0.05
Dichlorobenzene, 1,2-	1.2	< 0.05	< 0.05	< 0.05
Dichloroethane, 1,2-	0.05	< 0.05	< 0.05	< 0.05
Dichloropropane, 1,2-	0.05	< 0.05	< 0.05	< 0.05
Dichlorobenzene, 1,3-	4.8	< 0.05	< 0.05	< 0.05
Dichloropropene, 1,3-	0.05	< 0.05	< 0.05	< 0.05
Dichlorobenzene, 1,4-	0.083	< 0.05	< 0.05	< 0.05
Acetone	16	< 0.5	< 0.5	< 0.5
Bromomethane	0.05	< 0.05	< 0.05	< 0.05
Carbon Tetrachloride	0.05	< 0.05	< 0.05	< 0.05
Chlorobenzene	2.4	< 0.05	< 0.05	< 0.05
Chloroform	0.05	< 0.05	< 0.05	< 0.05
Dichloroethylene, 1,2-cis-	1.9	< 0.05	< 0.05	< 0.05
Dichloroethylene, 1,2-trans-	0.084	< 0.05	< 0.05	< 0.05
Dichlorodifluoromethane	16	< 0.05	< 0.05	< 0.05
Ethylene dibromide	0.05	< 0.05	< 0.05	< 0.05
Methyl Ethyl Ketone	16	< 0.5	< 0.5	< 0.5
Methyl Isobutyl Ketone	1.7	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether (MTBE)	0.75	< 0.05	< 0.05	< 0.05
Methylene Chloride	0.1	< 0.05	< 0.05	< 0.05
Hexane (n)	2.8	< 0.05	< 0.05	< 0.05
Styrene	0.7	< 0.05	< 0.05	< 0.05
Tetrachloroethylene	0.28	< 0.05	< 0.05	< 0.05
Trichloroethylene	0.061	< 0.05	< 0.05	< 0.05
Trichlorofluoromethane	4	< 0.05	< 0.05	< 0.05
Vinyl Chloride	0.02	< 0.02	< 0.02	< 0.02
Bromodichloromethane	1.5	< 0.05	< 0.05	< 0.05
Bromoform	0.27	< 0.05	< 0.05	< 0.05
Dibromochloromethane	2.3	< 0.05	< 0.05	< 0.05

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

Table 8: Summary of PAHs in Soil

Parameter	MECP Table 2 SCS	BH20-2 S1	BH20-3 S2	BH20-4 S1
Date of Collection		28-Jul-20	28-Jul-20	28-Jul-20
Date Reported		07-Aug-20	07-Aug-20	07-Aug-20
Sampling Depth (mbgs)		0 - 0.6	0.8 - 1.4	0 - 0.6
Analytical Report Reference No.		CA15768-JUL20-9	CA15768-JUL20-11	CA15768-JUL20-14
Methylnaphthalene, 2-(1-)	0.99	< 0.05	< 0.05	< 0.05
Acenaphthene	7.9	< 0.05	< 0.05	< 0.05
Acenaphthylene	0.15	< 0.05	< 0.05	< 0.05
Anthracene	0.67	< 0.05	< 0.05	< 0.05
Benz(a)anthracene	0.5	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	0.3	< 0.05	< 0.05	< 0.05
Benzo(b+j)fluoranthene	0.78	< 0.05	< 0.05	< 0.05
Benzo(g,h,i)perylene	6.6	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	0.78	< 0.05	< 0.05	< 0.05
Chrysene	7	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	0.1	< 0.06	< 0.06	< 0.06
Fluoranthene	0.69	< 0.05	< 0.05	< 0.05
Fluorene	62	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	0.38	< 0.1	< 0.1	< 0.1
Naphthalene	0.6	< 0.05	< 0.05	< 0.05
Phenanthrene	6.2	< 0.05	< 0.05	< 0.05
Pyrene	78	< 0.05	< 0.05	< 0.05

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

Table 9: Summary of OCPs in Soil

Parameter	MECP Table 2 SCS	SS1	SS2	SS3	SS4	SS5	SS6
Date of Collection		03-Sep-20	03-Sep-20	03-Sep-20	03-Sep-20	03-Sep-20	03-Sep-20
Date Reported		18-Sep-20	18-Sep-20	18-Sep-20	18-Sep-20	18-Sep-20	18-Sep-20
Sampling Depth (mbgs)		0.0-0.3	0.0-0.3	0.0-0.3	0.0-0.3	0.0-0.3	0.0-0.3
Analytical Report Reference No.		CA12523-SEP20-9	CA12523-SEP20-10	CA12523-SEP20-11	CA12523-SEP20-12	CA12523-SEP20-13	CA12523-SEP20-14
Aldrin	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chlordane	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
DDD	3.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
DDE	0.26	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
DDT	1.4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan	0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Endrin	0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Hexachlorocyclohexane Gamma-	0.056	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor	0.15	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor Epoxide	0.05	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	0.52	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	0.012	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachloroethane	0.089	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Methoxychlor	0.13	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

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

Table 10: Summary of Metals and ORPs in Groundwater

Parameter	MECP Table 2 SCS	Units	BH20-4	Dup-1	BH20-2
Date of Collection			4-Sep-20	4-Sep-20	25-Sep-20
Date Reported			11-Sep-20	11-Sep-20	02-Oct-20
Screen Interval (mbgs)			3.0-6.1	3.0-6.1	4.5-7.6
Analytical Report Reference No.			CA15979-SEP20-7	CA15979-SEP20-8	CA14888-SEP20-7
Antimony	6	µg/L	0.34	0.32	<0.09
Arsenic	25	µg/L	0.6	0.6	0.4
Barium	1000	µg/L	102	98	76.5
Beryllium	4	µg/L	< 0.007	< 0.007	0.009
Boron (total)	5000	µg/L	132	114	24
Cadmium	2.7	µg/L	0.005	0.01	<0.003
Chloride	790000	µg/L	11000	11000	180000
Chromium Total	50	µg/L	0.1	0.14	1.13
Chromium VI	25	µg/L	0.4	0.4	0.7
Cobalt	3.8	µg/L	**5.16**	**4.77**	0.222
Copper	87	µg/L	4.3	2.7	3.4
Cyanide (CN-)	66	µg/L	< 2	< 2	<2
Lead	10	µg/L	0.08	0.02	0.42
Mercury	0.29	µg/L	< 0.01	< 0.01	<0.01
Molybdenum	70	µg/L	4.94	5.32	2.66
Nickel	100	µg/L	9.3	8.7	0.9
Selenium	10	µg/L	0.17	0.16	0.12
Silver	1.5	µg/L	< 0.05	< 0.05	< 0.05
Sodium	490000	µg/L	110000	109000	21500
Thallium	2	µg/L	0.059	0.06	0.008
Uranium	20	µg/L	2.88	2.81	0.748
Vanadium	6.2	µg/L	0.45	0.47	0.94
Zinc	1100	µg/L	2	3	4
pH	-	-	7.44	7.3	7.24

For Table Notes see **Notes for Soil and**

Table 11: Summary of PHCs in Groundwater

Parameter	MECP Table 2 SCS	BH20-4	Dup-1	Trip Blank	BH20-2
Date of Collection		4-Sep-20	4-Sep-20	-	25-Sep-20
Date Reported		11-Sep-20	11-Sep-20	11-Sep-20	02-Oct-20
Screen Interval (mbgs)		3.0-6.1	3.0-6.1	-	4.5-7.6
Analytical Report Reference No.		CA15979-SEP20-7	CA15979-SEP20-8	CA15979-SEP20-9	CA14888-SEP20-7
Benzene	5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	2.4	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	24	< 0.5	0.5	< 0.5	< 0.5
Xylenes (Total)	300	< 0.5	< 0.5	< 0.5	< 0.5
F1 (C6 to C10) minus BTEX	750	< 25	< 25	-	< 25
F2 (C10 to C16)	150	< 100	< 100	-	< 100
F3 (C16 to C34)	500	< 200	241	-	< 200
F4 (C34 to C50) minus PAHs	500	< 200	< 200	-	< 200

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

Table 12:Summary of VOCs in Groundwater

Parameter	MECP Table 2 SCS	BH20-4	Dup-1	Trip Blank	BH20-2
Date of Collection		4-Sep-20	4-Sep-20	-	25-Sep-20
Date Reported		11-Sep-20	11-Sep-20	11-Sep-20	02-Oct-20
Screen Interval (mbgs)		3.0-6.1	3.0-6.1	-	4.5-7.6
Analytical Report Reference No.		CA15979-SEP20-7	CA15979-SEP20-8	CA15979-SEP20-9	CA14888-SEP20-7
Tetrachloroethane, 1,1,1,2-	1.1	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	200	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,2,2-	1	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,2-	4.7	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	5	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	1.6	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,2-	3	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	1.6	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropane, 1,2-	5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	59	< 0.5	< 0.5	< 0.5	< 0.5
Dichloropropene, 1,3-	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	1	< 0.5	< 0.5	< 0.5	< 0.5
Acetone	2700	< 30	< 30	< 30	< 30
Bromomethane	0.89	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	0.79	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	30	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	2.4	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,2-cis-	1.6	< 0.5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,2-trans-	1.6	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	590	< 2	< 2	< 2	< 2
Ethylene dibromide	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Methyl Ethyl Ketone	1800	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	640	< 20	< 20	< 20	< 20
Methyl tert-Butyl Ether (MTBE)	15	< 2	< 2	< 2	< 2
Methylene Chloride	50	< 0.5	< 0.5	< 0.5	< 0.5
Hexane (n)	51	< 1	< 1	< 1	< 1
Styrene	5.4	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	1.6	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	1.6	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	150	< 5	< 5	< 5	< 5
Vinyl Chloride	0.5	< 0.2	< 0.2	< 0.2	< 0.2
Bromodichloromethane	16	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	25	< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	25	< 0.5	< 0.5	< 0.5	< 0.5

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

Table 13: Summary of Maximum Concentrations in Soil

	Parameter	Standard	Maximum Concentration	Location
Metals and ORPs	Antimony	7.5	< 0.8	All Samples
	Arsenic	18	5.1	BH20-2 S1
	Barium	390	81	BH20-3 S2
	Beryllium	4	1.1	BH20-3 S2
	Boron (total)	120	10	BH20-3 S2
	Boron (Hot Water Soluble)	1.5	< 0.5	All Samples
	Cadmium	1.2	0.19	BH20-2 S1
	Chromium Total	160	21	BH20-3 S2
	Chromium VI	8	0.3	BH20-4 S1
	Cobalt	22	11	BH20-3 S2
	Copper	140	23	BH20-3 S2
	Cyanide (CN-)	0.051	< 0.05	All Samples
	Electrical Conductivity (mS/cm)	0.7	0.4	BH20-4 S1
	Lead	120	45	BH20-2 S1
	Mercury	0.27	0.09	BH20-2 S1
	Molybdenum	6.9	0.3	BH20-2 S1
	Nickel	100	24	BH20-3 S2
	Selenium	2.4	< 0.7	All Samples
	Silver	20	< 0.05	All Samples
	Sodium Adsorption Ratio	5	< 0.2	All Samples
	Thallium	1	0.13	BH20-3 S2
	Uranium	23	0.47	BH20-3 S2
	Vanadium	86	29	BH20-3 S2
	Zinc	340	57	BH20-2 S1
	pH	-	7.66	BH20-3 S2
PHCs	Benzene	0.21	< 0.02	All Samples
	Ethylbenzene	1.1	< 0.05	All Samples
	Toluene	2.3	< 0.05	All Samples
	Xylenes (Total)	3.1	< 0.05	All Samples
	F1-BTEX	55	<10	All Samples
	F2 (C10-C16)	55	<10	All Samples
	F3 (C16-C34)	300	<50	All Samples
	F4 (C34-C50)	2800	<50	All Samples
VOCs	Tetrachloroethane, 1,1,1,2-	0.058	< 0.05	All Samples
	Trichloroethane, 1,1,1-	0.38	< 0.05	All Samples
	Tetrachloroethane, 1,1,2,2-	0.05	< 0.05	All Samples
	Trichloroethane, 1,1,2-	0.05	< 0.05	All Samples
	Dichloroethane, 1,1-	0.47	< 0.05	All Samples
	Dichloroethylene, 1,1-	0.05	< 0.05	All Samples
	Dichlorobenzene, 1,2-	1.2	< 0.05	All Samples
	Dichloroethane, 1,2-	0.05	< 0.05	All Samples
	Dichloropropane, 1,2-	0.05	< 0.05	All Samples
	Dichlorobenzene, 1,3-	4.8	< 0.05	All Samples
	Dichloropropene, 1,3-	0.05	< 0.05	All Samples
	Dichlorobenzene, 1,4-	0.083	< 0.05	All Samples

