# Phase Two Environmental Site Assessment Concession 1, Part Lot 8, North of Dundas Street Oakville, Ontario

# **Prepared For:**

Argo (Joshua Creek) Limited 2173 Turnberry Road Burlington, ON, L7M 4P8

**DS Project No:** 18-518-20 **Date:** July 25, 2018



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# **1. EXECUTIVE SUMMARY**

DS Consultants Ltd. (DS) was retained by Argo (Joshua Creek) Limited to complete a Phase Two ESA of the Property located at the north of Dundas Street East, Oakville, Regional Municipality of Halton, Ontario (Phase Two Property or the Property). The Phase Two Property covers an area of approximately 38.48 hectares (95.1 acres). and is currently undeveloped.

DS understands that the Property will be developed by Argo (Joshua Creek) Limited and this Phase Two ESA was requested to facilitate development of the Property and for due diligence purposes. It is further understood that the site is intended to be developed for residential use. A Record of Site Condition (RSC) filing will not be required to support the development to a less sensitive land use, in accordance with Ontario Regulation (O. Reg.) 153/04.

The Phase Two ESA was completed to satisfy the intent of the requirements, methodology and practices for a Phase Two ESA as described in Ontario Regulation 153/04 (as amended).

DS recently conducted a Phase One ESA for the Property (July 2018). Based on the presence of fill materials at the Property, the historical use of the Property for agricultural purposes, information available for the dumping of unknown materials on the Property and the historical agricultural use of properties located in the Study Area (operator of pesticides and storage of liquid industrial waste), a subsurface soil and ground water investigation (Phase Two ESA) was recommended to confirm the quality of soil and ground water at the Property.

To investigate the above findings, a Phase Two ESA was conducted, which consisted of advancing boreholes and installing monitoring wells to collect soil and ground water samples at the Property.

The Phase Two ESA was conducted in conjunction with a geotechnical investigation and hydrogeological study.

Based upon the results of the Phase Two ESA, the following conclusions were presented:

- The Phase Two ESA consisted of drilling a total of thirteen (13) boreholes on the Property. These boreholes were drilled to varying depths to maximum 9.2 m below ground surface (bgs) to investigate the soil and ground water condition at the Property. Monitoring wells were installed in six (6) selected locations to cover the Property.
- The stratigraphy beneath the investigated areas of the Property generally consisted of a maximum of 460 mm of topsoil followed by native glacial till (primarily clayey silt to silty clay). All boreholes terminated at shale bedrock with the exception of borehole AR-13 located to the northwest of the Property. Silty sand layer was observed from 4.3 m to 7.9 m above a layer of sand and gravel at this location. Depth of shale bedrock encountered at borehole locations varied between 1.5 to 9 m.

- The Property is located within 30 m of a water body. The results of the samples submitted for chemical analysis were compared to the full depth generic site condition standards in a potable ground water condition for coarse textured soil as contained in Table 8 of the Ministry of Environment, Conservation and Parks (MECP) publication "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*" for non-potable groundwater condition for all Property Use (industrial/commercial/community and residential/parkland/institutional), April 15, 2011. The Property includes a natural heritage system and wetlands. The chemical analysis results were also compared to the MECP Table 1, background standards.
- A total of eighteen (18) soil samples from the selected borehole locations including quality control (QC) duplicates were submitted for chemical analysis of petroleum hydrocarbons PHCs (F1-F4), volatile organic compounds (VOCs), organochlorine (OC) pesticides, metals and inorganic parameters and pH.
- No exceedances of the applicable Standards (Table 1 or Table 8) for parameters analyzed in fine/medium or coarse textured soil were found in any of the soil samples analyzed with the exception of electrical conductivity (EC). Exceedance of EC from the site condition standards (Table 1 or Table 8) was observed at the location of borehole AR7 within 3 m.
- A total of nine (9) ground water samples, including one QC and field and trip blanks samples from a total of six monitoring wells were analysed for metal and inorganics, PHCs, OC pesticides, polychlorinated biphenyls (PCBs) and VOCs.
- No exceedances of the applicable standards for the parameters analyzed were found in any of the ground water samples analyzed. All ground water samples met the MECP Table 1 and 8 site condition standards.
- The measured pH values of soil and ground water samples were within the MECP guideline.

Based on the findings of Phase Two ESA, DS recommends removal of EC-impacted soil during the property development. The extent of EC-impacted soil is recommended to be determined horizontally and vertically prior to offsite disposal. No other investigation is required at this time.

• All wells installed during the subsurface investigation are required to be decommissioned in accordance with O.Reg. 903 when they are no longer needed for ground water observation.

# 2. INTRODUCTION

DS Consultants Ltd. (DS) was retained by Argo (Joshua Creek) Limited to complete a Phase Two ESA of the Property located at Dundas Street East with the legal Description of "Part Lot 8, Concession 1, north of Dundas Street, Geographic Township of Trafalgar, now in The Town of Oakville, Regional Municipality of Halton, Ontario" (Phase Two Property or the Property).

DS understands that the Property will be developed for residential purposes by Argo (Joshua Creek) Limited and this Phase Two ESA was requested to facilitate development of the Property and for due diligence purposes.

The Phase Two ESA was completed to satisfy the intent of the requirements, methodology and practices for a Phase Two ESA as described in Ontario Regulation 153/04 (as amended).

The purpose of this Phase Two ESA was to determine the presence and/or extent of environmental impacts on, in or under the Phase Two Property resulting from the potentially contaminating activities (PCAs) identified during the previous investigations.

# 2.1 Site Description

The Phase Two Property is an approximately L shaped parcel of land located on the north side of Dundas Street East, in a mixed agricultural, residential, and commercial area of the Town of Oakville. The Glen Oak Cemetery and Fern School are located further northeast of the Property.

According to the Preliminary Development Concept dated July 19, 2018, prepared by Gerrard Design Associates, the Property covers an area of 38.48 ha. 7.55 ha of land has been marked as a Natural Heritage System (NHS) and 0.3 ha will be used for road widening. The developable area is estimated to be 30.95 ha (76.5 acres). A wooded area is located to the northeast of the Property. The woodlot was excluded from soil and ground water investigation (Phase Two ESA).

The Property is located approximately 0.8 km to the west of Ninth Line. The location of the Property is shown in Figure 1. The Phase Two Property is currently undeveloped.

