TOWN OF CALEDON
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# Phase Two Environmental Site Assessment

Part Lot 12 Concession 4 Albion Part 1, 43R17061, Parcel 4

Bolton, Ontario

## Prepared For:

Argo Development Corporation

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Burlington, Ontario

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**DS Project No :** 20-169-100

**Date:** 2023-05-16

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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 described as Part Lot 12 Concession 4 Albion Part 1, 43R17061, Parcel 4, 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 in support of the local official plan amendment submission.

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.

The Phase Two Property is a 38.56 hectares (95.28 acres) parcel of land situated within a mixed agricultural and residential neighbourhood in the Town of Bolton, Ontario. The Phase Two Property is located approximately 650 m north of the intersection of King Street and Humber Station Road and was an undeveloped agricultural field at the time of this assessment.

The Phase One ESA completed in January 2021 indicated that the Phase Two Property has never been developed and has been used for agricultural purposes since prior to 1880. A total of six (6) Potentially Contaminating Activities (PCAs) were identified in the Phase One ESA, which were considered to be contributing to one (1) APEC on the Phase Two Property. A summary of the APECs, associated PCAs, and contaminants of potential concern (COPC) identified is presented in the table below:

**Table E-1: Summary of APECs**

| 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-5: #40 – Inferred large scale application of pesticides on the Phase One Property for agricultural purposes. | On-Site | OCPs | Soil |

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

The Phase Two ESA, in conjunction with the on-going geotechnical investigation involved the advancement of three (3) boreholes, the instrumentation of two (2) monitoring wells in selected locations, which were completed between July 28 and 29, 2020. Six (6) additional topsoil samples were collected within the agricultural field for chemical analysis. The boreholes were advanced to maximum depths ranging from 8.2 to 9.7 metres below ground surface (mbgs) under the supervision of DS personnel. Soil samples were collected and submitted for analysis of OC Pesticides which were the only COPCs identified based on the historic land use.

The soil 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 300 to 550 mm in thickness, was observed at the surface of all the boreholes (BH20-9, BH20-10 and BH20-11). "Fill" material (re-worked native) material consisting of 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. Below the fill material, silty clay till to silt deposits were encountered to the termination depth in all the boreholes with the exception of borehole BH20-9. In borehole BH20-9 a sandy silt unit was encountered at a depth of 7.5 mbgs and extended to the termination depth.
- The depth to groundwater was measured in two (2) monitoring wells installed during the course of this investigation. The groundwater levels were found to range between 4.97 to 5.33 mbgs, with corresponding elevations of 269.14 to 264.77 metres above sea level (masl) on October 22, 2020. The groundwater flow direction on-Site could not be confirmed as there were only two (2) monitoring wells present. However, based on the local topography the groundwater flow direction is inferred to be southeasterly.
- Topsoil samples were collected from the site using hand tools and submitted for the analysis of OC Pesticides. The results of the chemical analysis conducted indicated that all samples analyzed met the applicable site conditions standards.

- Groundwater was not identified as a media of concern in the Phase One ESA, thus groundwater samples were not collected at the time of the investigation.

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.
- 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 described as Part Lot 12 Concession 4 Albion Part 1, 43R17061, Parcel 4, 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 in support of the local official plan amendment submission.

It is understood that the intended future property use is not considered to be a more sensitive property use as defined under O.Reg. 153/04 (as amended); therefore, the filing of a Record of Site Condition (RSC) with the Ontario Ministry of Environment, Conservation and Parks (MECP) is not mandated under O.Reg. 153/04.

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 38.56 hectares (95.28 acres) parcel of land situated within a mixed agricultural and residential neighbourhood in the Town of Bolton, Ontario. The Phase Two Property is located approximately 650 m north of the intersection of King Street and Humber Station Road and was vacant 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 Humber Station Road in a north-south orientation. A Plan of Survey for the Phase Two Property was not available during this investigation.

The Phase Two Property is an undeveloped rectangular agricultural field. The Phase Two Property has never been developed. A Site Plan depicting the orientation of the 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 Lot 12 Concession 4 Albion Part 1, 43R17061; Town of Caledon | Parcel Register |
| PIN | 14329-003 (LT) | Parcel Register |
| Current Site Occupants | Vacant | Client |

| Criteria | Information | Source |
|---|---|---|
| Site Area | 44.2 hectares (109.22) | Parcel Register |

## 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<br>Burlington, Ontario - L7M 0W7 | Mr. Aaron Wisson<br>Mobile: 416.991.5988<br>Email: aaron@argoland.com |

## 1.3 Current and Proposed Future Use

The Phase Two Property is currently vacant agricultural land which is classified as agricultural 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 is flowing through the center 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 140m to the south of the Phase Two Property and drains south towards the West Humber River, located approximately 3.3 km south. The Property is located in the Humber River watershed.

No areas of natural or scientific interest were identified within the Phase One Study Area. According to the TRCA online mapping system, in the centre portion of the Phase One Property a TRCA Conceptual Regulated Area is present due to a tributary of the Lindsay Creek.

### 2.1.2 Topography and Surface Water Draining Features

The topography of the Phase Two Property is generally rolling, sloped to the east, with surface elevation varying from 272 metres above sea level (masl) in the western portion to 268 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 km east of the Phase Two 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, 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.

- *"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 ESA, Part Lot 12 Concession 4 Albion Part 1, 43R17061, Parcel 4, Bolton, Ontario"*, prepared for Argo Development Corporation, prepared by DS Consultants Ltd., dated January 8, 2021 (2021 DS Phase One ESA);

**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 200 to 300 mm in thickness was encountered in all the boreholes.
- Below the topsoil, a shallow layer of reworked native material (designated as "fill" in the geotechnical report) was encountered in all the boreholes.
- The native soils encountered at the site were predominantly glacial tills of both clayey and sandy texture.
- Clayey silt was encountered above and beneath the glacial till in one of the boreholes drilled.
- Sandy silt was encountered in few boreholes at depths ranging from 0.8 mbgs to 7.1 mbgs.
- Groundwater was encountered in the boreholes during drilling at depths varying from 0.9 to 7.6 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. It should be noted that the geotechnical investigation was completed across both the Phase Two Property and the west adjoining property. The following pertinent information was noted by DS in relation to the Phase Two Property. :

- A total of three (3) boreholes (BH20-9 through BH20-11), to depths ranging from 8.20 to 9.70 m below the existing grade, across a larger parcel of land than the Phase Two Property.
- Two (2) 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 300 to 550 mm in thickness, was observed at the surface of all the boreholes.
- Fill/disturbed native material consisting of 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.
- silty clay till deposit was encountered below the fill layer in all the boreholes to approximate depths ranging from 7.50 to 9.7 m in Boreholes BH20-9, and BH20-11 and to the maximum explored depth of Boreholes BH20-10.
- Lower deposit of silt to sandy silt silty sand soils with some to trace of clay and gravel was encountered underlying silty clay till deposit in Boreholes BH20-9, and BH20-11 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 |

**2020 DS Phase One ESA**

The 2020 DS Phase One ESA report was conducted 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 records reviewed for the Phase One Property indicate that the Site has been used for agricultural purposes since the 1800s. It is possible that environmentally persistent pesticides/herbicides were incorporated into the historical agricultural practices on-Site.
- The presence of a single-walled fuel oil underground storage tank was identified at 14196 Humber Station Road. The tank was reportedly installed in 2006.
- Hydro One Networks Inc. located at 14361 Humber Station Road was registered for a transformer oil leak caused by collision/accident in 2012. Soil contamination and surface water pollution were confirmed.
- A railway line was identified approximately 125m east of the Phase One Property.
- Two (2) historical orchards were identified on the north adjacent property, and one orchard was identified on the east adjacent property in the 1880 County Atlas. It is possible that environmentally persistent pesticides/herbicides were used in association with the cultivation with the orchard.
- The neighbouring properties within the Phase One Study Area appear to have been used for mixed agricultural and residential purposes since the 1880.
- Based on a review of the information available at this time it is concluded that six (6) PCAs were identified on the Phase One Property and within the Phase One Study Area which are considered to be contributing to one (1) APECs in, on, or under the Phase One Property.