Table 13: Summary of Maximum Concentrations in Soil

Parameter		Standard	Maximum Concentration	Location
VOCs	Acetone	16	< 0.5	All Samples
	Bromomethane	0.05	< 0.05	All Samples
	Carbon Tetrachloride	0.05	< 0.05	All Samples
	Chlorobenzene	2.4	< 0.05	All Samples
	Chloroform	0.05	< 0.05	All Samples
	Dichloroethylene, 1,2-cis-	1.9	< 0.05	All Samples
	Dichloroethylene, 1,2-trans-	0.084	< 0.05	All Samples
	Dichlorodifluoromethane	16	< 0.05	All Samples
	Ethylene dibromide	0.05	< 0.05	All Samples
	Methyl Ethyl Ketone	16	< 0.5	All Samples
	Methyl Isobutyl Ketone	1.7	< 0.5	All Samples
	Methyl tert-Butyl Ether (MTBE)	0.75	< 0.05	All Samples
	Methylene Chloride	0.1	< 0.05	All Samples
	Hexane (n)	2.8	< 0.05	All Samples
	Styrene	0.7	< 0.05	All Samples
	Tetrachloroethylene	0.28	< 0.05	All Samples
	Trichloroethylene	0.061	< 0.05	All Samples
	Trichlorofluoromethane	4	< 0.05	All Samples
	Vinyl Chloride	0.02	< 0.02	All Samples
	Bromodichloromethane	1.5	< 0.05	All Samples
	Bromoform	0.27	< 0.05	All Samples
	Dibromochloromethane	2.3	< 0.05	All Samples
PAHs	Methylnaphthalene, 2-(1-)	0.99	< 0.05	All Samples
	Acenaphthene	7.9	< 0.05	All Samples
	Acenaphthylene	0.15	< 0.05	All Samples
	Anthracene	0.67	< 0.05	All Samples
	Benz(a)anthracene	0.5	< 0.05	All Samples
	Benzo(a)pyrene	0.3	< 0.05	All Samples
	Benzo(b+j)fluoranthene	0.78	< 0.05	All Samples
	Benzo(g,h,i)perylene	6.6	< 0.1	All Samples
	Benzo(k)fluoranthene	0.78	< 0.05	All Samples
	Chrysene	7	< 0.05	All Samples
	Dibenz(a,h)anthracene	0.1	< 0.06	All Samples
	Fluoranthene	0.69	< 0.05	All Samples
	Fluorene	62	< 0.05	All Samples
	Indeno(1,2,3-cd)pyrene	0.38	< 0.1	All Samples
	Naphthalene	0.6	< 0.05	All Samples
	Phenanthrene	6.2	< 0.05	All Samples
	Pyrene	78	< 0.05	All Samples
OCPs	Aldrin	0.05	< 0.05	All Samples
	Chlordane	0.05	< 0.05	All Samples
	DDD	3.3	< 0.05	All Samples
	DDE	0.26	< 0.05	All Samples
	DDT	1.4	< 0.05	All Samples
	Project No.: 20-169-100	0.05	< 0.05	All Samples

Table 13: Summary of Maximum Concentrations in Soil

Parameter		Standard	Maximum Concentration	Location
OCPs	Phase Two ESA	0.04	< 0.04	All Samples
	14275 The Gore Road, Parcel 1	0.04	< 0.04	All Samples
	Hexachlorocyclohexane Gamma-	0.056	< 0.01	All Samples
	Heptachlor	0.15	< 0.01	All Samples
	Heptachlor Epoxide	0.05	< 0.01	All Samples
	Hexachlorobenzene	0.52	< 0.01	All Samples
	Hexachlorobutadiene	0.012	< 0.01	All Samples
	Hexachloroethane	0.089	< 0.01	All Samples
	Methoxychlor	0.13	< 0.05	All Samples

Table 14: Summary of Maximum Concentrations in Groundwater

	Parameter	Standard	Maximum Concentration	Location
Metals and ORPs	Antimony	6	0.34	BH20-4
	Arsenic	25	0.6	BH20-4
	Barium	1000	102	BH20-4
	Beryllium	4	0.009	BH20-2
	Boron (total)	5000	132	BH20-4
	Cadmium	2.7	0.01	Dup-1
	Chloride	790000	180000	BH20-2
	Chromium Total	50	1.13	BH20-2
	Chromium VI	25	0.7	BH20-2
	Cobalt	3.8	**5.16**	BH20-4
	Copper	87	4.3	BH20-4
	Cyanide (CN-)	66	µg/L	All Samples
	Lead	10	0.42	BH20-2
	Mercury	0.29	µg/L	All Samples
	Molybdenum	70	5.32	Dup-1
	Nickel	100	9.3	BH20-4
	Selenium	10	0.17	BH20-4
	Silver	1.5	µg/L	All Samples
	Sodium	490000	110000	BH20-4
	Thallium	2	0.06	Dup-1
	Uranium	20	2.88	BH20-4
	Vanadium	6.2	0.94	BH20-2
	Zinc	1100	4	BH20-2
	pH	-	7.44	BH20-4
PHCs	Benzene	5	< 0.5	All Samples
	Ethylbenzene	2.4	< 0.5	All Samples
	Toluene	24	0.5	Dup-1
	Xylenes (Total)	300	< 0.5	All Samples
	F1 (C6 to C10) minus BTEX	#REF!	< 25	All Samples
	F2 (C10 to C16)	150	< 100	All Samples
	F3 (C16 to C34)	500	241	Dup-1
	F4 (C34 to C50) minus PAHs	500	< 200	All Samples
	Tetrachloroethane, 1,1,1,2-	1.1	< 0.5	All Samples
	Trichloroethane, 1,1,1-	200	< 0.5	All Samples
	Tetrachloroethane, 1,1,2,2-	1	< 0.5	All Samples
	Trichloroethane, 1,1,2-	4.7	< 0.5	All Samples
	Dichloroethane, 1,1-	5	< 0.5	All Samples
	Dichloroethylene, 1,1-	1.6	< 0.5	All Samples
	Dichlorobenzene, 1,2-	3	< 0.5	All Samples
	Dichloroethane, 1,2-	1.6	< 0.5	All Samples
	Dichloropropane, 1,2-	5	< 0.5	All Samples
	Dichlorobenzene, 1,3-	59	< 0.5	All Samples
	Dichloropropene, 1,3-	0.5	< 0.5	All Samples
	Dichlorobenzene, 1,4-	1	< 0.5	All Samples
	Acetone	2700	< 30	All Samples

Table 14: Summary of Maximum Concentrations in Groundwater

Parameter		Standard	Maximum Concentration	Location
VOCs	Bromomethane	0.89	< 0.5	All Samples
	Carbon Tetrachloride	0.79	< 0.2	All Samples
	Chlorobenzene	30	< 0.5	All Samples
	Chloroform	2.4	< 0.5	All Samples
	Dichloroethylene, 1,2-cis-	1.6	< 0.5	All Samples
	Dichloroethylene, 1,2-trans-	1.6	< 0.5	All Samples
	Dichlorodifluoromethane	590	< 2	All Samples
	Ethylene dibromide	0.2	< 0.2	All Samples
	Methyl Ethyl Ketone	1800	< 20	All Samples
	Methyl Isobutyl Ketone	640	< 20	All Samples
	Methyl tert-Butyl Ether (MTBE)	15	< 2	All Samples
	Methylene Chloride	50	< 0.5	All Samples
	Hexane (n)	51	< 1	All Samples
	Styrene	5.4	< 0.5	All Samples
	Tetrachloroethylene	1.6	< 0.5	All Samples
	Trichloroethylene	1.6	< 0.5	All Samples
	Trichlorofluoromethane	150	< 5	All Samples
	Vinyl Chloride	0.5	< 0.2	All Samples
	Bromodichloromethane	16	< 0.5	All Samples
	Bromoform	25	< 0.5	All Samples
	Dibromochloromethane	25	< 0.5	All Samples

Notes for Soil and Groundwater Summary Tables

	For soil and groundwater analytical results, concentration exceeds the applicable Standards.
	For soil and groundwater analytical results, laboratory detection limits exceed the applicable Standards.
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
masl	Meters above sea level
MECP Table 2 SCS	Generic Site Condition Standards in a Potable Ground Water Condition for Residential/Parkland/ Institutional Use with coarse-textured soilsas contained in Table 2 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.
mbgs	Meters below ground surface
NM	Not Monitored
NA	Not Available
OCPs	Organochlorine Pesticides
PAH	Polyaromatic Hydrocarbon
PCH	Petroleum Hydrocarbon
Units	Units for all soil analyses are in µg/g (ppm) unless otherwise indicated
Units	Units for all groundwater analyses are in µg/L (ppb) unless otherwise indicated

Appendix A

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

P20-169-100 **July 20, 2020**

Argo Development Corporation
4900 Palladium Way, Suite 105
Burlington, Ontario
L7M 0W7
via email: aaron@argoland.com
Attention: Mr. Aaron Wisson

Re: Sampling and Analysis Plan – Phase Two Environmental Site Assessment
14725 The Gore Road, Parcel 1, Bolton ON

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 14725 The Gore Road, Parcel 1, Bolton ON , (the Site).The purpose of the proposed Phase Two ESA program is to assess the current subsurface environmental conditions in support of the local official plan amendment submission.

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.

2. Background

Based on the Phase One Environmental Site Assessment completed by DS in October, 2020, it is DS's understanding that the Site is a 39.2 hectare (96.8 acres) parcel of land which is currently used for mixed residential and agricultural purposes. The first developed use of the Site is interpreted to be Residential based on the findings of the Phase One ESA. A total of five (5) potentially contaminating activities were identified on the Phase One Property or on neighbouring properties within the Phase One Study Area which are considered to be contributing to four (4) 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 One 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	Entire Property	PCA-1: #40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications - Inferred large scale application of pesticides for agricultural purposes on the Phase One Property.	On-Site	OCPs, metals, As, Sb, Se, CN-	Soil
APEC-2	Western portion of the Property, surrounding the residential house.	PCA-2: #28 – Gasoline and associated products storage in fixed tanks -The SPL Phase One Site Reconnaissance identified two (2) fuel oil ASTs in the basement of the residential building, each with a capacity of 1000 L.	On-Site	PHCs, BTEX, PAHs	Soil and ground water
APEC-3	Western portion of the Property, surrounding all structures on-site.	PCA-3: #30 – Importation of Fill Material of Unknown Quality - Fill material was identified in the 2014 SPL Geotechnical Investigation in one (1) borehole. Fill material may have been used during construction of the structures on-site.	On-Site	Metals, As, Sb, Se, B-HWS, CN-, EC, Cr (VI), Hg, SAR, PAHs	Soil
APEC-4	Western portion of the Property, surrounding the barn	PCA-4: #27 – Garages, and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles.	On Site	PHCs, VOCs, PAHs	Soil and ground water

Notes:
1. N/S - not specified in Table 2, Schedule D, of O.Reg. 153/04

2. PHC (F1-F4) = Petroleum Hydrocarbons in the F1-F4 fraction ranges
3. VOCs = Volatile Organic Compounds
4. PAHs = Polycyclic Aromatic Hydrocarbons

3. Site Investigation Program

The proposed field investigation will involve the collection of six (6) surficial samples, the advancement of boreholes, the installation of monitoring wells, and periodic monitoring of the installed wells. A total of eight (8) boreholes have been identified for geotechnical and environmental purposes, with the installation of seven (7) monitoring wells. Three (3) of the boreholes will be utilized for environmental soil sampling purposes. Details regarding the proposed boreholes/monitoring wells are provided in the following table:

Table 2: Summary of Proposed Investigation Program

ID	Proposed Depth	Well Installation (Y/N)	Well Install Depth	Purpose
BH20-1	8.2 mbgs	Y	8.2 mbgs	Geotechnical Purposes
BH20-2	8.2 mbgs	Y	8.2 mbgs	Investigate APEC-2,3
BH20-3	6.7 mbgs	Y	6.7 mbgs	Investigate APEC-2,3
BH20-4	6.7 mbgs	Y	6.7 mbgs	Investigate APEC-3,4
BH20-5	9.7 mbgs	Y	9.7 mbgs	Geotechnical Purposes
BH20-6	8.2 mbgs	Y	8.2 mbgs	Geotechnical Purposes
BH20-8	8.2 mbgs	N	-	Geotechnical Purposes
BH20-9	8.2 mbgs	Y	8.2 mbgs	Geotechnical Purposes
SS1	0.0 – 0.3 mbgs	N	-	Investigate APEC-1
SS2	0.0 – 0.3 mbgs	N	-	Investigate APEC-1
SS3	0.0 – 0.3 mbgs	N	-	Investigate APEC-1
SS4	0.0 – 0.3 mbgs	N	-	Investigate APEC-1
SS5	0.0 – 0.3 mbgs	N	-	Investigate APEC-1
SS6	0.0 – 0.3 mbgs	N	-	Investigate APEC-1

Prior to mobilizing a drilling rig, we will lay out the proposed borehole and clear the buried utilities and services by using Ontario One Call System in addition to private utility locates.

The borings will be advanced to the indicated depths using a combination of a truck/track mounted continuous flight auger machine. Samples will be retrieved by means of a 50 mm O.D. split-spoon barrel sampler at 0.75 metre intervals in the upper 3 metres and at 1.5

metres intervals below this level. The monitoring wells will be constructed using 50 mm I.D. PVC pipe, equipped with 3.1 m slotted screens and finished at the ground surface with flush mount well casings. A geodetic benchmark will be used to establish the elevation of each borehole. Drilling and sampling will conform to standard practice.