Phase One Property	Information	Source
Legal Description	Part Lot 8, Concession 1, Parts 4, 5, 6 and 7, HR-892160,	Land Registry Office
	Township of Trafalgar, NDS, Now in Town of Oakville, Regional	
	Municipality of Halton	
Property Identification Number (PIN)	24930-0169 (LT)	Land Registry Office
Legal Description	Part Lot 8, Concession 1, Part 1 20R61, S&E Parts 1, 2, 4, 5, 6 & 7,	Land Registry Office
	Township of Trafalgar, NDS, Now in Town of Oakville, Regional	

The information for the Phase Two Property is provided in the following Table.

Phase One Property	Information	Source
	Municipality of Halton	
Property Identification Numbers (PINs)	24930-0170 (LT) & 24930-0171 (LT)	Land Registry Office
Municipal Address	None	Town of Oakville, online-information
Zoning	Existing Development (ED)	Town of Oakville, online-information

# 2.2 Property Ownership

The ownership information for the Phase Two Property is as follows:

Property Owner	Address	Contact Name	Source
Diam Contractors Limited	Oakville	Diana Ditomaso ( <u>ditomaso@rogers.com</u> )	Land Registry Office
		1-954-925-1753	

# 2.3 Current and Proposed Future Uses

#### 2.3.1 Current Use

The current use of the Property is agricultural.

# 2.3.2 Future Use

A residential development is proposed for the Property. This proposed property use does not represent a change to a more sensitive property use, therefore section 168.3.1 of the Environmental Protection Act would not require mandatory filing of a Record of Site Condition prior to the change in use of the Property.

# 2.4 Applicable Site Condition Standard

The applicable Site Condition Standards for the Phase Two Property were determined to be those contained in Table 8 of the April 15, 2011 MECP "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" full depth generic site condition standards. The selection of the Table 8 Standards is based on the following rationale:

#### a) Location:

The Property is located in Town of Oakville. The property uses in the area surrounding the Property is predominantly agricultural, residential, and commercial. The properties located in the Study Area included water wells listed in the MECP's Water Well Information System (WWIS).

# b) Residential Property Use:

The proposed use of the Phase Two Property is for a residential development.

# c) Coarse Textured Soil:

For purpose of this report, coarse textured soil has been selected.

# d) Water body:

The Property is located within 30 m of a surface water body. During the site visit a creek was observed within the Property.

# e) Bedrock:

Bedrock across the Property is located at a depth of greater than 2 m.

# f) Environmentally Sensitive:

Based on these considerations, the MECP Standards for 30 m within a water body for residential/parkland/institutional (RPI) property use in a potable ground water condition for coarse textured soils contained in Table 8 of the Soil, Ground Water and Sediment Standards is used to evaluate the environmental quality of the soil encountered at the Property.

Since the Property includes a natural heritage system (NHS), the results were also compared to Table 1, Full Depth Background Site Condition Standards.

# **3. BACKGROUND INFORMATION**

# 3.1 Physical Setting

# **3.1.1** Water Bodies and Areas of Natural Significance

The Property is located within 30 m of a water body. Unnamed water bodies were identified on the Property. Unnamed tributaries of Joshua's Creek (seasonal and permanent) are located within the Property. The location of creeks is shown on the topographic survey prepared by Rady-Pentex & Edward Surveying Ltd., Ontario Land Surveyor, dated April 5, 2018. A permanent creek is located within the south portion of the Property.

The Property and Study Area includes no Provincially Significant Life Science or Provincially Significant Earth Science Areas. The Property includes area that will remain as a Natural Heritage System.

# 3.1.2 Topography and Geology

According to Toporama, an online topographic map provided by Natural Resources Canada, which covers the subject Property, the ground surface at the Property is relatively flat and slopes in a southeasterly direction towards Joshua's Creek, located approximately 0.1 to 0.3 km from the Property. Unnamed tributaries of the creek are located within the property. A permanent creek is located within the south portion of the Phase One Property. Surficial water is anticipated to be directed towards the creeks observed at the Property.

According to the topographic map, April 5, 2018, the Property is located at an elevation of approximately 174 m to the northwest which decreased to 170 m to the northeast and to 163 m to the

southeast (Appendix A). The shallow ground water flow on the Property is expected to be towards the creek present on the Property and southeast towards Joshua's Creek. According to the survey plan wetland areas are located to the north portion of the property, in the vicinity of a woodlot.

According to the geological map entitled "Quaternary Geology of Ontario -Southern Sheet" Map 2556, published by the Ministry of Northern Development and Mines, dated 1991, the overburden in the region of the subject Property consists of glaciolacustrine deposits. This material is generally characterized as a silt and clay with minor sand.

The surficial geology maps available on the Ontario Geological Survey (OGS) Earth website, published by the Ontario Ministry of Northern Development, Mines and Forestry, show the surficial soils in the area of the Phase Two Property to be clay to silt textured till, derived from glaciolacustrine deposits or shale (i.e., medium to fine textured soils are anticipated).

According to the bedrock geology map entitled "Bedrock Geology of Ontario-Southern Sheet" published by the Ministry of Northern Development and Mines, dated 1991, the bedrock of the area consists of Upper Ordovician, Queenston Formation. The Queenston Formation consists of shale with limestone, dolostone, and dolomite. According to Ontario MECP Well Records, the depth to bedrock within the Phase Two Study Area ranges from 3 to 10 mbgs.

Based on the physiography maps available on the OGS Earth website, published by the Ontario Ministry of Northern Development, Mines and Forestry, the Phase Two Property is situated within a drumlinized till plain.

It should be noted that the subsurface soil, rock and ground water conditions described above represent generalized conditions only and should not be considered site specific.

DS concurrently with this Phase Two ESA has prepared reports regarding a geotechnical investigation and hydrogeological study of the Property (April 2018). Details for soil stratigraphy and site hydrogeology are provided in our geotechnical and hydrogeological reports under separate covers.

# 3.2 Past Investigations

# 3.2.1 Relevant Past Investigations

According to the owner of the Property, no environmental reports were available for the Property.

Report Title	Phase One Environmental Site Assessment, Concession 1, Part Lot 8, Oakville
Report Date	July 20, 2018
Prepared By	DS Consultants Ltd.
Prepared For	Argo (Joshua Creek) Limited

DS recently prepared the following Phase One ESA for the Property.

According to the report, the following was the identified as Potentially Contaminating Activities (PCAs) causing Areas of Potential Environmental Concern (APECs) at the Property and Study Area.