Additional information related to the Phase One ESA completed by DS is provided in Section 3.3 below.

### 2.2.2 Use of Previous Analytical Results

There were no previous analytical results 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 three (3) boreholes on the Phase Two Property, to depths ranging between 8.2 to 9.7 mbgs between July 28 and 29, 2020. Two (2) selected boreholes were instrumented with groundwater monitoring wells upon completion. The soil lithology was logged during drilling. The soil samples were screened for organic vapours using RKI Eagle 2 MultiGas Detector, and examined for visual and olfactory indications of soil impacts;
- Six (6) surface samples were collected by DS personnel using hand tools on September 3, 2020 for laboratory analysis of OC Pesticides to assess the topsoil quality in relation to APEC-1.
- Submitted “worst case” soil samples collected from the boreholes for laboratory analysis of relevant contaminants of potential concern (COPCs) as identified in the Phase One ESA;
- Conducted groundwater level measurements in the monitoring wells in order to determine the groundwater elevation, and to establish the local groundwater flow direction;
- Surveyed all monitoring wells to a geodetic benchmark;
- Developed and purged all monitoring wells prior;
- Compared all soil 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 | Excluded | Groundwater was not identified as a media of potential impact in the Phase One ESA. |
| 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 six (6) surface samples were collected using a shovel. Soil samples were collected and submitted for analysis of all relevant COPCs. |
| Groundwater | Groundwater was not identified as a media of potential impact in the Phase One ESA. |

## 3.3 Phase One Conceptual Site Model

A Conceptual Site Model was developed for the Phase One Property, located at Part Lot 12 Concession 4 Albion Part 1, 43R17061, Parcel 4, 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-5 | #40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications | Inferred large scale application of pesticides on the Phase One Property for agricultural purposes. | Yes – APEC-1 |

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

### 3.3.2 Contaminants of Potential Concern

A summary of the contaminants of potential concern identified for each respective APEC is presented in Table 3-3 above. The only contaminants of potential concern identified for the Phase One Property were OCPs.

### 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.

The Phase One Property has never been developed. Therefore, no underground utilities were present on the Property.

### 3.3.4 Geological and Hydrogeological Information

The topography of the Phase One Property is generally rolling, sloped to the east, with surface elevation varying from 272 metres above sea level (masl) in the western portion to 268 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 km east of the Phase One Property. A tributary of the Lindsay Creek is flowing through the center 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 140m to the south of the Phase Two Property and drains south towards the West Humber River, located approximately 3.3 km south.

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 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

Impediments were not encountered during the Investigation.

# 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 APEC identified in the Phase One ESA. The selected borehole locations are presented on Figure 4. The borehole locations were cleared of underground public and private utility services prior to commencement of drilling. A summary of the drilling activities is provided in the table below.

**Table 4-1: Summary of Drilling Activities**

| Parameter | Details |
|---|---|
| Drilling Contractor | Davis Drilling Ltd. |
| Drilling Dates | July 28, 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 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;<br>◆ Soil samples were extracted from the interior of the sampler;<br>◆ Surface soil samples were retrieved using shovel<br>◆ Use of dedicated and disposable nitrile gloves for the handling of soil samples. A new set of gloves was used for each sample. |

| Parameter | Details |
|---|---|
| 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 for the chemical analyses were collected using hand tools. Discrete soil samples were collected by DS personnel using dedicated nitrile gloves. The hand tools used for sampling 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.

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. 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 samples were inspected and examined to assess soil type, ground water conditions, and possible chemical contamination by visual and olfactory observations. 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. A summary of the equipment used for field screening is provided below:

## 4.5 Groundwater Monitoring Well Installation

Two (2) monitoring wells were installed on the Phase Two Property as part of the concurrent geotechnical investigation. 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 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 (enclosed), and on the borehole logs provided in Appendix B.

Disposable nitrile gloves were used to minimize the potential for cross-contamination during well installation.

## 4.6 Groundwater Field Measurement of Water Quality Parameters

Groundwater was not identified as a media of potential impact in the Phase One ESA. Groundwater sampling was not conducted as a result.

## 4.7 Groundwater Sampling

Groundwater was not identified as a media of potential impact in the Phase One ESA. Groundwater sampling was not conducted as a result.

## 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 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 boreholes for disposal at the time of site redevelopment.

### 4.10.1 Water from Well Development and Purging

Groundwater was not a media of concern identified in the Phase One ESA and as such there was no groundwater purging or sampling completed as part of this assessment.

### 4.10.2 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 4-2: Summary of Sample Bottle Preservatives**

| Media | Parameter | Sample Container |
|---|---|---|
| Soil | OCPs | 120 mL unpreserved glass jar with Teflon™-lined lid. |

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 hand tool used for sampling and the split spoon sampler used for geotechnical sampling were 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.

#### 4.12.3 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 300 to 550 mm in thickness, was observed at the surface of all the boreholes (BH20-9, BH20-10 and BH20-11). "Fill" (re-worked native) material consisting of sandy silt was identified in all the boreholes below the topsoil layer and extended to approximate depth of 0.80 m below the existing ground surface. Below the re-worked native material, silty clay till to silt deposits were encountered to the termination depths in all the boreholes with the exception of borehole BH20-9. In borehole BH20-9 a sandy silt was encountered at a depth of 7.5 mbgs and extended to the termination depth.

**Table 5-1: Summary of Geologic Units Investigated**

| Geologic Unit | Inferred Thickness (m) | Top Elevation (masl) | Bottom Elevation (masl) | Properties |
|---|---|---|---|---|
| Topsoil | 0.3 – 0.55 | 274.1 | 268.0 | - |
| Fill Material (Sandy Silt) | 0.2 – 0.5 | 273.6 | 267.5 | Brown, moist, trace organics, trace rootlets |
| Silty Clay Till | 6.7 – >8.9 | 273.3 | >260.1 | Brown to grey, moist to very moist, water bearing zone |
| Sandy Silt | >0.7 | 266.6 | - | Grey, wet |

## 5.2 Ground Water Elevations and Flow Direction

### 5.2.1 Rationale for Monitoring Well Location and Well Screen Intervals

A total of two (2) monitoring wells were installed on the Phase Two Property as part of the geotechnical investigation. The monitoring wells were screened at depths ranging between 7.6 to 9.1 mbgs and were designed to assess the hydrogeological conditions within the first water bearing formation encountered.

### 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 4.72 to 5.37 mbgs on September 8, 2020 and between 4.97 to 5.33 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 264.68 to 269.68 masl in the upper aquifer investigated.

### 5.2.5 Groundwater Flow Direction

Only two (2) monitoring wells were installed, therefore the triangulation of groundwater measurements for accurate flow direction could not be completed. However, when considering the monitoring wells monitored outside of the Phase Two Property during the geotechnical investigation the groundwater flow direction is interpreted to be east to southeast towards the Humber River. The groundwater elevations and inferred 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 4.43 to 5.42 mbgs on the Phase Two Property over the course of the investigation. Buried utility services are typically inferred to be situated approximately 2 to 3 mbgs. However, the site has never been developed, and therefore it is not anticipated that any utility services are present on-Site.