The Phase Two ESA involves the following principal tasks:

- Retain the services of public and private utility locaters to identify the locations of buried and overhead utility services prior to any excavation or demolition activities;
    - Certain underground utilities (such as those constructed or encased in plastic, fibreglass, clay, concrete pipe, untraceable cast iron, steel, and/or repaired services) cannot be traced by standard locating practices. DS will review all available Site Plans and/or "As Built" figures in an attempt to identify the locations of potential untraceable services. DS will not be held responsible for any damages to utility services that are not on the figures provided or cannot be located by standard utility locating practices;
- Advancement of boreholes as specified in Table 2. The proposed boreholes will be used to facilitate the collection of representative soil and groundwater samples, and to provide information regarding the Site-specific geological and hydrogeological conditions;
- All soil samples recovered during the proposed drilling activities will be field screened for visual and olfactory evidence of deleterious impacts and for the presence of petroleum hydrocarbon (PHC) and volatile organic compound (VOC) derived vapours using either a combustible gas detector (CGD) calibrated to hexane or a photo-ionization detector (PID) calibrated to isobutylene or equivalent;
- Measure the depth to groundwater levels in the monitoring wells installed, and monitor the wells for the presence/absence of non-aqueous phase liquid using an interface probe;
- Survey each of the monitoring wells to a geodetic datum;
- Develop and purge all of the monitoring wells installed;
- Submit soil samples from the newly advanced boreholes as follows:

Table 2: Summary of Proposed Soil Chemical Analysis

Borehole	Sample No	Sample Depth (mbgs)	Lab Analysis	Purpose
BH20-2	S1	0-0.6	Metals and ORPS, PAHs	Assess soil conditions (APEC-2,3)
	S7	6.1-6.7	PHCs, VOCs	Assess soil conditions (APEC-2,3)
BH20-3	S2	0.8-1.4	Metals and ORPs, PAHs	Assess soil conditions (APEC-2,3)
	S3	1.6-2.2	PHCs	Assess soil conditions (APEC-2,3)
	S6	4.6-5.2	PHCs, VOCs	Assess soil conditions (APEC-2,3)
BH20-4	S1	0-0.6	Metals and ORPs, PAHs	Assess soil conditions (APEC-3,4)
	S6	4.6-5.2	PHCs, VOCs	Assess soil conditions (APEC-3,4)
SS1	-	0.0-0.3	OCPs	Assess soil conditions (APEC-1)
SS2	-	0.0-0.3	OCPs	Assess soil conditions (APEC-1)
SS3	-	0.0-0.3	OCPs	Assess soil conditions (APEC-1)
SS4	-	0.0-0.3	OCPs	Assess soil conditions (APEC-1)
SS5	-	0.0-0.3	OCPs	Assess soil conditions (APEC-1)
SS6	-	0.0-0.3	OCPs	Assess soil conditions (APEC-1)

- Submit groundwater samples from the monitoring wells as follows:

Table 2: Summary of Proposed Groundwater Chemical Analysis

Well ID	Well Depth	Lab Analysis	Purpose
BH20-4	6.1 mbgs	Metals and ORPs, PHCs, VOCs	Assess Groundwater conditions (APEC-4)
BH20-2	8.2 mbgs	Metals and ORPs, PHCs, VOCs	Assess Groundwater conditions (APEC-2)

- A Quality Assurance and Quality Control (QAQC) program will be implemented, involving the collection and analysis of duplicate soil and groundwater samples and trip blanks at the frequency specified under O.Reg. 153/04 (as amended);
- A Phase Two ESA Report will be prepared upon receipt of all analytical results and groundwater monitoring data. The Phase Two ESA Report will be completed in general accordance with O.Reg. 153/04 (as amended).

It should be noted that drilling activities may result in some disturbance to the ground surface at the site. Precautions will be taken by the drilling contractor to minimize any

damage. The Client will be notified should there be cause to extend the borehole termination depth based on field observations. It is assumed that the site can be accessed at our convenience, during regular business hours. Prior notice will be sent to the client and site representative

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.

4. Closure

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.

Sincerely,

DS Consultants Ltd.

Drew Doak, B.Sc.E., P.Eng., QP_{ESA}
Environmental Project Manager

Appendix B

LOG OF BOREHOLE BH20-1

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857815.92 E 597082.44

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/27/2020

REF. NO.: 20-169-100
ENCL NO.: 2

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
279.8							
0.0 / 279.8	**TOPSOIL:** 300mm		1	SS	6		
0.3 / 279.0	**FILL:** sandy silt, trace gravel, dark brown, moist, loose						
0.8	**CLAYEY SILT TILL:** sandy, trace gravel, sand seams, brown, moist, very stiff to hard		2	SS	19		279
			3	SS	36		278
	trace cobble below 2.3m		4	SS	55		
			5	SS	32		276
275.3						W. L. 275.7 m Aug 06, 2020[1] W. L. 275.3 m Oct 22, 2020	
4.5 / 273.8	**SILTY CLAY:** trace sand, grey, very moist, very stiff		6	SS	17		274
6.0	**SILT:** trace clay, grey, wet, compact		7	SS	12	Filter Pack / Slotted Pipe	
271.6			8	SS	20		272
8.2	**END OF BOREHOLE:**						

Notes:
1) Water level at 4.5m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	4.11
Sept 8, 2020	4.24
Oct 22, 2020	4.51

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)

SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE

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

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 21/1/8

LOG OF BOREHOLE BH20-2

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857663.29 E 597311.06

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/27/2020

REF. NO.: 20-169-100
ENCL NO.: 3

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	ELEVATION
278.8					
278.6	**TOPSOIL:** 200mm				
0.2	**FILL:** sandy silt, trace gravel, brown, moist, loose	1	SS	8	
278.0					278
1 0.8	**CLAYEY SILT TILL:** sandy, trace gravel, sand seams, brown, moist, very stiff	2	SS	16	
		3	SS	19	277
2 276.5					
2.3	**SANDY SILT:** trace clay, brown, moist to very moist, very dense	4	SS	58	
3					276
		5	SS	58	
4					275
5		6	SS	66	274
6	wet below 6m	7	SS	51	
7					
8 270.6		8	SS	52	271
8.2	**END OF BOREHOLE:**				

Notes:
1) Water level at 6.1m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	6.12
Sept 8, 2020	6.36
Oct 22, 2020	6.48

Bentonite
Filter Pack
Slotted Pipe
W. L. 272.7 m Aug 06, 2020
W. L. 272.3 m Oct 22, 2020

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE
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

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 21/1/8

LOG OF BOREHOLE BH20-3

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857648.82 E 597335.94

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/27/2020

REF. NO.: 20-169-100
ENCL NO.: 4

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS
278.6					
0.0 / 278.3	**TOPSOIL:** 300mm				
0.3 / 277.8	**FILL:** sandy silt, trace gravel, brown, moist, compact	1	SS	10	
0.8	**SILTY CLAY TILL:** sandy, trace gravel, sand seams, brown, moist, stiff	2	SS	13	
		3	SS	10	
276.3					
2.3	**SILTY SAND:** trace clay, grey, moist, compact to very dense	4	SS	15	
		5	SS	35	
	wet below 4.5m	6	SS	65	
		7	SS	49	
271.9					
6.7	**END OF BOREHOLE:**				

Notes:
1) Water level at 4.5m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	6.0
Sept 8, 2020	dry
Oct 22, 2020	dry

ELEVATION: 278, 277, 276, 275, 273, 272

Bentonite
Filter Pack
Slotted Pipe
W. L. 272.6 m
Aug 06, 2020

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × 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

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH20-4

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857717.02 E 597386.34

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/27/2020

REF. NO.: 20-169-100
ENCL NO.: 5

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
277.1							
0.0 / 276.8	**CONCRETE:** 300mm		1	SS	8		
0.3 / 276.3	**FILL:** clayey silt, trace gravel, grey to brown, moist, stiff						
0.8	**SANDY SILT:** trace clay, brown, moist, compact to very dense		2	SS	21		276
			3	SS	42		275
			4	SS	62		274
			5	SS	56		
	wet below 4.5m		6	SS	46		272
271.1							
6.0 / 270.4	**SANDY SILT:** trace silt, brown, wet, compact		7	SS	28		271
6.7	**END OF BOREHOLE:**						

Bentonite
Slotted Pipe
W. L. 273.3 m Aug 06, 2020[1]
Sep 08, 2020

Notes:
1) Water level at 4.5m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	3.77
Sept 8, 2020	3.90
Oct 22, 2020	inaccessible

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × 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

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 21/1/8

LOG OF BOREHOLE BH20-5

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858369.55 E 597438.77

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/29/2020

REF. NO.: 20-169-100
ENCL NO.: 6

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS "N" 0.3 m	ELEVATION
273.0					
272.9 0.0	**TOPSOIL:** 250mm				
0.3 272.2	**FILL:** sandy silt, trace topsoil/ organics, trace gravel, trace rootlets, brown, moist, compact	1	SS	15	
0.8	**SILTY CLAY TILL:** sandy, trace gravel, frequent sand seams, brown, moist, hard	2	SS	35	272
		3	SS	31	271
270.0		4	SS	39	
3.0	**CLAYEY SILT TILL:** sandy, trace gravel, interbed of sandy silt layers, greyish brown, moist to very moist, hard	5	SS	35	W. L. 270.2 m Aug 06, 2020 W. L. 269.9 m Sep 08, 2020 W. L. 269.6 m Oct 22, 2020
	grey below 4.5m	6	SS	37	269
	sand seams below 6m	7	SS	46	268
265.5					267
7.5	**SILTY SAND:** trace clay, grey, moist, very dense	8	SS	74/ 280mm	266
	very moist at 9m	9	SS	59	264
263.3					
9.7	**END OF BOREHOLE:**				

Notes:
1) Water level at 9.1m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	2.78
Sept 8, 2020	3.09
Oct 22, 2020	3.38

Filter Pack
Slotted Pipe

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × 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
8	0	51	47	2

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 21/1/8

LOG OF BOREHOLE BH20-6

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857501.44 E 597524.2

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/28/2020

REF. NO.: 20-169-100
ENCL NO.: 7

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION
271.0 0.0	**TOPSOIL:** 250mm						
270.7 0.3	**FILL:** sandy silt, trace topsoil/ organics, trace gravel, trace rootlets, dark brown, moist, loose		1	SS	8		
270.2 0.8	**CLAYEY SILT TILL:** sandy, trace gravel, sand seams, brown, moist, stiff to hard		2	SS	12		270
			3	SS	21	W. L. 269.8 m Sep 08, 2020	269
	hard below 2.3m		4	SS	59		
						Bentonite	268
			5	SS	58		
							267
	grey below 4.5m		6	SS	31		266
							265
			7	SS	39	Filter Pack	
						W. L. 264.2 m Aug 06, 2020	
262.8 8.2	**END OF BOREHOLE:**		8	SS	25		263

Notes:
1) Borehole dry during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	6.77
Sept 8, 2020	1.15

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE

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

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 21/1/8

LOG OF BOREHOLE BH20-8

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857701.02 E 597673.81

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/28/2020

REF. NO.: 20-169-100
ENCL NO.: 9

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS / 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
277.2								
0.0 / 276.8	**TOPSOIL:** 340mm		1	SS	8		277	
0.4 / 276.4	**FILL:** sandy silt, trace topsoil/ organics, trace gravel, brown, moist, loose							
1 0.8 / 275.7	**CLAYEY SILT TILL:** sandy, trace gravel, brown, moist, compact		2	SS	10		276	
1.5	**SILT:** some clay, trace sand, trace gravel, brown, very moist, compact to very dense		3	SS	19			
2			4	SS	58		275	2 2 85 11
3			5	SS	92/ 255mm		274	
4							273	
5			6	SS	74			
271.2							272	
6.0	**SANDY SILT:** trace clay, brown, wet, very dense		7	SS	62		271	0 27 67 6
7							270	
8 / 269.0			8	SS	54		269	
8.2	**END OF BOREHOLE:** Notes: 1) Water at depth of 6.1m during drilling.							

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)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 21/1/8

LOG OF BOREHOLE BH20-9

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857946.64 E 597876.44

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/28/2020

REF. NO.: 20-169-100
ENCL NO.: 10

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS 0.3 m
274.1 / 0.0	**TOPSOIL:** 550mm	1	SS	5
273.6 / 0.6	**FILL:** sandy silt, trace topsoil/ organics, trace clay, trace gravel, trace organics, trace rootlets, dark brown, moist, loose	2	SS	16
273.3 / 0.8	**SILTY CLAY TILL:** some sand, trace gravel, brown, moist, very stiff to hard	3	SS	25
	sand seams below 2.3m	4	SS	38
		5	SS	72
	grey below 4.5m	6	SS	45
	trace cobble, very moist below 6m	7	SS	24
266.6 / 7.5	**SANDY SILT:** trace clay, grey, wet, compact	8	SS	29
265.9 / 8.2	**END OF BOREHOLE:**			

Notes:
1) Water level at 7.6m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	4.43
Sept 8, 2020	4.72
Oct 22, 2020	4.97

ELEVATION: 274, 273, 272, 271, 270, 268, 267, 266

Bentonite
W. L. 269.7 m Aug 06, 2020
W. L. 269.1 m Oct 22, 2020
Filter Pack
Slotted Pipe

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

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

Appendix C

FINAL REPORT

CA15768-JUL20 R

20-169-100

Prepared for

DS Consultants

FINAL REPORT

CA15768-JUL20 R

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Garda	Telephone	705-652-2143
Telephone	905-264-9393	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	brad.moore@sgs.com
Email	dorothy.garda@dsconsultants.ca	SGS Reference	CA15768-JUL20
Project	20-169-100	Received	07/29/2020
Order Number		Approved	08/07/2020
Samples	Soil (7)	Report Number	CA15768-JUL20 R
		Date Reported	08/07/2020

COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

Benzo(b)fluoranthene results for comparison to the standard are reported as benzo(b+j)fluoranthene. Benzo(b)fluoranthene and benzo(j)fluoranthene co-elute and cannot be reported individually by the analytical method used.