### Within Phase One Property

- PCA# 30. Importation of Fill Material of Unknown Quality. The records review of the Property revealed that the Property has been used for agricultural purposes and includes an uneven surface. Fill materials of unknown quality might have been used at the Property.
- 2. PCA# 40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications. The records review of the Property revealed that the majority of the Property has been used for agricultural purposes. OC pesticides might have been used on the Property for farming purposes.
- **3.** Other (Ontario Spill- Unknown Quality Materials Dumped). According to the Ecolog ERIS report, one record was available for the Property in Ontario Spill data list, dated 1997. The information was regarding 26 barrels of unknown material dumped at the side of the road. According to the report, soil contamination was possible at the Property.

#### Within Study Area

- 4. PCA# 40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications. According to the Ecolog ERIS report, the adjoining southern property occupied by Arthex Landscape Contractors was listed with the MECP as an operator and storage of pesticides in 2002.
- 5. Other (storage and handling liquid waste). According to the Ecolog ERIS report, the adjoining southern property (1279 Dundas Street East) occupied by Arthex Landscape Contractors with waste register number ON2958174 was listed for storage of waste oils & lubricants during 2006-2009. The property was also registered with waste register number ON9940070 for the same liquid industrial waste and oily skimmings and sludges and by LMS Group Ltd. From 2012 to 2017. This property is owned by Halton Region.

# 4. SCOPE OF THE INVESTIGATION

The scope of the Phase Two ESA was determined to assess the soil and ground water quality at the Property, based on the findings of the Phase One ESA completed at the Property.

# 4.1 **Overview of Site Investigation**

The Phase Two ESA included drilling fourteen (14) boreholes and the installation of six (6) monitoring wells in selected boreholes.

The Phase Two ESA for the Property included the following work at the Property:

- Requests to the various utility providers through the Ontario One Call network
- Preparing personnel and equipment to complete the work
- Private utility locating was carried out prior to the subsurface investigation at the location of the investigation
- Review of available previous investigations of the subject Property
- A preliminary site visit and development of the Phase Two work plan
- Collection and analysis of soil samples for select potential contaminants of concern (COCs) including
  - o Metals
  - Hydride Forming Metals (H-M)
  - Selected other regulated parameters (ORPs)
    - Boron-Hot Water Soluble (B-HWS)
    - Cyanide (CN-)
    - Electrical Conductivity (EC)
    - Mercury (HG)
    - pH
    - Sodium Adsorption Ratio (SAR)
  - Volatile organic compounds (VOCs)
  - o Benzene, Toluene, Ethylbenzene, and Xylene (BTEX)
  - Petroleum hydrocarbons (PHCs)
  - o OC Pesticides
- Measure the ground water levels in all wells present at the Property for identification of the ground water flow direction
- Develop installed monitoring wells
- Collection and analysis of ground water samples for select potential contaminants of concern (COCs) including:
  - o Metals

- Hydride Forming Metals (H-M)
- Selected other regulated parameters (ORPs)
  - Boron-Hot Water Soluble (B-HWS)
  - Cyanide (CN-)
  - Electrical Conductivity (EC)
  - Mercury (HG)
  - pH
  - Sodium Adsorption Ratio (SAR)
- Volatile organic compounds (VOCs)
- o Benzene, Toluene, Ethylbenzene, and Xylene (BTEX)
- Petroleum hydrocarbons (PHCs)
- o PCBs
- OC Pesticides
- Review the analytical results and compare with the current applicable MECP Table 8 and compare to the Table 1 SCS and
- Data interpretation and report preparation.

# 4.2 Media Investigated

# 4.2.1 Rationale for Inclusion or Exclusion of Media

Media	Included or Excluded	Rationale
Soil	Included	Soil at the Phase Two Property was identified as being a potentially contaminated medium due to the historical use of fill and pesticides at the Property. Therefore, soil was included for sampling and analysis.
Ground water	Included	Ground water at the Phase Two Property was identified as being a potentially contaminated medium as a result of historical activities on the Property and on a southern property located within the Study Area. Therefore, ground water was included for sampling and analysis.
Sediment	Excluded	Sediment is not present at the Phase Two property and therefore was not included for sampling and analysis.
Surface Water	Excluded	Surface water bodies were not included for sampling and analysis.

# 4.2.2 Overview of Field Investigation of Media

During the soil sampling, a split spoon sampling device was used, and ground water was collected from all monitoring wells recently installed within the selected boreholes by DS.

# 4.3 Phase One Conceptual Site Model

According to the Phase One ESA, the identified environmental concerns included use of the Property for agricultural purposes with fill materials.

Based on the records review, the following Table summarizes areas of potential environmental concern (APECs) and potential contaminants of concern (COCs) and media potentially impacted.

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	Southwest and southeast of the Property	PCA#30-Importation of Fill Material of Unknown Quality	On Site	Metals, As, Sb, Se, B-HWS, CN Electrical Conductivity CR (VI) Hg SAR	Soil
APEC-2	Open Filed	PCA#40. Pesticides (including Herbicides, Fungicides and Anti- Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On Site	OCs	Soil and ground water
APEC-3	South of the Property	Other Dumping unknown materials at the Property	On Site	PHCs VOCs Metals, As, Sb, Se, B-HWS, CN Electrical Conductivity CR (VI) Hg SAR	Soil and ground water
APEC-4	Southern portion of the Property	PCA#40. Pesticides (including Herbicides, Fungicides and Anti- Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	Off Site	OCs	Soil
APEC - 5	Southern Portion of the Property	Other Storage and handling of Liquid hydrocarbon related Waste	Off Site	PHCs Metals, As, Sb, Se, B-HWS, CN Electrical Conductivity CR (VI) Hg SAR	Soil

The Phase Two ESA was conducted concurrently with geotechnical investigations. The rationale for the selection of the boreholes for environmental purposes is shown on the following Table.