## 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 – (silty clay till) | Horizontal hydraulic gradient was calculated between BH20-9 and BH20-11:<br>0.00567 |

### 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 across the development lands as part of the geotechnical 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 |

| Sample | % Gravel | % Sand | % Silt | % Clay | Classification |
|---|---|---|---|---|---|
| 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 across the entire development property. At least one sample was analyzed per stratigraphic unit encountered in order to characterize the various strata encountered.

## 5.5 Soil Field Screening

The soil samples were 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 4. A visual summary of the location of the sample locations is provided in Figures 7. The laboratory certificates of analysis have been provided under Appendix C.

### 5.6.1 OC Pesticides

A total of six (6) samples were submitted for analysis of OC Pesticides. The results of the analyses are tabulated in Table 4 and presented on Figure 7. The results of the chemical analyses conducted indicated that all samples contained non-detectable concentrations of OC Pesticides and met the applicable Site Condition Standards.

### 5.6.2 Commentary on Soil Quality

The results of the soil chemical analyses indicate that the applicable site condition standards for soil have been met as of the certification date of September 3, 2020.

## 5.7 Ground Water Quality

Groundwater was not identified as a media of potential impact in the Phase One ESA. Groundwater sampling was not conducted as a result.

## 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 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 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 analytical laboratory employed method blanks, internal laboratory duplicates, surrogate spike samples, matrix spike samples, and standard reference materials as a part of the QA/AC program.

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 collection of three (3) boreholes, the installation of two (2) monitoring wells, and collection of six (6) topsoil samples for analysis of the potential contaminants of concern (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.
  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.

**Norina Paolucci, BES., EPt**

Ms. Norina Paolucci is an environmental technician with DS Consultants Ltd. Norina holds a bachelor's degree in environmental resources from Trent University. Norina is a current member of Eco Canada, Environmental Person in Training (EPt). Norina has successfully completed a Phase One and Phase Two Environmental Site Assessments course with Associated Environmental Site Assessor of Canada INC (ASEAC) and has experience in conducting Phase One and Two Environmental Site Assessments, soil, and groundwater sampling.

**Efuange Khumbah, M.Sc., P.Eng**

Efuange is a Senior Project Manager, providing environmental services at DS Consultants Ltd. He is a registered professional engineer, in the provinces of Ontario. With over 13 years working for the public and private sectors, Efuange has experience serving clients in

constructional, financial institutions, insurance companies, legal firms, manufacturing industries, oil/gas/petrochemical as well as municipal, provincial and federal agencies. In Canada he has managed projects in British Columbia, Alberta, Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and Newfound land. His area of expertise includes, environmental site assessment, soil and groundwater remediation, litigation support, excess soil management, senior review of environmental reports, and air quality monitoring. Reports prepared by Efuange have been published by the Town of Newmarket, City of Mississauga, and the Ontario Ministry of Environment Conservation and Parks. Efuange hold a M.Sc. degree in Environmental Science and Resource management.

**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).

## 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**

Norina Paolucci, BES., EPt
Environmental Specialist

Efuange Khumbah, M. Sc. P.Eng
Senior Environmental Project Manager

Patrick M. 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 Part Lot 12 Concession 4 Albion Part 1, 43R17061, Parcel 4, 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


- Armstrong, D.K. and Dodge, J.E.P. *Paleozoic Geology Map of Southern Ontario*. Ontario Geological Survey, Miscellaneous Release--Data 219.
- Chapman, L.J. and Putnam, D.F. 2007. *The Physiography of Southern Ontario*. Ontario Geological Survey, Miscellaneous Release--Data 228.
- Freeze, R. Allen and Cherry, John A., 1979. *Ground water*. Page 29.
- Ontario Ministry of the Environment, December 1996. *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario.*
- Ontario Ministry of Environment, 15 April 2011. *Soil, Ground Water and Sediment Standards for use under part XV.1of the Environmental Protection Act.*
- Ontario Ministry of the Environment, June 2011. *Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04.*
- Ontario Ministry of the Environment, July 2011. *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.*
- The Ontario Geological Survey. 2003. *Surficial Geology of Southern Ontario*.
- *"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 ESA, Part Lot 12 Concession 4 Albion Part 1, 43R17061, Parcel 4, Bolton, Ontario",* prepared for Argo Development Corporation, prepared by DS Consultants Ltd., dated January 8, 2021 (2021 DS Phase One ESA)*.*

# Tables

**Table 1: Summary of Monitoring Well Installation and Groundwater Data**

| Well ID | | | BH20-9 | BH20-11 |
|---|---|---|---|---|
| Installed By: | | | DS | DS |
| Installation Date: | | | 29-Jul-20 | 29-Jul-20 |
| Well Status: | | | Active | Active |
| Inner Diameter | | (mm) | 50 | 50 |
| Surface Elevation | | (masl) | 274.11 | 270.10 |
| Stick-up Height | | (m) | 0.88 | 1.00 |
| Bottom of Concrete Seal/Top of Bentonite Seal | | mbgs | 0.30 | 0.30 |
| | | masl | 273.81 | 269.80 |
| Bottom of Bentonite Seal/Top of Sand Pack | | mbgs | 5.50 | 7.00 |
| | | masl | 268.61 | 263.10 |
| Top of Well Screen | | mbgs | 6.10 | 7.60 |
| | | masl | 268.01 | 262.50 |
| Well Screen Length | | m | 1.50 | 1.50 |
| Bottom of Well Screen | | mbgs | 7.60 | 9.10 |
| | | masl | 266.21 | 260.70 |
| **GW Monitoring** | | | | |
| 06-Aug-20 | Depth to GW | mbgs | 4.43 | 5.42 |
| | GW Elevation | masl | 269.68 | 264.68 |
| 08-Sep-20 | Depth to GW | mbgs | 4.72 | 5.37 |
| | GW Elevation | masl | 269.39 | 264.73 |
| 22-Oct-20 | Depth to GW | mbgs | 4.97 | 5.33 |
| | GW Elevation | masl | 269.14 | 264.77 |

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) | Parameter Analyzed | APEC Investigated |
|---|---|---|---|---|
| SS7 | - | 0.0 - 0.3 | OCPs | APEC-1 |
| SS8 | - | 0.0 - 0.3 | OCPs | APEC-1 |
| SS9 | - | 0.0 - 0.3 | OCPs | APEC-1 |
| SS10 | - | 0.0 - 0.3 | OCPs | APEC-1 |
| SS11 | - | 0.0 - 0.3 | OCPs | APEC-1 |
| SS12 | - | 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 APECs Investigated**

| APEC | Description | PCOCs | Media | Samples Analysed | Parameter Analyzed |
|---|---|---|---|---|---|
| APEC-1 | Inferred large scale application of pesticides on the Phase One Property for agricultural purposes. | OCPs | Soil | SS7 | OCPs |
| | | | | SS8 | OCPs |
| | | | | SS9 | OCPs |
| | | | | SS10 | OCPs |
| | | | | SS11 | OCPs |
| | | | | SS12 | OCPs |

**Table 4: Summary of OCPs in Soil**

| Parameter | MECP Table 2 SCS | SS7 | SS8 | SS9 | SS10 | SS11 | SS12 |
|---|---|---|---|---|---|---|---|
| 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. | | CA14289-SEP20-9 | CA14289-SEP20-10 | CA14289-SEP20-11 | CA14289-SEP20-12 | CA14289-SEP20-13 | CA14289-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 5: Summary of Maximum Concentrations in Soil**