Temperature of Sample upon Receipt: 9 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:NA

SIGNATORIES

Brad Moore Hon. B.Sc

TABLE OF CONTENTS

PACKAGE: **REG153 - BTEX** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number				10	12	13	16
Sample Name				BH20-2 S7	BH20-3 S3	BH20-3 S6	BH20-4 S6
Sample Matrix				Soil	Soil	Soil	Soil
Sample Date				28/07/2020	28/07/2020	28/07/2020	28/07/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
BTEX							
Benzene	µg/g	0.02	0.21	< 0.02	< 0.02	< 0.02	< 0.02
Ethylbenzene	µg/g	0.05	1.1	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	µg/g	0.05	2.3	< 0.05	< 0.05	< 0.05	< 0.05
Xylene (total)	µg/g	0.05	3.1	< 0.05	< 0.05	< 0.05	< 0.05
m/p-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05
o-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05

PACKAGE: **REG153 - Hydrides** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number				9	11	15
Sample Name				BH20-2 S1	BH20-3 S2	BH20-4 S1
Sample Matrix				Soil	Soil	Soil
Sample Date				28/07/2020	28/07/2020	28/07/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
Hydrides						
Antimony	µg/g	0.8	7.5	< 0.8	< 0.8	< 0.8
Arsenic	µg/g	0.5	18	5.1	4.0	3.1
Selenium	µg/g	0.7	2.4	< 0.7	< 0.7	< 0.7

Client: DS Consultants
Project: 20-169-100
Project Manager: Dorothy Garda
Samplers: Dorthy Garda

PACKAGE: **REG153 - Metals and Inorganics** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number				9	10	11	12	13	15	16	
Sample Name				BH20-2 S1	BH20-2 S7	BH20-3 S2	BH20-3 S3	BH20-3 S6	BH20-4 S1	BH20-4 S6	
Sample Matrix				Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Sample Date				28/07/2020	28/07/2020	28/07/2020	28/07/2020	28/07/2020	28/07/2020	28/07/2020	
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	
Metals and Inorganics											
Moisture Content	%	-		6.8	18.0	14.7	18.0	17.1	16.9	20.7	
Barium	µg/g	0.1	390	59		81			50		
Beryllium	µg/g	0.02	4	0.67		1.1			0.82		
Boron	µg/g	1	120	6		10			6		
Cadmium	µg/g	0.02	1.2	0.19		0.09			0.07		
Chromium	µg/g	0.5	160	15		21			17		
Cobalt	µg/g	0.01	22	7.3		11			6.5		
Copper	µg/g	0.1	140	16		23			18		
Lead	µg/g	0.1	120	45		9.1			6.2		
Molybdenum	µg/g	0.1	6.9	0.3		0.2			0.3		
Nickel	µg/g	0.5	100	13		24			15		
Silver	µg/g	0.05	20	< 0.05		< 0.05			< 0.05		
Thallium	µg/g	0.02	1	0.10		0.13			0.08		
Uranium	µg/g	0.002	23	0.29		0.47			0.43		
Vanadium	µg/g	3	86	22		29			25		
Zinc	µg/g	0.7	340	57		49			32		
Water Soluble Boron	µg/g	0.5	1.5	< 0.5		< 0.5			< 0.5		

Client: DS Consultants
Project: 20-169-100
Project Manager: Dorothy Garda
Samplers: Dorthy Garda

PACKAGE: **REG153 - Other (ORP)** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

	Sample Number			9	11	15
	Sample Name			BH20-2 S1	BH20-3 S2	BH20-4 S1
	Sample Matrix			Soil	Soil	Soil
	Sample Date			28/07/2020	28/07/2020	28/07/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
Other (ORP)						
Mercury	µg/g	0.05	0.27	0.09	< 0.05	< 0.05
Sodium Adsorption Ratio	No unit	0.2	5	< 0.2	< 0.2	< 0.2
SAR Calcium	mg/L	0.09		< 0.09	19.0	39.1
SAR Magnesium	mg/L	0.02		< 0.02	3.2	0.42
SAR Sodium	mg/L	0.15		< 0.15	1.8	1.6
Conductivity	mS/cm	0.002	0.7	0.16	0.13	0.40
pH	pH Units	0.05		7.05	7.66	7.59
Chromium VI	µg/g	0.2	8	< 0.2	0.2	0.3
Free Cyanide	µg/g	0.05	0.051	< 0.05	< 0.05	< 0.05

Client: DS Consultants

Project: 20-169-100

Project Manager: Dorothy Garda

Samplers: Dorthy Garda

PACKAGE: **REG153 - PAHs** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

	Sample Number			9	11	15
	Sample Name			BH20-2 S1	BH20-3 S2	BH20-4 S1
	Sample Matrix			Soil	Soil	Soil
	Sample Date			28/07/2020	28/07/2020	28/07/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
PAHs						
Acenaphthene	µg/g	0.05	7.9	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/g	0.05	0.15	< 0.05	< 0.05	< 0.05
Anthracene	µg/g	0.05	0.67	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/g	0.05	0.5	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	µg/g	0.05	0.3	< 0.05	< 0.05	< 0.05
Benzo(b+j)fluoranthene	µg/g	0.05	0.78	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	µg/g	0.1	6.6	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/g	0.05	0.78	< 0.05	< 0.05	< 0.05
Chrysene	µg/g	0.05	7	< 0.05	< 0.05	< 0.05
Dibenzo(a,h)anthracene	µg/g	0.06	0.1	< 0.06	< 0.06	< 0.06
Fluoranthene	µg/g	0.05	0.69	< 0.05	< 0.05	< 0.05
Fluorene	µg/g	0.05	62	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.1	0.38	< 0.1	< 0.1	< 0.1
1-Methylnaphthalene	µg/g	0.05		< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/g	0.05		< 0.05	< 0.05	< 0.05
Methylnaphthalene, 2-(1-)	µg/g	0.05	0.99	< 0.05	< 0.05	< 0.05
Naphthalene	µg/g	0.05	0.6	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/g	0.05	6.2	< 0.05	< 0.05	< 0.05
Pyrene	µg/g	0.05	78	< 0.05	< 0.05	< 0.05

Client: DS Consultants
Project: 20-169-100
Project Manager: Dorothy Garda
Samplers: Dorthy Garda

PACKAGE: **REG153 - PHCs** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

			Sample Number	10	12	13	16
			Sample Name	BH20-2 S7	BH20-3 S3	BH20-3 S6	BH20-4 S6
			Sample Matrix	Soil	Soil	Soil	Soil
			Sample Date	28/07/2020	28/07/2020	28/07/2020	28/07/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
PHCs							
F1 (C6-C10)	µg/g	10	55	< 10	< 10	< 10	< 10
F1-BTEX (C6-C10)	µg/g	10		< 10	< 10	< 10	< 10
F2 (C10-C16)	µg/g	10	98	< 10	< 10	< 10	< 10
F3 (C16-C34)	µg/g	50	300	< 50	< 50	< 50	< 50
F4 (C34-C50)	µg/g	50	2800	< 50	< 50	< 50	< 50
Chromatogram returned to baseline at nC50	Yes / No	-		YES	YES	YES	YES

PACKAGE: **REG153 - SVOC Surrogates** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

			Sample Number	9	11	15
			Sample Name	BH20-2 S1	BH20-3 S2	BH20-4 S1
			Sample Matrix	Soil	Soil	Soil
			Sample Date	28/07/2020	28/07/2020	28/07/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
SVOC Surrogates						
Surr Nitrobenzene-d5	Surr Rec %	-		84	80	81
Surr 2-Fluorobiphenyl	Surr Rec %	-		85	74	78
Surr 4-Terphenyl-d14	Surr Rec %	-		90	84	85
Surr 2-Fluorophenol	Surr Rec %	-		69	77	80
Surr Phenol-d6	Surr Rec %	-		77	80	83
Surr 2,4,6-Tribromophenol	Surr Rec %	-		71	76	72

PACKAGE: **REG153 - THMs (VOC)** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

			Sample Number	10	13	16
			Sample Name	BH20-2 S7	BH20-3 S6	BH20-4 S6
			Sample Matrix	Soil	Soil	Soil
			Sample Date	28/07/2020	28/07/2020	28/07/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
THMs (VOC)						
Bromodichloromethane	µg/g	0.05	1.5	< 0.05	< 0.05	< 0.05
Bromoform	µg/g	0.05	0.27	< 0.05	< 0.05	< 0.05
Dibromochloromethane	µg/g	0.05	2.3	< 0.05	< 0.05	< 0.05

PACKAGE: **REG153 - VOC Surrogates** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

			Sample Number	10	13	16
			Sample Name	BH20-2 S7	BH20-3 S6	BH20-4 S6
			Sample Matrix	Soil	Soil	Soil
			Sample Date	28/07/2020	28/07/2020	28/07/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
VOC Surrogates						
Surr 1,2-Dichloroethane-d4	Surr Rec %	-		102	100	103
Surr 4-Bromofluorobenzene	Surr Rec %	-		94	94	95
Surr 2-Bromo-1-Chloropropane	Surr Rec %	-		89	87	90

PACKAGE: **REG153 - VOCs** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

			Sample Number	10	13	16
			Sample Name	BH20-2 S7	BH20-3 S6	BH20-4 S6
			Sample Matrix	Soil	Soil	Soil
			Sample Date	28/07/2020	28/07/2020	28/07/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
VOCs						
Acetone	µg/g	0.5	16	< 0.5	< 0.5	< 0.5
Bromomethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
Carbon tetrachloride	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
Chlorobenzene	µg/g	0.05	2.4	< 0.05	< 0.05	< 0.05

Client: DS Consultants
Project: 20-169-100
Project Manager: Dorothy Garda
Samplers: Dorthy Garda

PACKAGE: **REG153 - VOCs** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

	Sample Number	10	13	16		
	Sample Name	BH20-2 S7	BH20-3 S6	BH20-4 S6		
	Sample Matrix	Soil	Soil	Soil		
	Sample Date	28/07/2020	28/07/2020	28/07/2020		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
VOCs (continued)						
Chloroform	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/g	0.05	1.2	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/g	0.05	4.8	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/g	0.05	0.083	< 0.05	< 0.05	< 0.05
Dichlorodifluoromethane	µg/g	0.05	16	< 0.05	< 0.05	< 0.05
1,1-Dichloroethane	µg/g	0.05	0.47	< 0.05	< 0.05	< 0.05
1,2-Dichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
1,1-Dichloroethylene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
trans-1,2-Dichloroethylene	µg/g	0.05	0.084	< 0.05	< 0.05	< 0.05
cis-1,2-Dichloroethylene	µg/g	0.05	1.9	< 0.05	< 0.05	< 0.05
1,2-Dichloropropane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
cis-1,3-dichloropropene	µg/g	0.03		< 0.03	< 0.03	< 0.03
trans-1,3-dichloropropene	µg/g	0.03		< 0.03	< 0.03	< 0.03
1,3-dichloropropene (total)	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
Ethylenedibromide	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
n-Hexane	µg/g	0.05	2.8	< 0.05	< 0.05	< 0.05
Methyl ethyl ketone	µg/g	0.5	16	< 0.5	< 0.5	< 0.5
Methyl isobutyl ketone	µg/g	0.5	1.7	< 0.5	< 0.5	< 0.5
Methyl-t-butyl Ether	µg/g	0.05	0.75	< 0.05	< 0.05	< 0.05
Methylene Chloride	µg/g	0.05	0.1	< 0.05	< 0.05	< 0.05
Styrene	µg/g	0.05	0.7	< 0.05	< 0.05	< 0.05
Tetrachloroethylene	µg/g	0.05	0.28	< 0.05	< 0.05	< 0.05
1,1,1,2-Tetrachloroethane	µg/g	0.05	0.058	< 0.05	< 0.05	< 0.05

PACKAGE: **REG153 - VOCs** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

			Sample Number	10	13	16
			Sample Name	BH20-2 S7	BH20-3 S6	BH20-4 S6
			Sample Matrix	Soil	Soil	Soil
			Sample Date	28/07/2020	28/07/2020	28/07/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
VOCs (continued)						
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
1,1,1-Trichloroethane	µg/g	0.05	0.38	< 0.05	< 0.05	< 0.05
1,1,2-Trichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
Trichloroethylene	µg/g	0.05	0.061	< 0.05	< 0.05	< 0.05
Trichlorofluoromethane	µg/g	0.05	4	< 0.05	< 0.05	< 0.05
Vinyl Chloride	µg/g	0.02	0.02	< 0.02	< 0.02	< 0.02

EXCEEDANCE SUMMARY

No exceedances are present above the regulatory limit(s) indicated

QC SUMMARY

Conductivity

Method: EPA 6010/SM 2510 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0464-JUL20	mS/cm	0.002	<0.002	0	10	98	90	110	NA		

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Free Cyanide	SKA5125-JUL20	µg/g	0.05	<0.05	NV	20	103	80	120	104	75	125

Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-IENVISKA-LAK-AN-012

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA5000-AUG20	ug/g	0.2	<0.2	ND	20	90	80	120	89	75	125

QC SUMMARY

Mercury by CVAAS

Method: EPA 7471A/EPA 245 I Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury	EMS0162-JUL20	µg/g	0.05	<0.05	ND	20	107	80	120	99	70	130

Metals in aqueous samples - ICP-OES

Method: MOE 4696e01/EPA 6010 I Internal ref.: ME-CA-IENVISPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
SAR Calcium	ESG0093-JUL20	mg/L	0.09	<0.09	10	20	97	80	120	96	70	130
SAR Magnesium	ESG0093-JUL20	mg/L	0.02	<0.02	20	20	96	80	120	99	70	130
SAR Sodium	ESG0093-JUL20	mg/L	0.15	<0.15	6	20	94	80	120	102	70	130