Sample ID	Location	Parameter Analysed (O.Reg. 153/04 as amended)
BH-AR1	At the southwest portion of the Property to assess potential	OC Pesticides
	impacts to the Property resulting from historical activity of the	
	Property and the adjoining southern property (1279 Dundas	
	Street East).	
BH-AR2	At the southwest portion of the Property to assess potential	Soil:
	impacts to the Property resulting from historical activity of the	OC Pesticides
	Property and the adjoining southern property.	
		Ground Water:
	To determine the ground water flow direction. This well was	Metals and Inorganics, PHC (F1-
	used for ground water quality confirmation.	F4), VOCs
BH-AR3	At the southwest portion of the Property to assess potential	Soil:
	impacts to the Property resulting from historical activity of the	PHCs (F1-F4)
	Property and the adjoining southern property.	Caile
BH-AR4	At the southwest portion of the Property to assess potential	
	Property and the adjoining southern property	
	At the southeast portion of the Property to assess potential	Soil ·
BIFARS	impacts to the Property resulting from historical activity of the	(E1-E4) VOCs
	Property and the adjoining southern and eastern properties	(11-14); VOCS
BH-AR6	At the southern portion of the Property to assess potential	Soil
Dirivato	impacts to the Property resulting from historical activity of the	OC Pesticides M & I
	Property.	
	To determine the ground water flow direction. This well was	Ground Water:
	used for ground water quality confirmation.	Metals and Inorganics, PHC (F1-
		F4), VOCs
BH-AR7	At the southeast portion of the Property boundary to assess	Soil :
	potential impacts to the Property resulting from historical	M & I
	activity of the Property and the adjoining southern and eastern	
	properties.	
BH-AR8	At the mid-south of the Property to assess potential impacts to	Soil:
	the Property resulting from historical activity of the Property.	OC Pesticides
BH-AR9	At the northwest of the south portion of the Property to assess	Soil:
	potential impacts to the Property resulting from historical	PHCs (F1-F4), M & I
	activity of the Property.	
	To determine the ground water flow direction. This well was	Ground Water:
	used for ground water quality confirmation.	VOCs
BH-AR10	At the northeast of the south portion of Property to assess	Soil:
5	potential impacts to the Property resulting from historical	VOCs
	activity of the Property.	
	, , ,	
	To determine the ground water flow direction. This well was	Ground Water:
	used for ground water quality confirmation.	PCBs, OC pesticides

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Sample ID	Location	Parameter Analysed (O.Reg. 153/04 as amended)
BH-AR11	At the mid west Property boundary to assess potential impacts	Soil:
	to the Property resulting from historical activity of the	VOCs
	Property and adjoining eastern property.	
	To determine the ground water flow direction. This well was	Ground Water:
	used for ground water quality confirmation.	Metals and Inorganics, OC pesticides
BH-AR12	At the north east property boundary to assess potential	Soil:
	impacts to the Property resulting from historical activity of the	OC pesticides
	Property.	
	To determine the ground water flow direction. This well was	Ground Water:
	used for ground water quality confirmation.	Metals and Inorganics, OC pesticides
BH-AR13	At the northwest portion of the Property to assess potential	Soil:
	impacts to the Property resulting from historical activity of the	M & I
	Property.	
	To determine the ground water flow direction. This well was	Ground Water:
	used for ground water quality confirmation.	Metals and Inorganics, PHC (F1-
		F4), VOCs

# 4.4 Deviations from Sampling and Analysis Plan

There were no deviations from the sampling and analysis plan.

# 4.5 Impediments

There were no physical impediments or denial of access with respect to the sampling and analysis plan developed for this Phase Two ESA.

# 5. INVESTIGATION METHOD

# 5.1 General

The Phase Two ESA followed the methods 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)
- The methods used in the Phase Two ESA investigation did not differ from the associated standard operating procedure.

All methods used to complete this Phase Two ESA were in general accordance with O. Reg 153/04 as amended, DS standard operating procedures and generally accepted industry practices. The Phase Two ESA was completed in accordance with the Sampling and Analysis Plan.

# 5.1.1 Utility Clearances

Utility clearances were undertaken prior to commencing the subsurface investigation. Various utility agencies were contacted to identify buried services on public land in the vicinity of the subject Property. A private locator was retained to survey the proposed borehole locations for buried services. No conflicts between the proposed borehole locations and underground utilities were encountered.

# 5.2 Drilling and Excavation

The subsurface soil and ground water investigation in conjunction with the geotechnical and hydrogeological investigation included advancing fourteen (14) boreholes during January and February 2018. Drilling dates are provided in logs presented in Appendix B.

Boreholes were advanced to depths ranging from 4.6 m to 9.2 m bgs to confirm soil and ground water conditions at the Property. The location of boreholes is shown in the Borehole Location Plan, Figure 2.

Monitoring wells were installed in six (6) selected boreholes. The wells were denoted as "AR-MW6, AR-MW9 to AR-MW11". A nested well was installed at the location of borehole AR-12 (shallow to a maximum depth of 4.6 m bgs and deep to a maximum depth of 9.2m bgs). The drilling information by DS is provided in the following Table.

Date of Drilling	January - February 2018
Name of Contractor	Terra Firma Environmental Services Ltd. (Terra Firma), Toronto, Ontario
Equipment Used	CME55T Hallow and solid stem 2-inch split spoon soil sampling device
Decontamination Measures	The split spoon sampling device was washed between each sample to minimize potential cross-contamination
Sample Frequency	Please refer to the borehole logs in Appendix B for recovered soil samples

Information for drilling is provided in the logs attached to this report (Appendix B).

# 5.3 Soil Sampling

All soil samples were recovered from the boreholes using a washed split spoon sampling system and placed into laboratory-prepared sample containers for transport back to our soils laboratory for further soil classification, organic vapour screening, basic index property testing and short-term laboratory storage.

Measurements were taken in the field and during transport to preserve sample integrity prior to chemical analysis. Recommended volumes of soil samples selected for chemical analysis were collected from the recovered cores into pre-cleaned, laboratory-supplied glass sample jars/vials identified for the specified analytical test group. Samples intended for VOC and the F1 fraction of petroleum hydrocarbons analysis were collected using a laboratory-supplied soil core sampler, placed into the vials containing methanol for preservation purposes and sealed using Teflon lined septa lids.

All soil samples were placed in clean coolers containing ice prior to and during transportation to the subcontract laboratory, AGAT Laboratories (AGAT) of Mississauga, Ontario. The samples were transported/submitted to AGAT following Chain of Custody (COC) protocols for chemical analysis.

Decontamination and other protocols were followed during sample collection and handling to minimize the potential for sample cross-contamination. New, dedicated disposable nitrile gloves were used for the handling and sampling of each retrieved soil core. The core barrel samplers were decontaminated between sampling intervals by the drilling contractor using a potable water/phosphate-free detergent solution followed by rinses with potable water and de-ionized water. Wash and rinse waters were collected in sealed, labeled containers.