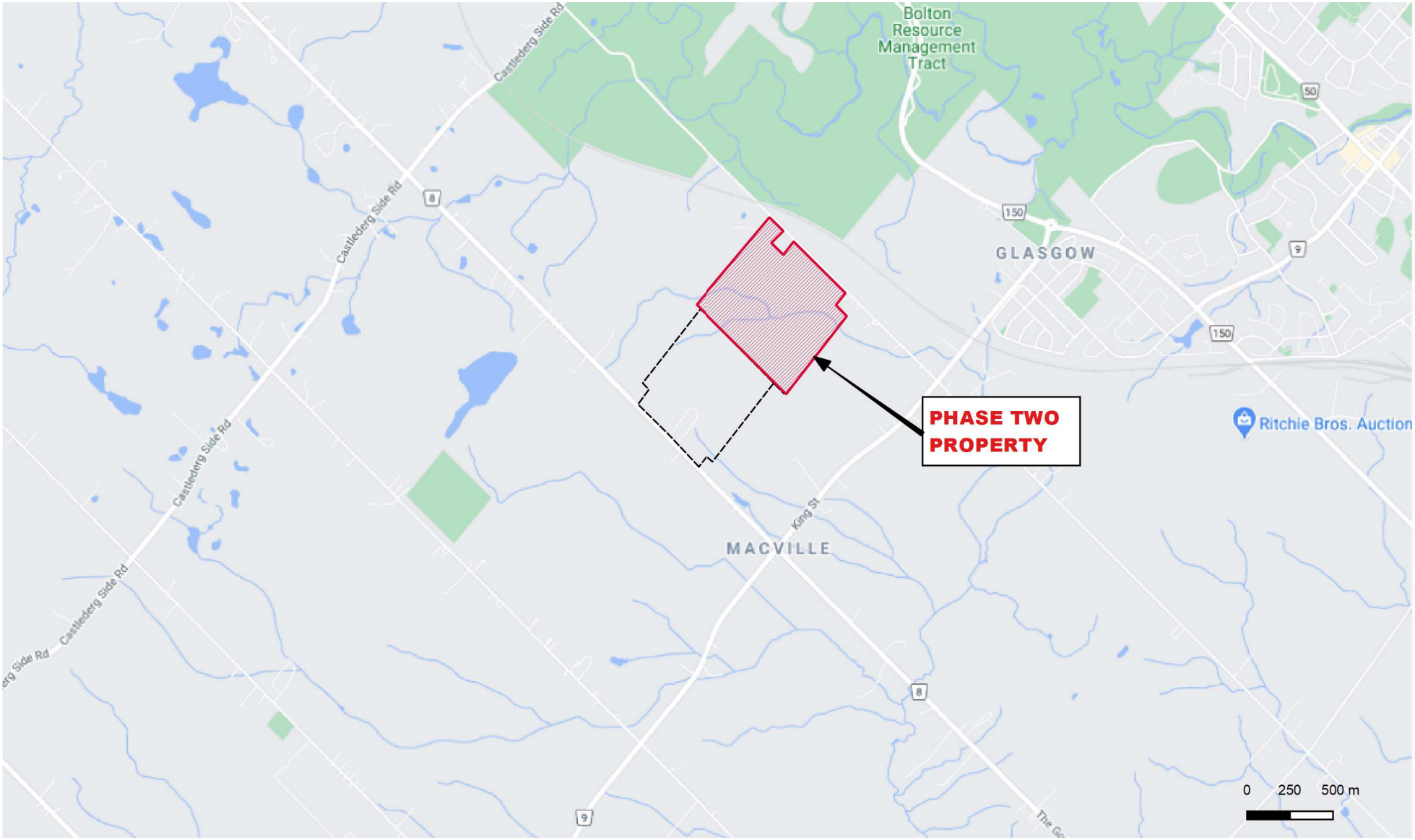
| | Parameter | Standard | Maximum Concentration | Location |
|---|---|---|---|---|
| OCPs | Aldrin | 0.05 | < 0.05 | All Samples |
| | Chlordane | 0.05 | < 0.05 | All Samples |
| | DDD | 3.3 | < 0.05 | All Samples |
| | DDE | 0.26 | < 0.05 | All Samples |
| | DDT | 1.4 | < 0.05 | All Samples |
| | Dieldrin | 0.05 | < 0.05 | All Samples |
| | Endosulfan | 0.04 | < 0.04 | All Samples |
| | Endrin | 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 |

**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 |

# Figures

J:\-GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel IV\Figure 1 - Site Location Plan.qgs May-15 15:08




Legend

- Property Boundary
- Approx Development Boundary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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
Parcel IV - Residential Development, North Bolton, ON

Title: **SITE LOCATION PLAN**

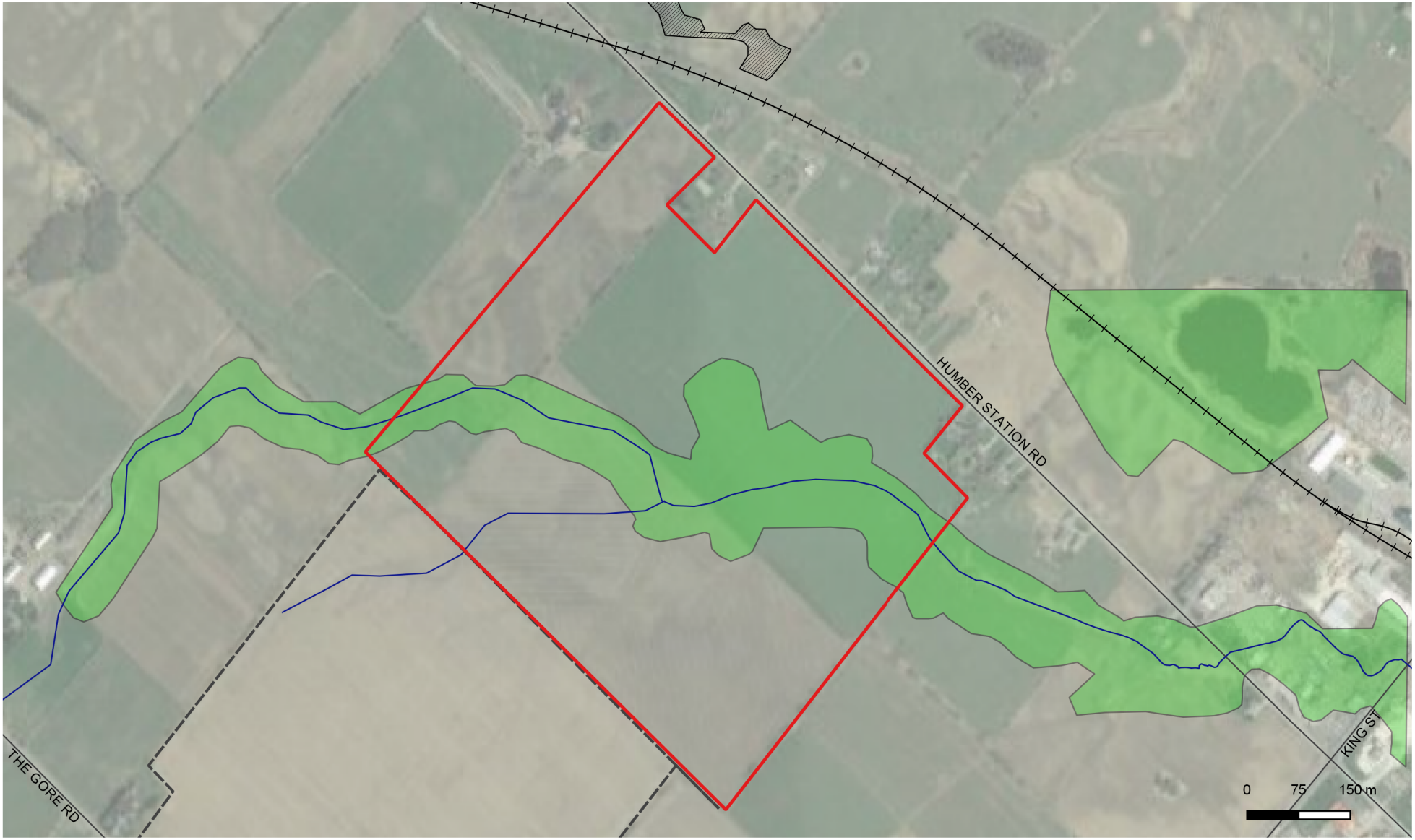
N

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

| Size: | Approved By: | Drawn By: | Date: |
|---|---|---|---|
| 8.5 x 11 | E.K | S.Y / P.P | May 2023 |
| Rev: 0 | Scale: As Shown | Project No.: 20-169-100 | Figure No.: 1 |