QC SUMMARY

Metals in Soil - Aqua-regia/ICP-MS

Method: EPA 3050/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0162-JUL20	ug/g	0.05	<0.05	ND	20	100	70	130	103	70	130
Arsenic	EMS0162-JUL20	µg/g	0.5	<0.5	8	20	101	70	130	106	70	130
Barium	EMS0162-JUL20	ug/g	0.1	<0.1	14	20	106	70	130	107	70	130
Beryllium	EMS0162-JUL20	µg/g	0.02	<0.02	11	20	103	70	130	102	70	130
Boron	EMS0162-JUL20	µg/g	1	<1	9	20	98	70	130	91	70	130
Cadmium	EMS0162-JUL20	µg/g	0.02	<0.02	9	20	98	70	130	107	70	130
Cobalt	EMS0162-JUL20	µg/g	0.01	<0.01	0	20	104	70	130	118	70	130
Chromium	EMS0162-JUL20	µg/g	0.5	<0.5	1	20	99	70	130	112	70	130
Copper	EMS0162-JUL20	µg/g	0.1	<0.1	2	20	108	70	130	117	70	130
Molybdenum	EMS0162-JUL20	µg/g	0.1	<0.1	5	20	91	70	130	107	70	130
Nickel	EMS0162-JUL20	ug/g	0.5	<0.5	1	20	101	70	130	113	70	130
Lead	EMS0162-JUL20	ug/g	0.1	<0.1	1	20	100	70	130	102	70	130
Antimony	EMS0162-JUL20	µg/g	0.8	<0.8	ND	20	97	70	130	109	70	130
Selenium	EMS0162-JUL20	µg/g	0.7	<0.7	ND	20	105	70	130	105	70	130
Thallium	EMS0162-JUL20	µg/g	0.02	<0.02	2	20	102	70	130	103	70	130
Uranium	EMS0162-JUL20	µg/g	0.002	<0.002	1	20	96	70	130	93	70	130
Vanadium	EMS0162-JUL20	µg/g	3	<3	1	20	95	70	130	104	70	130
Zinc	EMS0162-JUL20	µg/g	0.7	<0.7	3	20	103	70	130	107	70	130

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 I Internal ref.: ME-CA-IENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0528-JUL20	µg/g	10	<10	ND	30	88	80	120	100	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 I Internal ref.: ME-CA-IENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0043-AUG20	µg/g	10	<10	ND	30	110	80	120	102	60	140
F3 (C16-C34)	GCM0043-AUG20	µg/g	50	<50	ND	30	110	80	120	102	60	140
F4 (C34-C50)	GCM0043-AUG20	µg/g	50	<50	ND	30	110	80	120	102	60	140
F2 (C10-C16)	GCM0533-JUL20	µg/g	10	<10	ND	30	112	80	120	114	60	140
F3 (C16-C34)	GCM0533-JUL20	µg/g	50	<50	14	30	112	80	120	114	60	140
F4 (C34-C50)	GCM0533-JUL20	µg/g	50	<50	20	30	112	80	120	114	60	140

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	ARD0113-JUL20	pH Units	0.05		0	20	100	80	120			

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3541/8270D | Internal ref.: ME-CA-IENVIGC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1-Methylnaphthalene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	86	50	140	86	50	140
2-Methylnaphthalene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	82	50	140	82	50	140
Acenaphthene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	91	50	140	91	50	140
Acenaphthylene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	91	50	140	93	50	140
Anthracene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	88	50	140	88	50	140
Benzo(a)anthracene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	87	50	140	88	50	140
Benzo(a)pyrene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	92	50	140	94	50	140
Benzo(b+j)fluoranthene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	87	50	140	94	50	140
Benzo(ghi)perylene	GCM0001-AUG20	µg/g	0.1	< 0.1	ND	40	87	50	140	58	50	140
Benzo(k)fluoranthene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	88	50	140	93	50	140
Chrysene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	89	50	140	89	50	140
Dibenzo(a,h)anthracene	GCM0001-AUG20	µg/g	0.06	< 0.06	ND	40	85	50	140	65	50	140
Fluoranthene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	92	50	140	91	50	140
Fluorene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	89	50	140	88	50	140
Indeno(1,2,3-cd)pyrene	GCM0001-AUG20	µg/g	0.1	< 0.1	ND	40	83	50	140	65	50	140
Naphthalene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	87	50	140	86	50	140
Phenanthrene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	89	50	140	89	50	140
Pyrene	GCM0001-AUG20	µg/g	0.05	< 0.05	ND	40	94	50	140	94	50	140

QC SUMMARY

Volatile Organics

Method: EPA 5035A/5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	98	60	130	85	50	140
1,1,1-Trichloroethane	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	95	60	130	85	50	140
1,1,2,2-Tetrachloroethane	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	100	60	130	55	50	140
1,1,2-Trichloroethane	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	98	60	130	85	50	140
1,1-Dichloroethane	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	92	60	130	83	50	140
1,1-Dichloroethylene	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	86	60	130	79	50	140
1,2-Dichlorobenzene	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	100	60	130	86	50	140
1,2-Dichloroethane	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	97	60	130	86	50	140
1,2-Dichloropropane	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	97	60	130	85	50	140
1,3-Dichlorobenzene	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	99	60	130	85	50	140
1,4-Dichlorobenzene	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	98	60	130	85	50	140
Acetone	GCM0527-JUL20	µg/g	0.5	< 0.5	ND	50	93	50	140	86	50	140
Benzene	GCM0527-JUL20	µg/g	0.02	< 0.02	ND	50	96	60	130	86	50	140
Bromodichloromethane	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	98	60	130	84	50	140
Bromoform	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	97	60	130	79	50	140
Bromomethane	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	92	50	140	75	50	140
Carbon tetrachloride	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	95	60	130	84	50	140
Chlorobenzene	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	97	60	130	85	50	140
Chloroform	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	95	60	130	85	50	140
cis-1,2-Dichloroethylene	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	95	60	130	84	50	140

QC SUMMARY

Volatile Organics (continued)

Method: EPA 5035A/5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-dichloropropene	GCM0527-JUL20	µg/g	0.03	< 0.03	ND	50	100	60	130	81	50	140
Dibromochloromethane	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	98	60	130	83	50	140
Dichlorodifluoromethane	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	95	50	140	88	50	140
Ethylbenzene	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	97	60	130	86	50	140
Ethylenedibromide	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	99	60	130	85	50	140
n-Hexane	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	99	60	130	86	50	140
m/p-xylene	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	97	60	130	86	50	140
Methyl ethyl ketone	GCM0527-JUL20	µg/g	0.5	< 0.5	ND	50	99	50	140	84	50	140
Methyl isobutyl ketone	GCM0527-JUL20	µg/g	0.5	< 0.5	ND	50	101	50	140	86	50	140
Methyl-t-butyl Ether	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	99	60	130	87	50	140
Methylene Chloride	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	92	60	130	81	50	140
o-xylene	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	97	60	130	86	50	140
Styrene	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	98	60	130	86	50	140
Tetrachloroethylene	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	97	60	130	85	50	140
Toluene	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	97	60	130	86	50	140
trans-1,2-Dichloroethylene	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	91	60	130	81	50	140
trans-1,3-dichloropropene	GCM0527-JUL20	µg/g	0.03	< 0.03	ND	50	100	60	130	80	50	140
Trichloroethylene	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	96	60	130	110	50	140
Trichlorofluoromethane	GCM0527-JUL20	µg/g	0.05	< 0.05	ND	50	93	50	140	88	50	140
Vinyl Chloride	GCM0527-JUL20	µg/g	0.02	< 0.02	ND	50	95	50	140	85	50	140

QC SUMMARY

Water Soluble Boron

Method: O.Reg. 15 3/04 | Internal ref.: ME-CA-IENVI SPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Water Soluble Boron	ESG0009-AUG20	µg/g	0.5	<0.5	ND	20	91	80	120	96	70	130

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No:

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Cindy Brault
Received Date: 07/29/20 (mm/dd/yy)
Received Time: 14:05 (hr : min)
Received By (signature): Cindy Brault
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: ice
Temperature Upon Receipt (°C) 9.9.9
LAB LIMS #: LA15768-JU20

REPORT INFORMATION	INVOICE INFORMATION
Company: DS	☒ (same as Report Information)
Contact: Dorothy Garda	Company:
Address: 16-6221 Hwy 7, Vaughan, ON	Contact:
Phone: (905) 329-7735	Address:
Fax:	Phone:
Email: dorothy.garda@ontario.ca	Email: accounting

Quotation #: P.O. #:
Project #: Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☐ Regular TAT (5-7days) — TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

Regulation 153/04: ☐ Table 1 ☒ Table 2 ☐ Table 3 ☐ Table ____ | ☒ Res/Park ☐ Ind/Com ☐ Agri/Other | Soil Texture: ☐ Coarse ☐ Medium/Fine

Other Regulations: ☐ Reg 347/558 (3 Day min TAT) ☐ PWQO ☐ MMER ☐ CCME ☐ Other: ☐ MISA

Sewer By-Law: ☐ Sanitary ☐ Storm Municipality:

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX
1	BH20-2 S1	28/07/20		2	Soil
2	BH20-2 S7			3	
3	BH20-3 S2			2	
4	BH20-3 S3			1	
5	BH20-3 S6			3	
6	BH20-3 S7			3	
7	BH20-4 S1			2	
8	BH20-4 S6			3	
9					
10					
11					
12					

	Field Filtered (Y/N)	M&I: Metals & Inorganics (incl CrVI, CN, Hg pH (BH+MS),EC,SAR-soil (Cl, Na-water)	M&I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI	M&I: ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn	SVOC: PAHs only	SVOC: SVOCs all incl PAHs, ABNs, CPs	PCB: PCBs Aroclor ☐ Total ☐	PHC: F1-F4 + BTEX	PHC: F1-F4 only no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides Organochlorine or specify other	Other (please specify)	Other	Other	Other	Other	Other: Sewer Use: Specify pkg:	Other: Water Characterization Pkg General ☐ Extended ☐	TCLP: Specify TCLP tests ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.	COMMENTS:
1		X			X																
2								X		X											
3		X			X																
4								X													
5								X		X											
6								X		X											Hold
7		X			X																
8								X		X											
9																					
10																					
11																					
12																					

Observations/Comments/Special Instructions

Sampled By (NAME): Dorothy Garda	Signature:	Date: 07/28/20 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): Dorothy Garda	Signature:	Date: 07/28/20 (mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.3
Date of Issue: 13 Oct, 2019

FINAL REPORT

CA12523-SEP20 R

20-169-110

Prepared for

DS Consultants

FINAL REPORT

CA12523-SEP20 R

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Drew Doak	Telephone	2165
Telephone	905-264-9393	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	jill.campbell@sgs.com
Email	drew.doak@dsconsultants.ca	SGS Reference	CA12523-SEP20
Project	20-169-110	Received	09/11/2020
Order Number		Approved	09/18/2020
Samples	Soil (6)	Report Number	CA12523-SEP20 R
		Date Reported	09/18/2020

COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

Benzo(b)fluoranthene results for comparison to the standard are reported as benzo(b+j)fluoranthene. Benzo(b)fluoranthene and benzo(j)fluoranthene co-elute and cannot be reported individually by the analytical method used.

Temperature of Sample upon Receipt: 4 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:NA

Pesticides QC Batch WSHSEP253 - Matrix Spike: Reported NV for the following compounds Hexachloroethane,Heptachlor, Endrin, o,p-DDT, 4,4-DDT, Methoxychlor, gamma-BHC due to sample matrix. The overall quality control for this analysis has been assessed and meets method acceptability criteria.

SIGNATORIES

Jill Campbell, B.Sc.,GISAS

TABLE OF CONTENTS

Client: DS Consultants
Project: 20-169-110
Project Manager: Drew Doak
Samplers: Scott Watson

PACKAGE: **REG153 - Metals and Inorganics** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Industrial/Commercial - UNDEFINED

Parameter	Units	RL	L1	Sample Number	9	10	11	12	13	14
				Sample Name	SS1	SS2	SS3	SS4	SS5	SS6
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	03/09/2020	03/09/2020	03/09/2020	03/09/2020	03/09/2020	03/09/2020
Metals and Inorganics										
Moisture Content	%	-			11.7	8.8	8.9	13.6	16.0	16.8

PACKAGE: **REG153 - Organochlorine Pests (OCs)** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Industrial/Commercial - UNDEFINED

Parameter	Units	RL	L1	Sample Number	9	10	11	12	13	14
				Sample Name	SS1	SS2	SS3	SS4	SS5	SS6
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	03/09/2020	03/09/2020	03/09/2020	03/09/2020	03/09/2020	03/09/2020
Organochlorine Pests (OCs)										
Aldrin	µg/g	0.05	0.088		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
alpha-Chlordane	µg/g	0.02			< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
gamma-Chlordane	µg/g	0.02			< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Chlordane (total)	µg/g	0.05	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
o,p-DDD	µg/g	0.02			< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
pp-DDD	µg/g	0.02			< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
DDD (total)	µg/g	0.05	4.6		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
o,p-DDE	µg/g	0.02			< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
pp-DDE	µg/g	0.02			< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
DDE (total)	µg/g	0.05	0.52		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
op-DDT	µg/g	0.02			< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
pp-DDT	µg/g	0.02			< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
DDT (total)	µg/g	0.05	1.4		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	µg/g	0.05	0.088		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
gamma-BHC	µg/g	0.01	0.056		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Client: DS Consultants
Project: 20-169-110
Project Manager: Drew Doak
Samplers: Scott Watson

PACKAGE: **REG153 - Organochlorine Pests (OCs)** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Industrial/Commercial - UNDEFINED

	Sample Number			9	10	11	12	13	14		
	Sample Name			SS1	SS2	SS3	SS4	SS5	SS6		
	Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil		
	Sample Date			03/09/2020	03/09/2020	03/09/2020	03/09/2020	03/09/2020	03/09/2020		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**		
Organochlorine Pests (OCs) (continued)											
Endosulfan I	µg/g	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02		
Endosulfan II	µg/g	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02		
Endosulfan (total)	µg/g	0.04	0.3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04		
Endrin	µg/g	0.04	0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04		
Heptachlor	µg/g	0.01	0.19	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
Heptachlor epoxide	µg/g	0.01	0.05	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
Hexachlorobenzene	µg/g	0.01	0.66	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
Hexachlorobutadiene	µg/g	0.01	0.031	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
Hexachloroethane	µg/g	0.01	0.21	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01		
Methoxychlor	µg/g	0.05	1.6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		

Client: DS Consultants

Project: 20-169-110

Project Manager: Drew Doak

Samplers: Scott Watson

PACKAGE: **REG153 - Pesticides Surrogate** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Industrial/Commercial - UNDEFINED