The detailed stratigraphy encountered at each of the borehole locations is presented in the Borehole Logs, Appendix B. A detailed description of the subsurface conditions is presented in Section 6.1.

# 5.4 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 was noted. No aesthetic impacts (e.g. cinders, slag, hydrocarbon odours) were encountered during this investigation. The soil sample headspace vapour concentrations for all soil samples recovered during the investigation were screened using portable hydrocarbon vapour testing equipment in accordance with the procedure outlined in the MECP's 'Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario'.

The soil samples were inspected and examined to assess soil type, ground water conditions, and possible chemical contamination by visual and olfactory observations or by organic vapour screening. Samples submitted for chemical analysis were collected from locations judged by the assessor to be the most likely to exhibit the highest concentrations of contaminants based on several factors including (i)

visual or olfactory observations, (ii) sample location, depth, and soil type, (iii) ground water conditions and headspace reading.

Samples were screened using an RKI Instruments Eagle 2 Monitor Type 5101-P2, Serial No. E2A292.

Field screening was conducted for select samples for petroleum hydrocarbon and volatile organic compounds laboratory analysis. The headspace reading is provided in the borehole logs, Appendix B.

# 5.5 Groundwater: Monitoring Well Installation

Monitoring wells were installed in six (6) selected boreholes by Terra Firma under the supervision of a DS staff. The wells were constructed of 50-mm (2-in) ID PVC screens and risers. Filter sand was placed around the well screen to approximately 0.6 m above the top of the screen. The wells were then backfilled with bentonite to approximately 0.3 m below ground surface. All ground water wells were installed by the licensed well drilling contractor in accordance with O. Reg. 903, as amended. The monitoring well AR-2 was tagged (Well Tag no. A233601) by Terra Firma of Toronto, and well records were completed and filed with the Ontario Ministry of the Environment by the drillers. The details of the individual monitoring wells (well depths, screen lengths and elevations) are shown on the borehole logs in Appendix B.

# 5.6 Groundwater: Field Measurement of Water Quality Parameters

During purging water, ground water samples were visually screened for turbidity, suspended solids, odour, or sheen. No sheen, free products or odour were observed in the wells.

# 5.7 Groundwater: Sampling

Ground water was sampled using a dedicated bailer in each well. Disposable latex gloves were worn at each sample site. The ground water samples were immediately placed into coolers packed with ice pending delivery to the analytical laboratory. The development and sampling of monitoring wells were conducted on March 21, 2018.

Sampling methodology from the Ontario Ministry of the Environment "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario" and Ontario Ministry of the Environment "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" were followed in the collection of the ground water samples.

# 5.8 Sediment: Sampling

Sediment is not present on the subject Property; therefore, sediment sampling is not applicable.

# 5.9 Analytical Testing

The soil and ground water analyses were completed by AGAT Laboratories of Mississauga, Ontario. AGAT is accredited by the Canadian Association for Laboratory Accreditation (CALA).

# 5.10 Residue Management Procedures

### i. Soil Cuttings

Soil cuttings from borehole drilling were retained onsite for future offsite disposal pending the outcome of analytical testing.

# ii. Well Purge Water

Water from development and purging of wells was collected and retained on the Property in sealed containers, for future offsite disposal, pending the outcome of analytical testing.

# iii. Equipment Cleaning Fluids

The fluids from cleaning were removed from the Property and disposed of by the driller.

# 5.11 Elevation Surveying

The ground surface elevations at the borehole locations were referenced to onsite geodetic elevations.

# 5.12 Quality Assurance and Quality Control Measures

Soil samples were collected in laboratory-prepared sample containers affixed with labels identifying project number, sample identification (borehole number, sample number), sampling date, type of preservative and analysis required. Samples were recorded on laboratory chain-of-custody forms.

All sample containers were labelled to identify the sample location. Documentation related to sample location was recorded for each sample. The samples were immediately placed in coolers packed with ice.

Until delivery to the analytical laboratory, custody of the samples was maintained by DS. On completion of daily field activities, the samples were returned to DS office and stored in a refrigerator pending selection of samples for analytical testing. DS transferred custody of the samples that had been selected for analysis to AGAT Laboratories within an adequate time frame to ensure 'hold times' would be within the acceptable criteria. Chain of Custody forms identifying the samples and analyses were submitted to the laboratory to document the transfer of custody.

Quality control samples included field duplicates.

The following quality control measures were implemented for this investigation.

- a. No quality control issues were identified in any of the QC samples.
- b. There were no significant deviations from the sampling and analysis plan.
- c. A clean pair of disposable latex gloves was used for each sample (soil and ground water) that was collected.
- d. All sampling equipment including samplers and utensils were thoroughly cleaned between sampling. For ground water sampling, dedicated one-time PVC bailers were used for each well and for each sampling event.
- e. Field quality control measures included the submission of split field duplicates for soil and split field duplicates, trip blanks and spiked trip blanks for ground water. The calibration of field instruments was checked against calibration fluids or gases.
- f. There were no significant deviations from the procedures set out in the quality assurance and quality control plan.
- g. All sample containers had the sample labels securely affixed to the container with clear packing tape.
- h. Caps on the sample containers were checked to ensure they were properly sealed.
- i. Laboratory supplied Chain-of-custody forms were completed with required sampling information.
- j. QP reviewed or signed and dated chain-of-custody forms to document the sample custody transfer.
- k. Sample containers were protected in bubble wrap or other cushioning material.
- I. Sealed sample containers were placed in a cooler with ice during transferring to office.

There were no deviations from the procedures set out in the quality assurance and quality control program set out in the sampling and analysis plan.

# 6. REVIEW AND EVALUATION

# 6.1 Geology

Boundaries of soil indicated on the log sheets are intended to reflect transition zones for the purpose of environmental assessment and should not be interpreted as exact planes of geological change. The general stratigraphy at the Property, as observed in the boreholes, consists of clayey silt to silty clay till overlying shale bedrock. No aesthetic impacts (e.g. cinders, slag, hydrocarbon odours) were encountered during this investigation. A brief description of the soil stratigraphy at the Property, in order of depth, is summarized in the following sections. Detailed information for site stratigraphy is provided in DS's geotechnical report (April 2018).

The detailed soil profiles encountered in each borehole are provided on the attached borehole logs (Appendix B).