Image/Map Source: *Google Street Map*

J:\-GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel IV\Figure 2 - Phase Two Property Site Plan.qgs May-15 15:11




Legend

- Property Boundary
- Approx Development Boundary
- Natural Heritage System
- TRCA Regulated Area

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

Title: **PHASE ONE PROPERTY SITE PLAN**

N

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

| Size: | Approved By: | Drawn By: | Date: |
|---|---|---|---|
| 8.5 x 11 | E.K | S.Y / P.P | May 2023 |
| Rev: 0 | Scale: As Shown | Project No.: 20-169-100 | Figure No.: 2 |

Image/Map Source: *Google Satellite Image*

J:\-GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel IV\Figure 3 - Phase One Study Area.qgs May-15 15:15


Legend

- Property Boundary
- 250m Buffer
- Agricultural
- Commercial
- Open Space
- Residential
- Industrial


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Telephone: (905) 264-9393
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Client:
BOLTON OPTION 3 LANDOWNERS GROUP
c/o GLEN SCHNARR & ASSOCIATES

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

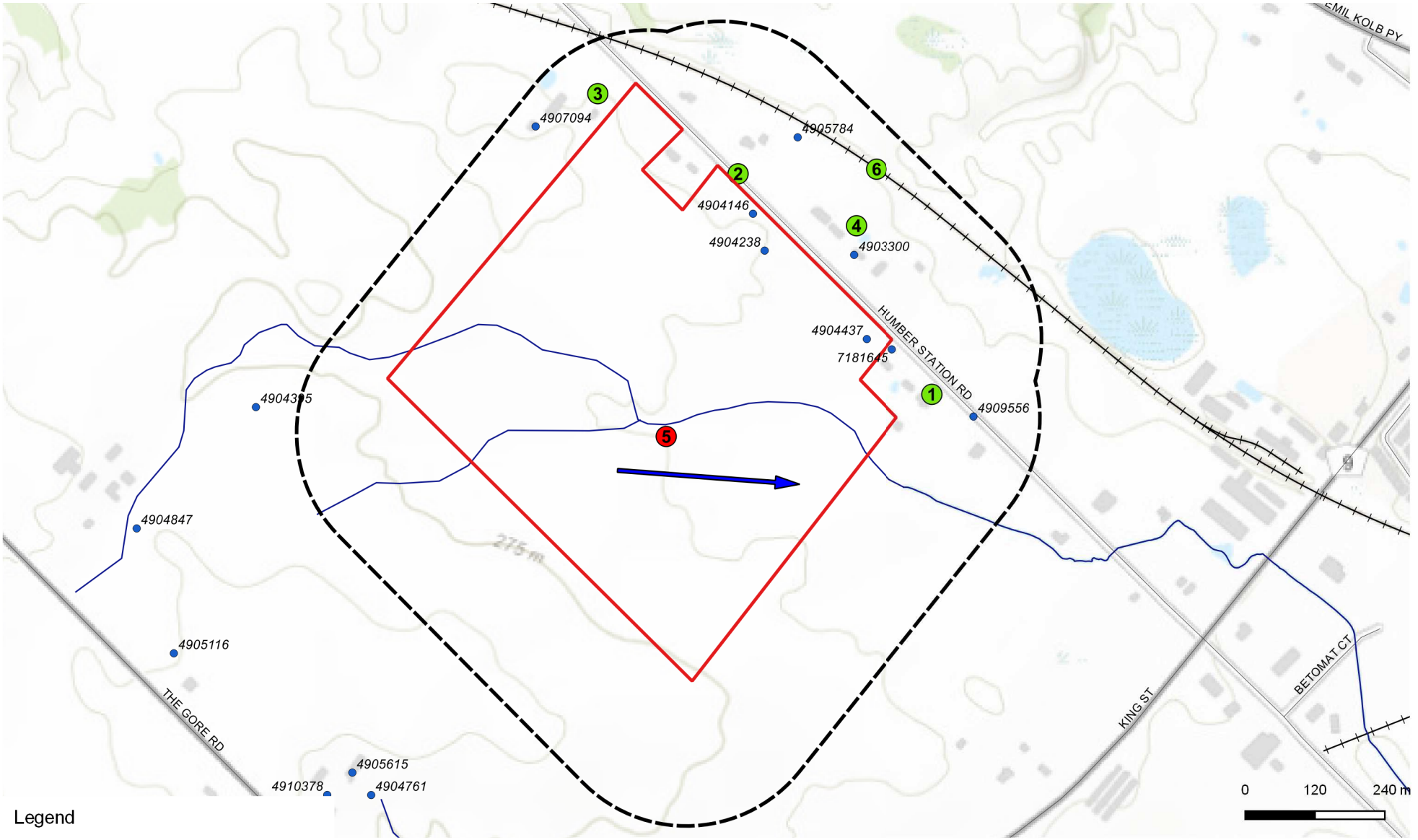
Title: **PHASE ONE STUDY AREA**

N

| Size: | Approved By: | Drawn By: | Date: |
|---|---|---|---|
| 8.5 x 11 | E.K | S.Y / P.P | May 2023 |
| Rev: 0 | Scale: As Shown | Project No.: 20-169-100 | Figure No.: 3 |

Image/Map Source: *Google Satellite Image*

J:\-GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase One\Parcel IV\Figure 4 - PCA within Phase One Study Area.qgs May-15 16:57




Legend

- Property Boundary
- 250m Buffer
- PCA not contributing to APEC
- PCA contributing to APEC
- Inferred Groundwater Flow Direction
- Registered Water Well (MECP WWR)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Project: PHASE ONE ENVIRONMENTAL SITE ASSESSMENT
Parcel IV - Residential Development, North Bolton, ON

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

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 / P.P | January 2021 |
| Rev: 0 | Scale: As Shown | Project No.: 20-169-100 | Figure No.: 4 |

Image/Map Source: *Esri Topo Map*

J:\-GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel IV\Figure 5 – Borehole Location Plan with APECs.qgs May-15 17:06