			Sample Number	9	10	11	12	13	14
			Sample Name	SS1	SS2	SS3	SS4	SS5	SS6
			Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil
			Sample Date	03/09/2020	03/09/2020	03/09/2020	03/09/2020	03/09/2020	03/09/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Pesticides Surrogate									
Surr Decachlorobiphenyl	Surr Rec %	-		114	107	111	104	75	112

PACKAGE: **REG153 - VOC Surrogates** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Industrial/Commercial - UNDEFINED

			Sample Number	9	10	11	12	13	14
			Sample Name	SS1	SS2	SS3	SS4	SS5	SS6
			Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil
			Sample Date	03/09/2020	03/09/2020	03/09/2020	03/09/2020	03/09/2020	03/09/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
VOC Surrogates									
Surr TCMX	Surr Rec %	-		100	93	95	90	69	92

EXCEEDANCE SUMMARY

No exceedances are present above the regulatory limit(s) indicated

QC SUMMARY

Pesticides

Method: EPA 3541/8270D | Internal ref.: ME-CA-IENVIGC-LAK-AN-018

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Aldrin	GCM0253-SEP20	µg/g	0.05	< 0.05	ND	40	95	50	140	80	50	140
alpha-Chlordane	GCM0253-SEP20	µg/g	0.02	< 0.02	ND	40	90	50	140	94	50	140
Dieldrin	GCM0253-SEP20	µg/g	0.05	< 0.05	ND	40	90	50	140	97	50	140
Endosulfan I	GCM0253-SEP20	µg/g	0.02	< 0.02	ND	40	91	50	140	83	50	140
Endosulfan II	GCM0253-SEP20	µg/g	0.02	< 0.02	ND	40	88	50	140	114	50	140
Endrin	GCM0253-SEP20	µg/g	0.04	< 0.04	ND	40	92	50	140	NV	50	140
gamma-BHC	GCM0253-SEP20	µg/g	0.01	< 0.01	ND	40	97	50	140	NV	50	140
gamma-Chlordane	GCM0253-SEP20	µg/g	0.02	< 0.02	ND	40	91	50	140	93	50	140
Heptachlor epoxide	GCM0253-SEP20	µg/g	0.01	< 0.01	ND	40	92	50	140	95	50	140
Heptachlor	GCM0253-SEP20	µg/g	0.01	< 0.01	ND	40	93	50	140	NV	50	140
Hexachlorobenzene	GCM0253-SEP20	µg/g	0.01	< 0.01	ND	40	96	50	140	89	50	140
Hexachlorobutadiene	GCM0253-SEP20	µg/g	0.01	< 0.01	ND	40	87	50	140	76	50	140
Hexachloroethane	GCM0253-SEP20	µg/g	0.01	< 0.01	ND	40	73	50	140	NV	50	140
Methoxychlor	GCM0253-SEP20	µg/g	0.05	< 0.05	ND	40	88	50	140	NV	50	140
o,p-DDD	GCM0253-SEP20	µg/g	0.02	< 0.02	ND	40	88	50	140	113	50	140
o,p-DDE	GCM0253-SEP20	µg/g	0.02	< 0.02	ND	40	94	50	140	100	50	140
op-DDT	GCM0253-SEP20	µg/g	0.02	< 0.02	ND	40	88	50	140	NV	50	140
pp-DDD	GCM0253-SEP20	µg/g	0.02	< 0.02	ND	40	84	50	140	118	50	140
pp-DDE	GCM0253-SEP20	µg/g	0.02	< 0.02	ND	40	93	50	140	95	50	140
pp-DDT	GCM0253-SEP20	µg/g	0.02	< 0.02	ND	40	89	50	140	NV	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

-- End of Analytical Report --

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

Request for Laboratory Services and CHAIN OF CUSTODY

No:

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: D. REID
Received Date: 09 / 11 / 20 (mm/dd/yy)
Received Time: 15 : 30 (hr : min)
Received By (signature): D Reid
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: Ice
Temperature Upon Receipt (°C) 3.4.5
LAB LIMS #: CA12523-Sept20

REPORT INFORMATION	INVOICE INFORMATION	
Company: DS Consultants	☐ (same as Report Information)	Quotation #: P.O. #:
Contact: Drew Doak	Company: DS	Project #: 20-169-100 Site Location/ID:
Address: 6221 Hwy 7, Unit 16, Vaughan, Ontario	Contact: Paviola Derveni	**TURNAROUND TIME (TAT) REQUIRED**
	Address:	☑ Regular TAT (5-7days) — TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day
Phone:		RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days
Fax:	Phone:	PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION
Email: drew.doak@dsconsultants.ca	Email: accounting@dsconsultants.ca	Specify Due Date: — NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

Regulation 153/04: ☐ Table 1 ☑ Table 2 ☐ Table 3 ☐ Table ___; ☑ Res/Park ☑ Ind/Com ☐ Agri/Other; Soil Texture: ☑ Coarse ☐ Medium/Fine

Other Regulations: ☐ Reg 347/558 (3 Day min TAT) ☐ PWQO ☐ MMER ☐ CCME ☐ Other: ☐ MISA

Sewer By-Law: ☐ Sanitary ☐ Storm Municipality:

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

#	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	M & I: Metals & Inorganics (incl CrVI, CN, Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water))	M & I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI)	M & I: ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn)	SVOC: PAHs only	SVOC: SVOCs (all incl PAHs, ABNs, CPs)	PCB: PCBs Total ☐ Aroclor ☐	PHC: F1-F4 + BTEX	PHC: F1-F4 only (no BTEX)	VOC: VOCs (all incl BTEX)	VOC: BTEX only	Pest: Pesticides (Organochlorine or specify other)	Other (please specify)	Other	Other	Other	Other	Sewer Use: (Specify pkg:)	Water Characterization Pkg (General ☐ Extended ☐)	TCLP (Specify TCLP tests ☐M&I ☐VOC ☐PCB ☐B(a)P ☐ABN ☐ign.)	COMMENTS:
1	SS1	Sept 3,2020	AM	1	Soil												✓									
2	SS2	Sept 3,2020	AM	1	Soil												✓									
3	SS3	Sept 3,2020	AM	1	Soil												✓									
4	SS4	Sept 3,2020	AM	1	Soil												✓									
5	SS5	Sept 3,2020	AM	1	Soil												✓									
6	SS6	Sept 3,2020	AM	1	Soil												✓									
7																										
8																										
9																										
10																										
11																										
12																										

Observations/Comments/Special Instructions

Sampled By (NAME): Scott Watson	Signature: Scott Watson	Date: 09 / 11 / 20	(mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): Scott Watson	Signature: Scott Watson	Date: 09 / 11 / 20	(mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.3
Date of Issue: 13 Oct, 2019

FINAL REPORT

CA14888-SEP20 R

20-169-100

Prepared for

DS Consultants

FINAL REPORT

CA14888-SEP20 R

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Drew Doak	Telephone	2165
Telephone	905-264-9393	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	jill.campbell@sgs.com
Email	drew.doak@dsconsultants.ca	SGS Reference	CA14888-SEP20
Project	20-169-100	Received	09/25/2020
Order Number		Approved	10/02/2020
Samples	Ground Water (1)	Report Number	CA14888-SEP20 R
		Date Reported	10/02/2020

COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Benzo(b)fluoranthene results for comparison to the standard are reported as benzo(b+j)fluoranthene. Benzo(b)fluoranthene and benzo(j)fluoranthene co-elute and cannot be reported individually by the analytical method used.

Temperature of Sample upon Receipt: 9 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:016666

SIGNATORIES

Jill Campbell, B.Sc.,GISAS

TABLE OF CONTENTS

PACKAGE: **REG153 - BTEX** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number	7
Sample Name	BH20-2
Sample Matrix	Ground Water
Sample Date	25/09/2020

Parameter	Units	RL	L1	Result
BTEX				
Benzene	µg/L	0.5	5	< 0.5
Ethylbenzene	µg/L	0.5	2.4	< 0.5
Toluene	µg/L	0.5	24	< 0.5
Xylene (total)	µg/L	0.5	300	< 0.5
m/p-xylene	µg/L	0.5		< 0.5
o-xylene	µg/L	0.5		< 0.5

PACKAGE: **REG153 - Hydrides** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number	7
Sample Name	BH20-2
Sample Matrix	Ground Water
Sample Date	25/09/2020

Parameter	Units	RL	L1	Result
Hydrides				
Antimony	µg/L	0.09	6	< 0.09
Arsenic	µg/L	0.2	25	0.4
Selenium	µg/L	0.04	10	0.12

Client: DS Consultants
Project: 20-169-100
Project Manager: Drew Doak
Samplers: Dorothy Garda

PACKAGE: **REG153 - Metals and Inorganics**
(WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number	7
Sample Name	BH20-2
Sample Matrix	Ground Water
Sample Date	25/09/2020

Parameter	Units	RL	L1	Result
Metals and Inorganics				
Barium	µg/L	0.02	1000	76.5
Beryllium	µg/L	0.007	4	0.009
Boron	µg/L	2	5000	24
Cadmium	µg/L	0.003	2.7	< 0.003
Chromium	µg/L	0.08	50	1.13
Cobalt	µg/L	0.004	3.8	0.222
Copper	µg/L	0.2	87	3.4
Lead	µg/L	0.01	10	0.42
Molybdenum	µg/L	0.04	70	2.66
Nickel	µg/L	0.1	100	0.9
Silver	µg/L	0.05	1.5	< 0.05
Thallium	µg/L	0.005	2	0.008
Uranium	µg/L	0.002	20	0.748
Vanadium	µg/L	0.01	6.2	0.94
Zinc	µg/L	2	1100	4

PACKAGE: **REG153 - Na** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number	7
Sample Name	BH20-2
Sample Matrix	Ground Water
Sample Date	25/09/2020

Parameter	Units	RL	L1	Result
Na				
Sodium	µg/L	10	490000	21500

PACKAGE: **REG153 - Other (ORP)** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number	7
Sample Name	BH20-2
Sample Matrix	Ground Water
Sample Date	25/09/2020

Parameter	Units	RL	L1	Result
Other (ORP)				
Mercury (total)	µg/L	0.01	0.29	< 0.01
pH	No unit	0.05		7.24
Chloride	µg/L	200	790000	180000
Chromium VI	µg/L	0.2	25	0.7
Cyanide (free)	µg/L	2	66	< 2

PACKAGE: **REG153 - PHCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number	7
Sample Name	BH20-2
Sample Matrix	Ground Water
Sample Date	25/09/2020

Parameter	Units	RL	L1	Result
PHCs				
F1 (C6-C10)	µg/L	25	750	< 25
F1-BTEX (C6-C10)	µg/L	25		< 25
F2 (C10-C16)	µg/L	100	150	< 100
F3 (C16-C34)	µg/L	200	500	< 200
F4 (C34-C50)	µg/L	200	500	< 200

PACKAGE: **REG153 - PHCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number	7
Sample Name	BH20-2
Sample Matrix	Ground Water
Sample Date	25/09/2020

Parameter	Units	RL	L1	Result
PHCs (continued)				
Chromatogram returned to baseline at nC50	Yes / No	-		YES

PACKAGE: **REG153 - THMs (VOC)** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number	7
Sample Name	BH20-2
Sample Matrix	Ground Water
Sample Date	25/09/2020

Parameter	Units	RL	L1	Result
THMs (VOC)				
Bromodichloromethane	µg/L	0.5	16	< 0.5
Bromoform	µg/L	0.5	25	< 0.5
Dibromochloromethane	µg/L	0.5	25	< 0.5

PACKAGE: **REG153 - VOC Surrogates** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number	7
Sample Name	BH20-2
Sample Matrix	Ground Water
Sample Date	25/09/2020

Parameter	Units	RL	L1	Result
VOC Surrogates				
Surr 1,2-Dichloroethane-d4	Surr Rec %	-		102
Surr 2-Bromo-1-Chloropropane	Surr Rec %	-		91
Surr 4-Bromofluorobenzene	Surr Rec %	-		92

Client: DS Consultants

Project: 20-169-100

Project Manager: Drew Doak

Samplers: Dorothy Garda

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number	7
Sample Name	BH20-2
Sample Matrix	Ground Water
Sample Date	25/09/2020

VOCs

Parameter	Units	RL	L1	Result
Acetone	µg/L	30	2700	< 30
Bromomethane	µg/L	0.5	0.89	< 0.5
Carbon tetrachloride	µg/L	0.2	0.79	< 0.2
Chlorobenzene	µg/L	0.5	30	< 0.5
Chloroform	µg/L	0.5	2.4	< 0.5
1,2-Dichlorobenzene	µg/L	0.5	3	< 0.5
1,3-Dichlorobenzene	µg/L	0.5	59	< 0.5
1,4-Dichlorobenzene	µg/L	0.5	1	< 0.5
Dichlorodifluoromethane	µg/L	2.0	590	< 2
1,1-Dichloroethane	µg/L	0.5	5	< 0.5
1,2-Dichloroethane	µg/L	0.5	1.6	< 0.5
1,1-Dichloroethylene	µg/L	0.5	1.6	< 0.5
trans-1,2-Dichloroethene	µg/L	0.5	1.6	< 0.5
cis-1,2-Dichloroethene	µg/L	0.5	1.6	< 0.5
1,2-Dichloropropane	µg/L	0.5	5	< 0.5
cis-1,3-Dichloropropene	µg/L	0.5		< 0.5
trans-1,3-Dichloropropene	µg/L	0.5		< 0.5
1,3-dichloropropene (total)	µg/L	0.5	0.5	< 0.5
Ethylenedibromide	µg/L	0.2	0.2	< 0.2
n-Hexane	µg/L	1.0	51	< 1
Methyl ethyl ketone	µg/L	20	1800	< 20
Methyl Isobutyl Ketone	µg/L	20	640	< 20
Methyl-t-butyl Ether	µg/L	2.0	15	< 2
Methylene Chloride	µg/L	0.5	50	< 0.5
Styrene	µg/L	0.5	5.4	< 0.5