#### **Surfacial Materials**

All boreholes encountered a surficial layer of topsoil with maximum depth of 460 mm.

Fill

Disturbed soil/earth fill was observed beneath topsoil in the borehole locations.

#### **Native Soil**

Underlying the surficial materials, all boreholes encountered native undisturbed firm to hard, very dense fine-grained clayey silt to silty clay till, to a maximum depth of 8.2 mbgs. Silty sand was observed at the location of borehole AR-13 from 4.9 m to 7.9 m. Sand and gravel was observed beneath silty sand that extended to 8.2 m, the maximum depth of the borehole.

#### Bedrock

Highly weathered shale bedrock was encountered in all boreholes 1.5 m to 9 m bgs with the exception of AR-13 located to the northwest of the Property that terminated within layers of silty sand, sand and gravel at a depth of 8.2 m bgs.

# 6.2 Groundwater: Elevations and Flow Direction

# 6.2.1 Rationale for Monitoring Well Locations and Screen Intervals

The location of monitoring wells installed by DS were chosen to provide full site coverage. The monitoring wells were screened within the glacial till.

#### 6.2.2 **Results of Interface Probe Measurement**

Ground water levels were measured as part of the investigation using a Solinst interface probe. There was no evidence of light non-aqueous phase liquid (LNAPL) in the monitoring wells.

# 6.2.3 Groundwater Elevation

Water levels were measured on February 13 and March 22, 2018. The local groundwater flow is generally in a southeasterly direction toward Joshua's Creek located to the southeast of the Property.

Ground water levels are anticipated to fluctuate with cyclical patterns of wetting and drying and these variations could result in short term changes to ground water flow directions.

Well ID	Ground Elevation (mbgs)	Well Depth	Drilled Date	Water Level (mbgs)	Water Level (mbgs)	Well Depth	Water Elevation (mbgs)
				1 <sup>st</sup> Reading Feb 13, 2018	2 <sup>nd</sup> Reading March 21, 2018	March 21, 2018	March 21, 2018
AR-MW2	164.5	6.2 m	Jan. 30, 2018	2.6	2.6	6.17 m	158.3
AR-MW6	165	5.2 m	Jan. 31, 2018	1	0.83	4.7 m	160.3
AR-MW9	169	4.9 m	Feb. 01, 2018	1.9	1.5	4.8 1m	164.2
AR-MW10	165.5	6.2 m	Feb. 01, 2018	1.4	0.9	6.2 m	159.3
AR-MW11	167.5	6.4 m	Feb. 01, 2018	0.4	0.1	6.05 m	161.44
AR-MW12	170	9.2 m	Jan. 31, 2018	na	8.5	9.09 m	160.9
AR-MW12A	170	4.6 m	Jan. 31, 2018	na	4.1	4.51 m	165.5
Note:							

The ground water levels are summarized in the following Table.

• Ground water depth is meter below ground surface (mbgs)

• The ground surface elevations and elevations of water were obtained from 2018 survey

Ground water elevations in the monitoring wells were established using a water level probe with depth measurements referenced to geodetic top-of-casing elevations.

Based on the ground water levels measured in the onsite monitoring wells, shallow ground water condition is present at the Property and it is subject to vary depending on seasonal weather conditions.

#### 6.3 Groundwater: Hydraulic Gradients and Hydraulic Conductivity

#### 6.3.1 **Horizontal Hydraulic Gradient**

A hydraulic gradient based on the limited number of installed monitoring events (less than 2 months reading) and limited number of ground water level readings may be unreliable.

# 6.3.2 Hydraulic Conductivity

A hydraulic gradient based on the limited number of monitoring events (less than 2 months reading) and limited number of ground water level readings may be unreliable, and thus one is not provided herein. According to Freeze and Cherry (1979), the typical hydraulic conductivity of the strata investigated at the Property are:

Native Soil (clayey silt)  $10^{-8}$  m/s to  $10^{-9}$  m/s Bedrock (Queenston Formation)  $10^{-7}$  m/s to  $10^{-8}$  m/s

# 6.4 Fine Medium Soil Texture

The native soil deposits encountered at the Property were identified to generally consist of clayey silt to silty clay till overlying shale bedrock. Based on visual assessment of soil texture, the assessor determined that at least one-third of the site soil by volume is comprised of clayey silt to silty clay (i.e. fine textured).

Grain size analysis were conducted on two silty clay till samples (BH-AR1/SS2 and BH-AR14/SS2) and one sample of silty sand layer (BH-AR13/SS6). The results are presented in Appendix C, with the following fractions:

(BH-AR1/SS2 and BH-AR14/SS2)

- Clay: 25 to 32%
- Silt: 62 to 72%
- Sand: 3 to 5%
- Gravel: 0 to 1%

# (BH-AR13/SS6)

- Clay: 6%
- Silt: 19%
- Sand: 73%
- Gravel: 2%

Section 42(2) of O.Reg. 153/04 defines soil texture as follows:

- "coarse textured soil" means soil that contains more than 50 per cent by mass of particles that are 75 micrometres or larger in mean diameter; and,
- "medium and fine textured soil" means soil that contains 50 per cent or more by mass of particles that are smaller than 75 micrometres in mean diameter.

For the determination of applicable soil standards, the Property was classified as coarse textured, as per O. Reg. 153/04 as amended (Appendix C).

# 6.5 Soil Field Screening

All soil samples were screened in the field for visual evidence of potential contamination. No obvious visual or olfactory evidence of potential contamination was noted.

All soil samples were screened in the field using portable hydrocarbon vapour testing equipment and following the procedure outlined in the "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario" published by the MECP.

Organic vapor monitoring (OVM) was carried out on soil samples using a calibrated RKI Model Eagle-2 Type 5101-P2, s/n E2A292. The headspace readings were generally in the range of 0 to 14 ppm.

These readings are considered to be generally low and do not indicate the presence of any significant or widespread contamination.

The OVM screening results are on the borehole logs.

# 6.6 Soil Quality

# 6.6.1 Locations and Depths of Samples

A summary of the soil samples, location and the depths of the samples analyzed during this Phase Two ESA are provided in following Table. Summaries of the chemical analyses are provided in Tables 1 - 3 and are discussed below. Copies of the laboratory certificates of analyses are provided in Appendix D.