Legend

- Property Boundary
- Borehole
- Monitoring Well
- Soil Sample Location
- APEC-1


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

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

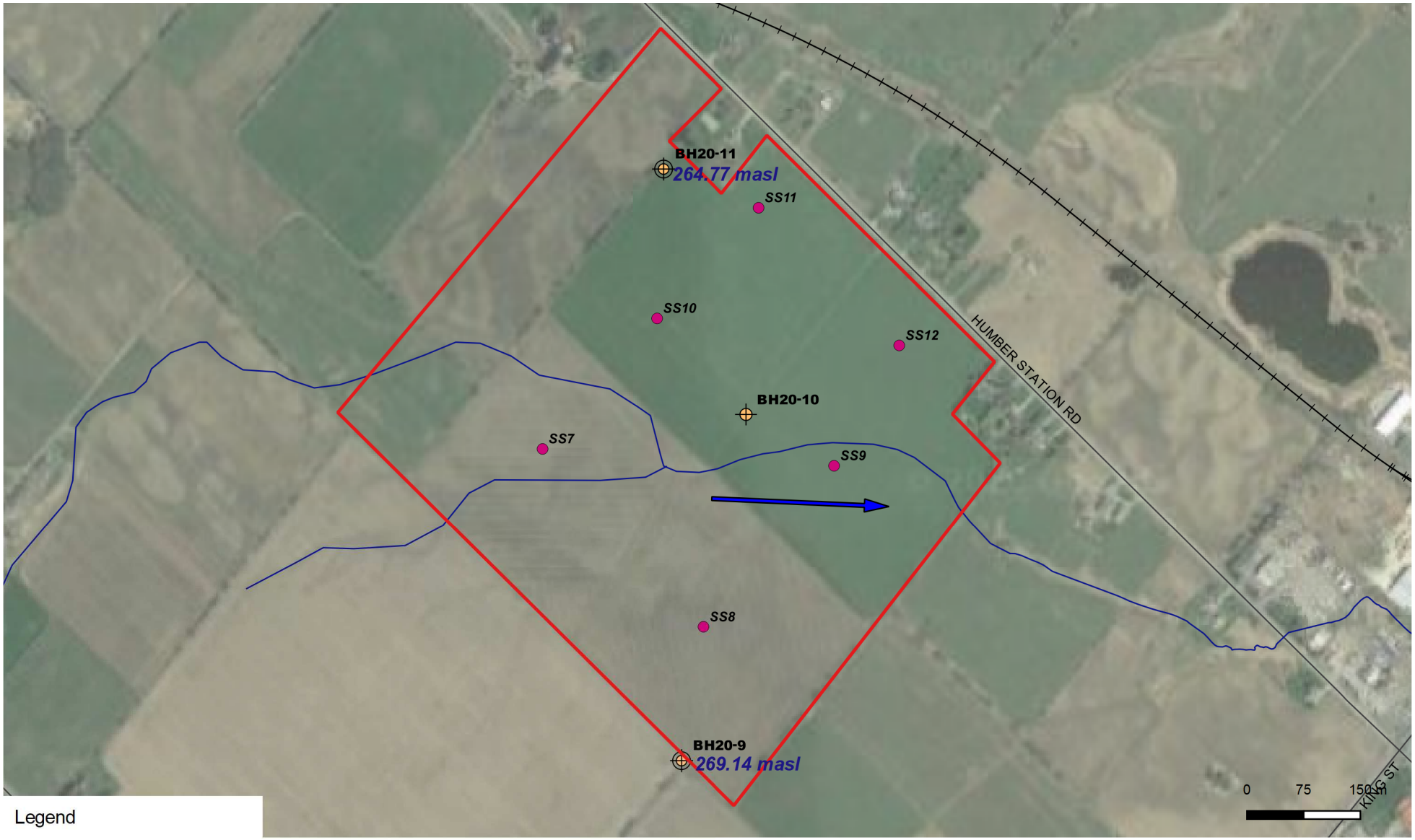
Title: **BOREHOLE-MONITORING WELL LOCATION PLAN WITH APECs**

N

| Size: | Approved By: | Drawn By: | Date: |
|---|---|---|---|
| 8.5 x 11 | E.K | S.Y / P.P | May 2023 |
| Rev: 0 | Scale: As Shown | Project No.: 20-169-100 | Figure No.: 5 |

Image/Map Source: *Google Satellite Image*

J:\-GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel IV\Figure 6 – Groundwater Elevation Contours and Flow Direction.qgs May-15 15:55




Legend

- Property Boundary
- Monitoring Well
- Borehole
- Monitoring Well
- Soil Sample Location
- Groundwater Flow Direction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Client:
BOLTON OPTION 3 LANDOWNERS GROUP
c/o GLEN SCHNARR & ASSOCIATES

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

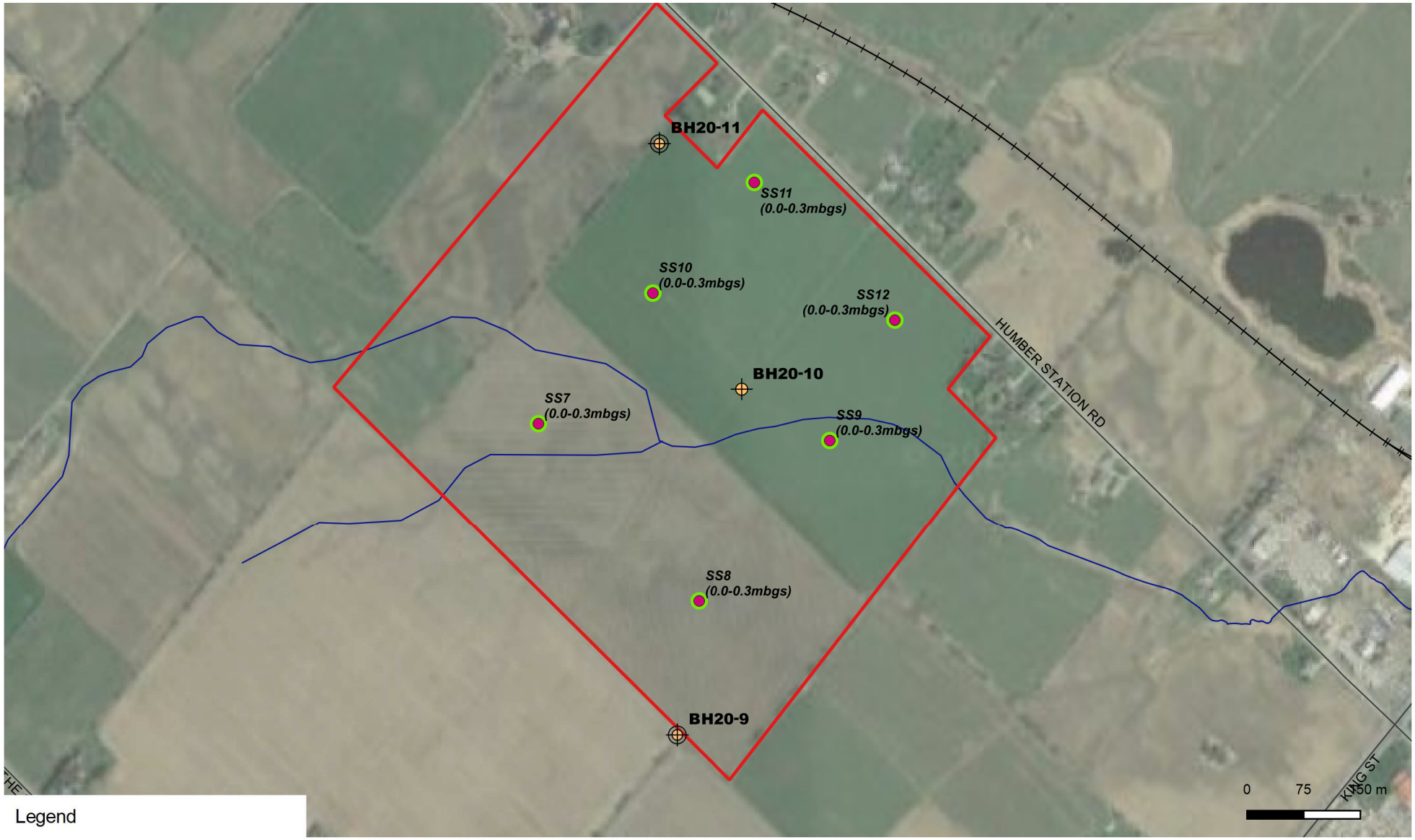
Title: **GROUNDWATER ELEVATION CONTOURS AND FLOW DIRECTION**