Client: DS Consultants
Project: 20-169-100
Project Manager: Drew Doak
Samplers: Dorothy Garda

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number	7
Sample Name	BH20-2
Sample Matrix	Ground Water
Sample Date	25/09/2020

VOCs (continued)

Parameter	Units	RL	L1	Result
Tetrachloroethylene (perchloroethylene)	µg/L	0.5	1.6	< 0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	1.1	< 0.5
1,1,2,2-Tetrachloroethane	µg/L	0.5	1	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	200	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	4.7	< 0.5
Trichloroethylene	µg/L	0.5	1.6	< 0.5
Trichlorofluoromethane	µg/L	5.0	150	< 5
Vinyl Chloride	µg/L	0.2	0.5	< 0.2

EXCEEDANCE SUMMARY

No exceedances are present above the regulatory limit(s) indicated

QC SUMMARY

Anions by IC

Method: EPA300/MA300-Ions1.3 I Internal ref.: ME-CA-IENVIIC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO0423-SEP20	µg/L	200	<200	0	20	96	80	120	NV	75	125

Cyanide by SFA

Method: SM 4500 I Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (free)	SKA0252-SEP20	µg/L	2	<2	ND	10	96	90	110	87	75	125

Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A I Internal ref.: ME-CA-IENVISKA-LAK-AN-012

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA0253-SEP20	ug/L	0.2	<0.2	1	20	95	80	120	NV	75	125

QC SUMMARY

Mercury by CVAAS

Method: SM 3112/SM 3112B | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0028-SEP20	ug/L	0.01	-0.00	ND	20	104	80	120	112	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0176-SEP20	ug/L	0.05	<0.05	ND	20	100	90	110	90	70	130
Arsenic	EMS0176-SEP20	µg/L	0.2	<0.2	7	20	99	90	110	100	70	130
Barium	EMS0176-SEP20	µg/L	0.02	<0.02	4	20	97	90	110	115	70	130
Beryllium	EMS0176-SEP20	µg/L	0.007	<0.007	ND	20	98	90	110	97	70	130
Boron	EMS0176-SEP20	µg/L	2	<2	0	20	101	90	110	NV	70	130
Cadmium	EMS0176-SEP20	µg/L	0.003	<0.003	ND	20	96	90	110	94	70	130
Cobalt	EMS0176-SEP20	µg/L	0.004	<0.004	4	20	94	90	110	96	70	130
Chromium	EMS0176-SEP20	ug/L	0.08	<0.08	2	20	95	90	110	96	70	130
Copper	EMS0176-SEP20	ug/L	0.2	<0.2	6	20	95	90	110	99	70	130
Molybdenum	EMS0176-SEP20	ug/L	0.04	<0.04	5	20	98	90	110	102	70	130
Sodium	EMS0176-SEP20	ug/L	10	< 10	1	20	103	90	110	109	70	130
Nickel	EMS0176-SEP20	µg/L	0.1	<0.1	2	20	95	90	110	96	70	130
Lead	EMS0176-SEP20	µg/L	0.01	<0.01	5	20	96	90	110	97	70	130
Antimony	EMS0176-SEP20	ug/L	0.09	16	4	20	100	90	110	126	70	130
Selenium	EMS0176-SEP20	µg/L	0.04	<0.04	11	20	96	90	110	99	70	130
Thallium	EMS0176-SEP20	µg/L	0.005	<0.005	0	20	99	90	110	101	70	130
Uranium	EMS0176-SEP20	µg/L	0.002	<0.002	2	20	91	90	110	91	70	130
Vanadium	EMS0176-SEP20	µg/L	0.01	<0.01	4	20	96	90	110	101	70	130
Zinc	EMS0176-SEP20	µg/L	2	<2	9	20	95	90	110	116	70	130

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 I Internal ref.: ME-CA-IENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0457-SEP20	µg/L	25	<25	ND	30	93	60	140	79	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 I Internal ref.: ME-CA-IENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0512-SEP20	µg/L	100	<100	ND	30	91	60	140	92	60	140
F3 (C16-C34)	GCM0512-SEP20	µg/L	200	<200	ND	30	91	60	140	92	60	140
F4 (C34-C50)	GCM0512-SEP20	µg/L	200	<200	ND	30	91	60	140	92	60	140

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0461-SEP20	No unit	0.05	NA	0		101			NA		

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	101	50	140
1,1,1-Trichloroethane	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	97	60	130	99	50	140
1,1,2,2-Tetrachloroethane	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	92	60	130	88	50	140
1,1,2-Trichloroethane	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	98	60	130	101	50	140
1,1-Dichloroethane	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	96	60	130	98	50	140
1,1-Dichloroethylene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	69	50	140
1,2-Dichlorobenzene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	98	60	130	97	50	140
1,2-Dichloroethane	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	97	60	130	96	50	140
1,2-Dichloropropane	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	96	60	130	100	50	140
1,3-Dichlorobenzene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	97	60	130	97	50	140
1,4-Dichlorobenzene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	98	60	130	97	50	140
Acetone	GCM0453-SEP20	µg/L	30	<30	ND	30	102	60	130	95	50	140
Benzene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	97	60	130	99	50	140
Bromodichloromethane	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	96	60	130	98	50	140
Bromoform	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	95	60	130	94	50	140
Bromomethane	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	92	50	140	84	50	140
Carbon tetrachloride	GCM0453-SEP20	µg/L	0.2	<0.2	ND	30	95	60	130	98	50	140
Chlorobenzene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	99	50	140
Chloroform	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	96	60	130	97	50	140
cis-1,2-Dichloroethene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	98	60	130	99	50	140

QC SUMMARY

Volatile Organics (continued)

Method: EPA 5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-Dichloropropene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	95	60	130	97	50	140
Dibromochloromethane	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	95	60	130	98	50	140
Dichlorodifluoromethane	GCM0453-SEP20	µg/L	2.0	<2	ND	30	89	50	140	102	50	140
Ethylbenzene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	100	60	130	101	50	140
Ethylenedibromide	GCM0453-SEP20	µg/L	0.2	<0.2	ND	30	98	60	130	99	50	140
n-Hexane	GCM0453-SEP20	µg/L	1.0	<1	ND	30	101	60	130	117	50	140
m/p-xylene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	100	50	140
Methyl ethyl ketone	GCM0453-SEP20	ug/L	20	<20	ND	30	99	60	130	93	50	140
Methyl Isobutyl Ketone	GCM0453-SEP20	µg/L	20	<20	ND	30	98	50	140	96	50	140
Methyl-t-butyl Ether	GCM0453-SEP20	µg/L	2.0	<2	ND	30	100	60	130	92	50	140
Methylene Chloride	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	97	60	130	97	50	140
o-xylene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	100	60	130	100	50	140
Styrene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	100	50	140
Tetrachloroethylene (perchloroethylene)	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	97	60	130	99	50	140
Toluene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	98	60	130	100	50	140
trans-1,2-Dichloroethene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	97	60	130	99	50	140
trans-1,3-Dichloropropene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	106	50	140
Trichloroethylene	GCM0453-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	103	50	140
Trichlorofluoromethane	GCM0453-SEP20	µg/L	5.0	<5	ND	30	93	50	140	98	50	140
Vinyl Chloride	GCM0453-SEP20	µg/L	0.2	<0.2	ND	30	93	60	130	94	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 016666

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Scott K
Received Date: 09/25/2020 (mm/dd/yy)
Received Time: 14:50 (hr : min)
Received By (signature):
Custody Seal Present: Yes ☐ No ☐
Custody Seal Intact: Yes ☒ No ☐
Cooling Agent Present: Yes ☒ No ☐ Type: Ice
Temperature Upon Receipt (°C) 9°C, 9°C
LAB LIMS #: C914888-Sep20

REPORT INFORMATION	INVOICE INFORMATION
Company: DS	☐ (same as Report Information)
Contact: Drew Doak	Company: Accounting
Address: 16-6221 Hwy 7 Vaughn, ON	Contact:
Phone: (905) 715-4182	Address:
Fax:	Phone:
Email: drew.doak@dsconsultants.ca	Email:

Quotation #:
Project #: 20-169-100
P.O. #:
Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☒ Regular TAT (5-7days)

TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☒ O.Reg 153/04 ☐ O.Reg 406/19

☐ Table 1 ☒ Res/Park Soil Texture:
☒ Table 2 ☐ Ind/Com ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ Medium/Fine
☐ Table ____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA
☐ ODWS Not Reportable *See note

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality:

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	M&I: Field Filtered (Y/N)	M&I: Metals & Inorganics (incl CrVI, CN, Hg pH (B(HWS),EC,SAR--soil) (Cl, Na-water)	M&I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI	M&I: ICP Metals only Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,	SVOC: PAHs only	SVOC: SVOCs all incl PAHs, ABNs, CPs	PCB: PCBs ☐ Total ☐ Aroclor	PHC: F1-F4 + BTEX	PHC: F1-F4 only no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides Organochlorine or specify other	Other: Appendix 2: 406/19 Leachate Screening Levels Table :	Other: Sewer Use: Specify pkg.	Other: Water Characterization Pkg ☐ Extended ☐ General	TCLP: Specify TCLP tests ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ IgnL	COMMENTS:
1	BH20-2	9/25/20		11	GW	Y	X						X		X							
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

Observations/Comments/Special Instructions

Sampled By (NAME): Dorothy Garcia	Signature:	Date: 9/25/20 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): Dorothy Garcia	Signature:	Date: 9/25/20 (mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.4
Date of Issue: 22 May 2020

FINAL REPORT

CA15979-SEP20 R

20-169-100

Prepared for

DS Consultants

FINAL REPORT

CA15979-SEP20 R

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CLIENT DETAILS

Client	DS Consultants
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Email	drew.doak@dsconsultants.ca
Project	20-169-100
Order Number	
Samples	Ground Water (3)

LABORATORY DETAILS

Project Specialist	Brad Moore Hon. B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2143
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Email	brad.moore@sgs.com
SGS Reference	CA15979-SEP20
Received	09/04/2020
Approved	09/11/2020
Report Number	CA15979-SEP20 R
Date Reported	09/11/2020

COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Temperature of Sample upon Receipt: 9 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:016923

SIGNATORIES

Brad Moore Hon. B.Sc

TABLE OF CONTENTS

PACKAGE: **REG153 - BTEX** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9
			Sample Name	BH20-4	Dup-1	Trip Blank
			Sample Matrix	Ground Water	Ground Water	Ground Water
			Sample Date	04/09/2020	04/09/2020	04/09/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
BTEX						
Benzene	µg/L	0.5	5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	2.4	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	24	< 0.5	0.5	< 0.5
Xylene (total)	µg/L	0.5	300	< 0.5	< 0.5	< 0.5
m/p-xylene	µg/L	0.5		< 0.5	< 0.5	< 0.5
o-xylene	µg/L	0.5		< 0.5	< 0.5	< 0.5

PACKAGE: **REG153 - Hydrides** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8
			Sample Name	BH20-4	Dup-1
			Sample Matrix	Ground Water	Ground Water
			Sample Date	04/09/2020	04/09/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**
Hydrides					
Antimony	µg/L	0.09	6	0.34	0.32
Arsenic	µg/L	0.2	25	0.6	0.6
Selenium	µg/L	0.04	10	0.17	0.16

Client: DS Consultants
Project: 20-169-100
Project Manager: Drew Doak
Samplers: Meysam Jafari

PACKAGE: **REG153 - Metals and Inorganics** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number	7	8
Sample Name	BH20-4	Dup-1
Sample Matrix	Ground Water	Ground Water
Sample Date	04/09/2020	04/09/2020

Parameter	Units	RL	L1	Result	Result
Metals and Inorganics					
Barium	µg/L	0.02	1000	102	98.0
Beryllium	µg/L	0.007	4	< 0.007	< 0.007
Boron	µg/L	2	5000	132	114
Cadmium	µg/L	0.003	2.7	0.005	0.010
Chromium	µg/L	0.08	50	0.10	0.14
Cobalt	µg/L	0.004	3.8	**5.16**	**4.77**
Copper	µg/L	0.2	87	4.3	2.7
Lead	µg/L	0.01	10	0.08	0.02
Molybdenum	µg/L	0.04	70	4.94	5.32
Nickel	µg/L	0.1	100	9.3	8.7
Silver	µg/L	0.05	1.5	< 0.05	< 0.05
Thallium	µg/L	0.005	2	0.059	0.060
Uranium	µg/L	0.002	20	2.88	2.81
Vanadium	µg/L	0.01	6.2	0.45	0.47
Zinc	µg/L	2	1100	2	3

PACKAGE: **REG153 - Na** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

				Sample Number	7	8
				Sample Name	BH20-4	Dup-1
				Sample Matrix	Ground Water	Ground Water
				Sample Date	04/09/2020	04/09/2020
Parameter	**Units**	**RL**	**L1**		**Result**	**Result**
Na						
Sodium	µg/L	10	490000		110000	109000

PACKAGE: **REG153 - Other (ORP)** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

				Sample Number	7	8
				Sample Name	BH20-4	Dup-1
				Sample Matrix	Ground Water	Ground Water
				Sample Date	04/09/2020	04/09/2020
Parameter	**Units**	**RL**	**L1**		**Result**	**Result**
Other (ORP)						
Mercury (total)	µg/L	0.01	0.29		< 0.01	< 0.01
pH	No unit	0.05			7.44	7.30
Chloride	µg/L	200	790000		11000	11000
Chromium VI	µg/L	0.2	25		0.4	0.4
Cyanide (free)	µg/L	2	66		< 2	< 2