Based on the scope of work and field screening DS submitted 20 soil samples including duplicate samples for quality control (QC) from 13 borehole locations for chemical analyses of PHCs (F1-F4), VOCs, OC pesticides and metal and inorganics to AGAT Laboratories.

Sample ID	Sample Depth	Parameter Analysed (O.Reg. 153/04 as amended)
AR-1-SS-2	0.8-1.4 m	OC Pesticides
AR-2-SS-3	1.5-2.1 m	OC Pesticides
AR-3-SS-7	6.1-6.7 m	PHCs
AR-4-SS-1	0-0.6 m	M & I
AR-5-SS-2	0.8-1.4 m	PHCs
AR-6-SS-1	0-0.6 m	OC Pesticides
AR-6-SS-2	0.8-1.4 m	M & I
AR-7-SS-2	0.8-1.4 m	M & I
AR-8-SS-3	1.5-2.1 m	OC Pesticides

The following Table presents a summary of the soil samples and selected analyses.

Sample ID	Sample Depth	Parameter Analysed				
oumpie io	comple septi	(O.Reg. 153/04 as amended)				
AR-9-SS-2	0.8-1.4 m	PHCs				
AR-9-SS-1	0-0.6 m	M & I				
AR-10-SS-2	0.8-1.4 m	VOC				
AR-11-SS-7	6.1-6.7 m	VOC				
AR-12-SS-2	0.8-1.4 m	OC Pesticides				
AR-13-SS-3	1.5-2.1 m	M & I				
DUP-1	(duplicate of AR-5 - SS-2) 0.8-1.4 m	PHCs				
DUP -2	(duplicate of AR-4 - SS-1) 0-0.6 m	M & I				
DUP-3	(duplicate of AR-12-SS-2) 0.8-1.4 m	OC Pesticides				
Note:						
M & I Metals and In-	organics					
EC Electrical Cond	ductivity					
OC Pesticides Organ	ochlorine Pesticieds					
PHCs Petroleum Hydrocarbons						
VOCs Volatile Organic Compounds						
N & I Metals and In	organics					

# 6.6.2 Analytical Test Results

# **Metals and Inorganics in Soil**

All of the soil samples submitted for analysis of metals and inorganic parameters were reported to have no exceedances of the applicable MECP Table 1 Full Depth, Background Site Condition Standards for all Property Use with the exception of samples collected from the location of AR7 that exceeded Electrical Conductivity (EC). In addition, EC and Sodium Adsorption Ratio (SAR) were detected in all sampled locations.

The exceedance of EC from the MECP Table 1 Full Depth, Background Site Condition Standards or the MECP Table 8 within 30 m of water body in a potable ground water condition was observed at the location of Borehole AR7 within 0.8 to 1.4 m. Trace Sodium Adsorption Ratio observed at the sample locations, however, met the site condition standards. The summary of exceedance of EC and trace of SAR are presented in the following Table.

Sample Description (depth)	Unit	T1 (T8)		AR-4-SS- 1 (0-0.6 m)	AR-6-SS- 2 0.8-1.4 m	AR-9-SS- 1 (0-0.6 m)	AR-13- SS-3 (1.5-2.1 m)	AR-7-SS- 2 0.8-1.4 m	Dup-2 AR-4-SS- 1 0-0.6 m
Date Sampled				01/30/1 8	01/31/1 8	01/31/1 8	02/01/1 8	01/31/1 8	01/30/1 8
Parameter		G/S	RDL	9051255	9051262	9051268	9051289	9051299	9051302

Sample Description (depth)	Unit	T1 (T8)		AR-4-SS- 1 (0-0.6 m)	AR-6-SS- 2 0.8-1.4 m	AR-9-SS- 1 (0-0.6 m)	AR-13- SS-3 (1.5-2.1 m)	AR-7-SS- 2 0.8-1.4 m	Dup-2 AR-4-SS- 1 0-0.6 m
EC	mS/c m	0.57 (07)	0.00 5	0.115	0.125	0.183	0.357	0.805	0.129
SAR	NA	2.4 (5)	NA	0.162	2.13	0.858	0.214	2.09	0.151
Notes:									
Bold and highlighted = exceeds MECP Table 1 and Table 8 Standards for all property use.									
T1.= MECP Table 1 Full Depth Background Standards									
(T8) = MECP Table 8 within 30 m of Water Body									

Complete laboratory results are provided in Appendix D.

#### Petroleum Hydrocarbons (PHCs) in Soil

None of the soil samples submitted for analysis of PHC parameters were reported to have exceedances of the applicable MECP Table 1 or Table 8 Site Condition Standards.

#### Volatile Organic Compounds (VOCs) in Soil

None of the soil samples submitted for analysis of VOC parameters including; benzene, toluene, ethylbenzene, xylene (BTEX), were reported to have exceedances of the applicable MECP Table 1 or Table 8 site condition standards.

#### Organochlorine Pesticides (OC Pesticides) in Soil

None of the soil samples submitted for analysis of OC pesticides were reported to have exceedances of the applicable MECP T Table 1 or Table 8 site condition standards.

The laboratory Certificates of Analysis are provided in Appendix D.

#### Soil pH

The following Table presents the pH values for the soil found across the Property.

CaCl2 Extraction	AR-4-SS-1	AR-6-SS-2	AR-9-SS-1	AR-7-SS-2	Dup-2 AR-4-SS-1	AR-13-SS-3
pH Unit N/A 0 to 9 for surface soil	01/30/18	01/31/18	01/31/18	01/31/18	01/30/18	02/01/2018
(depth less than 1.5 m)	0-0.6 m	0.8-1.4 m	0-0.6 m	0.8-1.4 m	0-0.6 m	1.5-2.1 m
5.0 to 11 for sub- surface soil (depth	Soil	Soil	Soil	Soil	Soil	Soil
more than 1.5 m)	7.81	7.98	7.88	8.00	7.81	7.87

Based on the above noted Table, the pH for the surface soil is within 7.81 to 8 and for subsurface soil was 7.87 at the Property and does not exceed the MECP applicable Standard. Complete laboratory results are provided in Appendix D.

# 6.6.3 Contaminants of Concern

On the basis of the analytical testing, with the exception of EC, no contaminant of concern has been identified at the Property.

# 6.6.4 Chemical and Biological Transformations

Based on the analytical results, there is no obvious evidence of ground water contaminants related to chemical and/or biological transformations that have or may have occurred.

# 6.6.5 Soil to Ground Water Contaminant Transfer

There is no evidence to indicate soil to ground water contaminant transfer.