N

| Size: | Approved By: | Drawn By: | Date: |
|---|---|---|---|
| 8.5 x 11 | E.K | S.Y / P.P | May 2023 |
| Rev: 0 | Scale: As Shown | Project No.: 20-169-100 | Figure No.: 6 |

Image/Map Source: *Google Satellite Image*

J:\-GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\Phase Two\Parcel IV\Figure 7 – Summary of OCPs in Soil.qgs May-15 15:57




Legend

- Property Boundary
- Monitoring Well
- Borehole
- Monitoring Well
- Soil Sample Location
- Sample Met Applicable Standards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Client:
BOLTON OPTION 3 LANDOWNERS GROUP
c/o GLEN SCHNARR & ASSOCIATES

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

Title: **SOIL CHARACTERIZATION – OCPs**

N

| Size: | Approved By: | Drawn By: | Date: |
|---|---|---|---|
| 8.5 x 11 | E.K | S.Y / P.P | May 2023 |
| Rev: 0 | Scale: As Shown | Project No.: 20-169-100 | Figure No.: 7 |

Image/Map Source: *Google Satellite Image*

# 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**
**Part Lot 12 Concession 4 Albion Part 1, 43R17061, Parcel 4, 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 Part Lot 12 Concession 4 Albion Part 1, 43R17061, Parcel 4, 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 38.4 hectare (94.9 acres) parcel of land which is currently used for agricultural purposes. The first developed use of the Site is agricultural since prior to 1880, and have since never been developed with any structures. A total of six (6) 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 one (1) Areas of Potential Environmental Concern (APEC) 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-5: #40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications | On-Site | OCPs | Soil |

## 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 three (3) boreholes have been identified for geotechnical and environmental purposes, with the installation of two (2) monitoring wells. 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 |
|---|---|---|---|---|
| BH20-9 | 8.2 mbgs | Y | 8.2 mbgs | Geotechnical Purposes |
| BH20-10 | 8.2 mbgs | N | - | Geotechnical Purposes |
| BH20-11 | 9.7 mbgs | Y | 9.7 mbgs | Geotechnical Purposes |
| SS7 | 0.0 – 0.3 mbgs | N | - | Investigate APEC-1 |
| SS8 | 0.0 – 0.3 mbgs | N | - | Investigate APEC-1 |
| SS9 | 0.0 – 0.3 mbgs | N | - | Investigate APEC-1 |
| SS10 | 0.0 – 0.3 mbgs | N | - | Investigate APEC-1 |
| SS11 | 0.0 – 0.3 mbgs | N | - | Investigate APEC-1 |
| SS12 | 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 |
|---|---|---|---|---|
| SS7 | - | 0.0-0.3 | OCPs | Assess soil conditions (APEC-1) |
| SS8 | - | 0.0-0.3 | OCPs | Assess soil conditions (APEC-1) |
| SS9 | - | 0.0-0.3 | OCPs | Assess soil conditions (APEC-1) |
| SS10 | - | 0.0-0.3 | OCPs | Assess soil conditions (APEC-1) |
| SS11 | - | 0.0-0.3 | OCPs | Assess soil conditions (APEC-1) |
| SS12 | - | 0.0-0.3 | OCPs | Assess soil conditions (APEC-1) |

- 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 BH20-9



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 | BLOWS 0.3 m "N" | ELEVATION |
|---|---|---|---|---|---|
| 274.1 / 0.0 | **TOPSOIL:** 550mm | 1 | SS | 5 | 274 |
| 273.6 / 0.5 | **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 | 273 |
| | sand seams below 2.3m | 4 | SS | 38 | 272 |
| | | 5 | SS | 72 | 271 |
| | grey below 4.5m | 6 | SS | 45 | 270 |
| | trace cobble, very moist below 6m | 7 | SS | 24 | 269 |
| 266.6 / 7.5 | **SANDY SILT:** trace clay, grey, wet, compact | 8 | SS | 29 | 268 |
| 265.9 / 8.2 | **END OF BOREHOLE:** | | | | 267 |
| | | | | | 266 |

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 |

GROUND WATER CONDITIONS: Bentonite; Filter Pack; Slotted Pipe; W. L. 269.7 m Aug 06, 2020; W. L. 269.1 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, ×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 BH20-10



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 4858404.6 E 597955.26

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

REF. NO.: 20-169-100
ENCL NO.: 11

| ELEV / DEPTH (m) | DESCRIPTION | NUMBER | TYPE | BLOWS 0.3 m "N" | ELEVATION |
|---|---|---|---|---|---|
| 268.3 / 0.0 | **TOPSOIL:** 300mm | | | | |
| 268.0 / 0.3 | **FILL:** sandy silt, trace topsoil/ organics, trace gravel, trace rootlets, brown, moist, compact | 1 | SS | 15 | 268 |
| 267.5 / 0.8 | **SILTY CLAY TILL:** some sand, trace gravel, sand seams, brown, moist to very moist, very stiff | 2 | SS | 21 | |
| | | 3 | SS | 25 | 267 |
| | | 4 | SS | 25 | 266 |
| | grey below 3m | 5 | SS | 16 | 265 |
| | | 6 | SS | 20 | 264 |
| | | 7 | SS | 17 | 263 |
| | | 8 | SS | 15 | 262 |
| 260.1 / 8.2 | **END OF BOREHOLE:** | | | | 261 |

Notes:
1) Borehole dry and open upon completion.

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

# LOG OF BOREHOLE BH20-11



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 4858726.5 E 597841.19

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

REF. NO.: 20-169-100
ENCL NO.: 12

| ELEV / DEPTH (m) | DESCRIPTION | NUMBER | TYPE | BLOWS 0.3 m "N" | ELEVATION |
|---|---|---|---|---|---|
| 270.1 | | | | | |
| 0.0 / 269.8 | **TOPSOIL:** 300mm | | | | |
| 0.3 / 269.3 | **FILL:** sandy silt, trace topsoil/ organics, trace gravel, trace rootlets, brown, moist, compact | 1 | SS | 12 | 270 |
| 0.8 | **SILTY CLAY TILL:** sandy, trace gravel, sand seams, brown, moist, very stiff to hard | 2 | SS | 19 | 269 |
| | | 3 | SS | 22 | |
| | | 4 | SS | 28 | 268 |
| | | 5 | SS | 44 | 267 |
| | grey below 4.5m | 6 | SS | 24 | 266 |
| | | | | | 265 |
| | | 7 | SS | 21 | 264 |
| 262.4 | | | | | 263 |
| 7.7 | **SILT:** some sand, trace clay, trace gravel, grey, wet, compact | 8 | SS | 28 | |
| | | 9 | SS | 27 | 261 |
| 260.4 | | | | | |
| 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 | 5.42 |
| Sept 8, 2020 | 5.37 |
| Oct 22, 2020 | 5.33 |

Bentonite
Filter Pack
Slotted Pipe
W. L. 264.7 m
Aug 06, 2020

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 |
|---|---|---|---|
| 1 | 11 | 80 | 8 |