PACKAGE: **REG153 - PHCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

				Sample Number	7	8
				Sample Name	BH20-4	Dup-1
				Sample Matrix	Ground Water	Ground Water
				Sample Date	04/09/2020	04/09/2020
Parameter	**Units**	**RL**	**L1**		**Result**	**Result**
PHCs						
F1 (C6-C10)	µg/L	25	750		< 25	< 25
F1-BTEX (C6-C10)	µg/L	25			< 25	< 25
F2 (C10-C16)	µg/L	100	150		< 100	< 100
F3 (C16-C34)	µg/L	200	500		< 200	241

PACKAGE: **REG153 - PHCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	
			Sample Name	BH20-4	Dup-1	
			Sample Matrix	Ground Water	Ground Water	
			Sample Date	04/09/2020	04/09/2020	
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	
PHCs (continued)						
F4 (C34-C50)	µg/L	200	500	< 200	< 200	
Chromatogram returned to baseline at nC50	Yes / No	-		YES	YES	

PACKAGE: **REG153 - THMs (VOC)** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9
			Sample Name	BH20-4	Dup-1	Trip Blank
			Sample Matrix	Ground Water	Ground Water	Ground Water
			Sample Date	04/09/2020	04/09/2020	04/09/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
THMs (VOC)						
Bromodichloromethane	µg/L	0.5	16	< 0.5	< 0.5	< 0.5
Bromoform	µg/L	0.5	25	< 0.5	< 0.5	< 0.5
Dibromochloromethane	µg/L	0.5	25	< 0.5	< 0.5	< 0.5

PACKAGE: **REG153 - VOC Surrogates** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9
			Sample Name	BH20-4	Dup-1	Trip Blank
			Sample Matrix	Ground Water	Ground Water	Ground Water
			Sample Date	04/09/2020	04/09/2020	04/09/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
VOC Surrogates						
Surr 1,2-Dichloroethane-d4	Surr Rec %	-		101	102	100
Surr 2-Bromo-1-Chloropropane	Surr Rec %	-		91	91	91
Surr 4-Bromofluorobenzene	Surr Rec %	-		93	91	92

Client: DS Consultants

Project: 20-169-100

Project Manager: Drew Doak

Samplers: Meysam Jafari

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number	7	8	9
Sample Name	BH20-4	Dup-1	Trip Blank
Sample Matrix	Ground Water	Ground Water	Ground Water
Sample Date	04/09/2020	04/09/2020	04/09/2020

Parameter	Units	RL	L1	Result	Result	Result
VOCs						
Acetone	µg/L	30	2700	< 30	< 30	< 30
Bromomethane	µg/L	0.5	0.89	< 0.5	< 0.5	< 0.5
Carbon tetrachloride	µg/L	0.2	0.79	< 0.2	< 0.2	< 0.2
Chlorobenzene	µg/L	0.5	30	< 0.5	< 0.5	< 0.5
Chloroform	µg/L	0.5	2.4	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	µg/L	0.5	3	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L	0.5	59	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	0.5	1	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2.0	590	< 2	< 2	< 2
1,1-Dichloroethane	µg/L	0.5	5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5
1,1-Dichloroethylene	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5
trans-1,2-Dichloroethene	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethene	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	µg/L	0.5	5	< 0.5	< 0.5	< 0.5
cis-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5
1,3-dichloropropene (total)	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5
Ethylenedibromide	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2
n-Hexane	µg/L	1.0	51	< 1	< 1	< 1
Methyl ethyl ketone	µg/L	20	1800	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	640	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2.0	15	< 2	< 2	< 2

Client: DS Consultants
Project: 20-169-100
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Samplers: Meysam Jafari

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9
			Sample Name	BH20-4	Dup-1	Trip Blank
			Sample Matrix	Ground Water	Ground Water	Ground Water
			Sample Date	04/09/2020	04/09/2020	04/09/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**
VOCs (continued)						
Methylene Chloride	µg/L	0.5	50	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	5.4	< 0.5	< 0.5	< 0.5
Tetrachloroethylene (perchloroethylene)	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	1.1	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	µg/L	0.5	1	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	200	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	4.7	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5.0	150	< 5	< 5	< 5
Vinyl Chloride	µg/L	0.2	0.5	< 0.2	< 0.2	< 0.2

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED L1
BH20-4				
Cobalt	SM 3030/EPA 200.8	µg/L	5.16	3.8
Dup-1				
Cobalt	SM 3030/EPA 200.8	µg/L	4.77	3.8

QC SUMMARY

Anions by IC

Method: EPA300/MA300-Ions1.3 I Internal ref.: ME-CA-IENVIIC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO0111-SEP20	µg/L	200	<200	3	20	93	80	120	101	75	125
Chloride	DIO0120-SEP20	µg/L	200	<200	ND	20	93	80	120	100	75	125

Cyanide by SFA

Method: SM 4500 I Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (free)	SKA0060-SEP20	µg/L	2	<2	ND	10	98	90	110	99	75	125

QC SUMMARY

Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-IENVISKA-LAK-AN-012

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA0061-SEP20	ug/L	0.2	<0.2	ND	20	99	80	120	NV	75	125
Chromium VI	SKA0073-SEP20	ug/L	0.2	<0.2	3	20	99	80	120	87	75	125

Mercury by CVAAS

Method: SM 3112/SM 3112B | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0009-SEP20	ug/L	0.01	-0.00	ND	20	96	80	120	94	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 I Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0050-SEP20	ug/L	0.05	<0.05	ND	20	98	90	110	93	70	130
Arsenic	EMS0050-SEP20	µg/L	0.2	<0.2	ND	20	98	90	110	100	70	130
Barium	EMS0050-SEP20	µg/L	0.02	<0.02	5	20	98	90	110	126	70	130
Beryllium	EMS0050-SEP20	µg/L	0.007	<0.007	ND	20	101	90	110	110	70	130
Boron	EMS0050-SEP20	µg/L	2	<2	14	20	99	90	110	NV	70	130
Cadmium	EMS0050-SEP20	µg/L	0.003	<0.003	ND	20	98	90	110	95	70	130
Cobalt	EMS0050-SEP20	µg/L	0.004	<0.004	8	20	97	90	110	100	70	130
Chromium	EMS0050-SEP20	ug/L	0.08	<0.08	4	20	98	90	110	100	70	130
Copper	EMS0050-SEP20	ug/L	0.2	<0.2	2	20	96	90	110	98	70	130
Molybdenum	EMS0050-SEP20	ug/L	0.04	<0.04	2	20	98	90	110	99	70	130
Sodium	EMS0050-SEP20	ug/L	10	< 10	3	20	102	90	110	115	70	130
Nickel	EMS0050-SEP20	µg/L	0.1	<0.1	3	20	96	90	110	100	70	130
Lead	EMS0050-SEP20	µg/L	0.01	<0.01	0	20	99	90	110	104	70	130
Antimony	EMS0050-SEP20	ug/L	0.09	17	9	20	100	90	110	114	70	130
Selenium	EMS0050-SEP20	µg/L	0.04	<0.04	14	20	95	90	110	102	70	130
Thallium	EMS0050-SEP20	µg/L	0.005	<0.005	11	20	99	90	110	104	70	130
Uranium	EMS0050-SEP20	µg/L	0.002	<0.002	7	20	91	90	110	94	70	130
Vanadium	EMS0050-SEP20	µg/L	0.01	<0.01	5	20	95	90	110	102	70	130
Zinc	EMS0050-SEP20	µg/L	2	<2	3	20	98	90	110	117	70	130

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 I Internal ref.: ME-CA-IENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0128-SEP20	µg/L	25	<25	ND	30	93	60	140	84	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 I Internal ref.: ME-CA-IENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0115-SEP20	µg/L	100	<100	ND	30	85	60	140	78	60	140
F3 (C16-C34)	GCM0115-SEP20	µg/L	200	<200	ND	30	85	60	140	78	60	140
F4 (C34-C50)	GCM0115-SEP20	µg/L	200	<200	ND	30	85	60	140	78	60	140

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0114-SEP20	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	98	50	140
1,1,1-Trichloroethane	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	98	60	130	99	50	140
1,1,2,2-Tetrachloroethane	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	94	60	130	96	50	140
1,1,2-Trichloroethane	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	97	60	130	98	50	140
1,1-Dichloroethane	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	98	50	140
1,1-Dichloroethylene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	103	60	130	102	50	140
1,2-Dichlorobenzene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	96	60	130	95	50	140
1,2-Dichloroethane	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	96	60	130	96	50	140
1,2-Dichloropropane	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	98	60	130	97	50	140
1,3-Dichlorobenzene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	97	60	130	96	50	140
1,4-Dichlorobenzene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	97	60	130	96	50	140
Acetone	GCM0114-SEP20	µg/L	30	<30	ND	30	91	60	130	87	50	140
Benzene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	98	60	130	98	50	140
Bromodichloromethane	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	97	60	130	97	50	140
Bromoform	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	92	60	130	91	50	140
Bromomethane	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	101	50	140	101	50	140
Carbon tetrachloride	GCM0114-SEP20	µg/L	0.2	<0.2	ND	30	100	60	130	98	50	140
Chlorobenzene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	98	60	130	97	50	140
Chloroform	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	97	60	130	97	50	140
cis-1,2-Dichloroethene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	99	50	140

QC SUMMARY

Volatile Organics (continued)

Method: EPA 5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-Dichloropropene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	97	60	130	96	50	140
Dibromochloromethane	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	96	60	130	95	50	140
Dichlorodifluoromethane	GCM0114-SEP20	µg/L	2.0	<2	ND	30	117	50	140	113	50	140
Ethylbenzene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	100	60	130	99	50	140
Ethylenedibromide	GCM0114-SEP20	µg/L	0.2	<0.2	ND	30	97	60	130	97	50	140
n-Hexane	GCM0114-SEP20	µg/L	1.0	<1	ND	30	119	60	130	109	50	140
m/p-xylene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	99	50	140
Methyl ethyl ketone	GCM0114-SEP20	ug/L	20	<20	ND	30	92	60	130	93	50	140
Methyl Isobutyl Ketone	GCM0114-SEP20	µg/L	20	<20	ND	30	96	50	140	99	50	140
Methyl-t-butyl Ether	GCM0114-SEP20	µg/L	2.0	<2	ND	30	98	60	130	102	50	140
Methylene Chloride	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	98	50	140
o-xylene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	99	50	140
Styrene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	98	60	130	98	50	140
Tetrachloroethylene (perchloroethylene)	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	99	50	140
Toluene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	98	60	130	99	50	140
trans-1,2-Dichloroethene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	100	60	130	99	50	140
trans-1,3-Dichloropropene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	99	60	130	101	50	140
Trichloroethylene	GCM0114-SEP20	µg/L	0.5	<0.5	ND	30	97	60	130	97	50	140
Trichlorofluoromethane	GCM0114-SEP20	µg/L	5.0	<5	ND	30	100	50	140	99	50	140
Vinyl Chloride	GCM0114-SEP20	µg/L	0.2	<0.2	ND	30	104	60	130	103	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

No: 016923

Page _____ of _____

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

Laboratory Information Section - Lab use only

Received By: Scott R
Received Date: 09/04/2020 (mm/dd/yy)
Received Time: 16:00 (hr : min)
Received By (signature): S
Custody Seal Present: Yes ☒ No ☐
Custody Seal Intact: Yes ☒ No ☐
Cooling Agent Present: Yes ☒ No ☐ Type: ice
Temperature Upon Receipt (°C): 9°c 8°c 8°c
LAB LIMS #: QA15979-Sep20

REPORT INFORMATION	INVOICE INFORMATION
Company: DS	☒ (same as Report Information)
Contact: Drew Doak	Company:
Address: 6221 Hwy 7, Unit 16 Vaughan ON	Contact:
Phone:	Address:
Fax:	Phone:
Email: drew.doak@dsconsultants.ca	Email:

Quotation #: _____ P.O. #: _____
Project #: 20-169-100 Site Location/ID: _____

TURNAROUND TIME (TAT) REQUIRED

☒ Regular TAT (5-7days) — TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date: _____

*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park Soil Texture: ☐ Coarse
☐ Table 2 ☐ Ind/Com ☐ Medium/Fine
☐ Table 3 ☐ Agri/Other
☐ Table ____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations: ☐ Reg 347/558 (3 Day min TAT) ☐ PWQO ☐ MMER ☐ CCME ☐ Other: ☐ MISA ☐ ODWS Not Reportable *See note

Sewer By-Law: ☐ Sanitary ☐ Storm Municipality: _____

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	M&I: Metals & Inorganics (incl CrVI, CN, Hg pH, (B(HWS),EC,SAR-soil) (Cl, Na-water)	M&I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI	M&I: ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,	SVOC: PAHs only	SVOC: SVOCs (all incl PAHs, ABNs, CPs	PCB: PCBs ☐ Aroclor ☐ Total	PHC: F1-F4 + BTEX	PHC: F1-F4 only (no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides (Organochlorine or specify other	Other (please specify)	TCLP: Specify TCLP tests ☐M&I ☐VOC ☐PCB ☐B(a)P ☐ABN ☐Ignit.
1	BH20-4	04/09/20	10:30	12	GW		X						X		X				
2	Dup-1	↓	10:30	12	GW		X						X		X				
3	Trip Blank	—	—	2	Water										X				
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

Appendix 2: 406/19 Leachate Screening Levels Table: _____
Sewer Use: Specify pkg: _____
Water Characterization Pkg ☐ Extended ☐ General

COMMENTS:

Observations/Comments/Special Instructions

Sampled By (NAME): Maryam Jahani Signature: Date: ____/____/____ (mm/dd/yy)
Relinquished by (NAME): Signature: Date: ____/____/____ (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.4
Date of Issue: 22 May. 2020