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

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

# Appendix C

# FINAL REPORT

## CA14289-SEP20 R

## 20-169-100

Prepared for

DS Consultants

# FINAL REPORT

CA14289-SEP20 R

## First Page

CLIENT DETAILS

| | |
|---|---|
| Client | DS Consultants |
| Address | 6221 Highway 7<br>Vaughan, Ontario<br>L4H 0K8. Canada |
| Contact | Drew Doak |
| Telephone | 905-264-9393 |
| Facsimile | 905-264-2685 |
| Email | drew.doak@dsconsultants.ca |
| Project | 20-169-100 |
| Order Number | |
| Samples | Soil (6) |

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 |
| Facsimile | 705-652-6365 |
| Email | brad.moore@sgs.com |
| SGS Reference | CA14289-SEP20 |
| Received | 09/11/2020 |
| Approved | 09/18/2020 |
| Report Number | CA14289-SEP20 R |
| Date Reported | 09/18/2020 |

COMMENTS

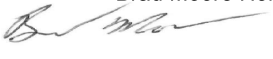
Temperature of Sample upon Receipt: 3 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

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

Brad Moore Hon. B.Sc



## TABLE OF CONTENTS

**Client:** DS Consultants
**Project:** 20-169-100
**Project Manager:** Drew Doak
**Samplers:** Scott Watson

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

L1 = REG153 / SOIL / COARSE - TABLE 2 - Industrial/Commercial - UNDEFINED
L2 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

| Parameter | Units | RL | L1 | L2 | Sample Number 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Sample Name SS7 | SS8 | SS9 | SS10 | SS11 | SS12 |
| | | | | | 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 | % | - | | | 17.3 | 20.4 | 19.6 | 11.7 | 12.3 | 13.4 |

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

L1 = REG153 / SOIL / COARSE - TABLE 2 - Industrial/Commercial - UNDEFINED
L2 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

| Parameter | Units | RL | L1 | L2 | Sample Number 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Sample Name SS7 | SS8 | SS9 | SS10 | SS11 | SS12 |
| | | | | | 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 | < 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 | < 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 | 3.3 | < 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 | 0.26 | < 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 | 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 | < 0.05 |
| gamma-BHC | µg/g | 0.01 | 0.056 | 0.056 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |

**Client:** DS Consultants
**Project:** 20-169-100
**Project Manager:** Drew Doak
**Samplers:** Scott Watson

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

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

L2 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **Sample Number** | 9 | 10 | 11 | 12 | 13 | 14 |
| | | | | **Sample Name** | SS7 | SS8 | SS9 | SS10 | SS11 | SS12 |
| | | | | **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** | **L2** | **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 | < 0.04 |
| Endrin | µg/g | 0.04 | 0.04 | 0.04 | < 0.04 | < 0.04 | < 0.04 | < 0.04 | < 0.04 | < 0.04 |
| Heptachlor | µg/g | 0.01 | 0.19 | 0.15 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Heptachlor epoxide | µg/g | 0.01 | 0.05 | 0.05 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Hexachlorobenzene | µg/g | 0.01 | 0.66 | 0.52 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Hexachlorobutadiene | µg/g | 0.01 | 0.031 | 0.012 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Hexachloroethane | µg/g | 0.01 | 0.21 | 0.089 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Methoxychlor | µg/g | 0.05 | 1.6 | 0.13 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |

**Client:** DS Consultants

**Project:** 20-169-100

**Project Manager:** Drew Doak

**Samplers:** Scott Watson

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

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

L2 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **Sample Number** | 9 | 10 | 11 | 12 | 13 | 14 |
| | | | | **Sample Name** | SS7 | SS8 | SS9 | SS10 | SS11 | SS12 |
| | | | | **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** | **L2** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** |
| **Pesticides Surrogate** | | | | | | | | | | |
| Surr Decachlorobiphenyl | Surr Rec % | - | | | 102 | 99 | 105 | 103 | 103 | 101 |

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

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

L2 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **Sample Number** | 9 | 10 | 11 | 12 | 13 | 14 |
| | | | | **Sample Name** | SS7 | SS8 | SS9 | SS10 | SS11 | SS12 |
| | | | | **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** | **L2** | **Result** | **Result** | **Result** | **Result** | **Result** | **Result** |
| **VOC Surrogates** | | | | | | | | | | |
| Surr TCMX | Surr Rec % | - | | | 94 | 93 | 95 | 105 | 104 | 103 |

## 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 | 243 | 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.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated. This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

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-- 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: D. REID
Received Date: 09.11.20 (mm/dd/yy)
Received Time: 15:30 (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): 2°.3°.4°
LAB LIMS #: CA-14289-Sep20

| REPORT INFORMATION | INVOICE INFORMATION |
|---|---|
| Company: DS Consultants | ☐ (same as Report Information) |
| Contact: Drew Doak | Company: DS |
| Address: 6221 Hwy 7, Unit 16, Vaughan, Ontario | Contact: Paviola Derveni |
| Phone: | Address: |
| Fax: | Phone: |
| Email: drew,doak@dsconsultants.ca | Email: accounting@dsconsultants.ca |

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**

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

**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 | SS7 | Sept 3,2020 | AM | 1 | Soil |
| 2 | SS8 | Sept 3,2020 | AM | 1 | Soil |
| 3 | SS9 | Sept 3,2020 | AM | 1 | Soil |
| 4 | SS10 | Sept 3,2020 | AM | 1 | Soil |
| 5 | SS11 | Sept 3,2020 | AM | 1 | Soil |
| 6 | SS12 | Sept 3,2020 | AM | 1 | Soil |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |

| M & I | | | | SVOC | | PCB | PHC | | VOC | | Pest | Other (please specify) | | | | | | | | TCLP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Field Filtered (Y/N) | Metals & Inorganics incl CrVI, CN, Hg pH (B(HWS),Etc.SAR—soil) (Cr, Na—water) | Full Metals Suite (CP metals plus B(HWS-soil only) Hg, CrVI | ICP Metals only Sb-As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni, Se,Ag,Tl,Li,V,Zn | PAHs only | SVOCs all incl PAHs, ABNs, CPs | PCBs Total ☐ Aroclor ☐ | F1-F4 + BTEX | F1-F4 only no BTEX | VOCs all incl BTEX | BTEX only | Pesticides Organochlorine or specify other | | | | | | Sewer Use: Specify pkg: | Water Characterization Pkg General ☐ Extended ☐ | Specify TCLP tests ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ gnit. | COMMENTS: |
| | | | | | | | | | | | ✓ | | | | | | | | | | |
| | | | | | | | | | | | ✓ | | | | | | | | | | |
| | | | | | | | | | | | ✓ | | | | | | | | | | |
| | | | | | | | | | | | ✓ | | | | | | | | | | |
| | | | | | | | | | | | ✓ | | | | | | | | | | |
| | | | | | | | | | | | ✓ | | | | | | | | | | |

Observations/Comments/Special Instructions

| | | | | |
|---|---|---|---|---|
| **Sampled By (NAME):** | Scott Watson | **Signature:** Scott Watson Digitally signed by Scott Watson Date: 2020.09.11 14:25:43 -04'00' | Date: 09 / 11 / 20 (mm/dd/yy) | Pink Copy - Client |
| **Relinquished by (NAME):** | Scott Watson | **Signature:** Scott Watson Digitally signed by Scott Watson Date: 2020.09.11 14:26:05 -04'00' | Date: 09 / 11 / 20 (mm/dd/yy) | Yellow & White Copy - SGS |

Revision # 1.3
Date of Issue: 13 Oct, 2019

**Note:** Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. (2) Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). (3) Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.