#### 6.6.6 Non-Aqueous Phase Liquids

Based on the ground water interface meter measurements, organic vapour meter testing, ground water sampling, and analytical testing, there is no observed or reported evidence of non-aqueous phase liquids (NAPLs).

# 6.7 Ground Water Quality

#### 6.7.1 Sample Locations and Depth Intervals

A total of nine (9) ground water samples, including one QC and field and trip blanks samples from a total of six installed monitoring wells by DS on the Property, were analysed for metal and inorganics, petroleum hydrocarbons (PHCs), OC pesticides, PCBs and volatile organic compounds (VOCs) as shown on the following Table.

Sample ID	Parameter Analysed
AR-MW2	Metals and Inorganics, PHC (F1-F4), VOCs
AR-MW6	Metals and Inorganics, PHC (F1-F4), VOCs
AR-MW9	Metals and Inorganics, PHC (F1-F4), VOCs
AR-MW10	PCBs, OC pesticides
AR-MW11	Metals and Inorganics, OC pesticides
AR-MW12	Metals and Inorganics, OC pesticides
QC-1 (AR-MW6) (Dup)	Metals and Inorganics, PHC (F1-F4), VOCs
Field Blank	VOCs
Trip Blank	VOCs

The laboratory Certificates of Analysis are provided in Appendix D.

# 6.7.2 Field Filtering

Ground water samples were filtered for all metal samples analyses that required field filtering as per the requirement of the Ontario Ministry of Environment and Climate Change *"Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act"* (July 2011). A 0.45-micron filter was used for field filtration.

# 6.7.3 Analytical Test Results

Summaries of the chemical analyses for ground water are provided in Tables 4 - 8 and are discussed below. Copies of the laboratory certificates of analyses are provided in Appendix D.

#### Petroleum Hydrocarbons (PHCs) in Ground Water

None of the ground water samples submitted for analysis of PHC parameters were reported to have exceedances of the applicable PHC Site condition standards (Table 1 and Table 8).

#### Volatile Organic Compounds (VOCs) in Ground Water

None of the ground water samples submitted for analysis of VOCs parameters were reported to have exceedances of the applicable VOCs Site condition standards (Table 1 and Table 8).

#### Metals and Inorganics in Ground Water

No exceedances of the MECP Table 1 Site Condition Standards (SCS) for ground water were observed for the parameters analysed for metals and inorganics. All samples met the MECP Table 1 or 8 SCS.

# Polychlorinated Biphenyl in Ground Water

None of the ground water samples submitted for analysis of VOCs parameters were reported to have exceedances of the applicable VOCs Site condition standards (Table 1 and Table 8).

# Organochlorine Pesticides (OC Pesticides) in Ground Water

None of the ground water samples submitted for analysis of VOCs parameters were reported to have exceedances of the applicable VOCs Site condition standards (Table 1 and Table 8).

According to the Certificate of Analysis, the pH of the ground water samples were within the acceptable values of the MECP Standards of 5 to 9 (7.93-8.15).

# 6.7.4 Contaminants of Concern

On the basis of the analytical testing, no contaminants of concern are confirmed to be present in ground water at concentrations exceeding the applicable site condition standards.

# 6.7.5 Chemical and Biological Transformations

Based on the analytical results, there is no obvious evidence of groundwater contaminants related to chemical and/or biological transformations that have or may have occurred.

# 6.7.6 Soil to Ground Water Contaminant Transfer

Based on ground water samples collected for chemical analyses, there is no evidence of soil to ground water contaminant transport, onsite.

# 6.7.7 Non-Aqueous Phase Liquids

Based on the ground water interface meter measurements, organic vapour meter testing, ground water sampling, and analytical testing, there is no observed or reported evidence of non-aqueous phase liquids (NAPLs).

# 6.8 Sediment Quality

There are no sediments on the subject property and therefore no sediments were analyzed.

# 6.9 Quality Assurance and Quality Control Results

# 6.9.1 Quality Control Samples

QA/QC measures included the general collection of field duplicates of both soil and ground water samples submitted to the analytical laboratory under separate identifier labels to maintain the integrity of the sample. Field duplicates were submitted as part of quality control procedures and reviewed as to their variance from the associated companion sample. Field duplicate results are reported next to their companion duplicate in the attached laboratory results.

In addition to field duplicates, laboratory-prepared trip blanks and spiked trip blanks were provided for group water.

All reported analytical results for field duplicates were reviewed and found to have no variations from the reported results for the corresponding companion samples, and are deemed to be supportive of the usefulness, appropriateness and accuracy of the analytical data.

All soil and ground water analyses were carried out by AGAT which holds Standards Council of Canada (SCC) and Canadian Association for Environmental and Analytical Laboratories (CAEAL) accreditation. Laboratory QA/QC data from the laboratory is included with the attached Certificates of Analyses.

# 6.9.2 Deviations from Analytical Protocols

There were no significant deviations from the applicable analytical protocols for any of the samples submitted with respect to holding time, preservation method, storage requirements or container type.

# 6.9.3 Certificates of Analyses

Certificates of analyses were received from AGAT pursuant to clause 47 (2) (b) of the Regulation and were found to comply with subsection 47 (3).

A certificate of analysis has been received for each sample submitted for analysis and all certificates of analyses received have been included in full in Appendix D of this report.

# 6.9.4 Laboratory Qualifications or Remarks

There were no instances where the analytical laboratory qualified any results or made remarks in the certificates of analysis or analytical report about a sample.

# 6.9.5 Quality of Field Data

The overall quality of the field data from the investigation was found to be acceptable with no significant deviations from the sampling plan, sampling protocols or analytical protocols.

# 6.10 Phase Two Conceptual Site Model

The Phase Two Conceptual Site Model consists of this text and the following Figures:

- Figure 1 Site Location Plan
  - o Identifies the location of the subject site
- Figure 2 Borehole Location Plan
  - o Identifies the soil and Ground water testing locations on the Property.
- Figure 4 Soil Characterization
  - Identifies soil results pass or fail the MECP SCS
- Figure 5 Ground water Characterization
  - o Identifies Ground water results pass or fail the MECP SCS

#### 6.10.1 Potentially Contaminating Activities and Areas of Potential Environmental Concern

The stratigraphy of the site is discussed in Section 6.1. The approximate depth to bedrock based on the investigation is was observed within 1.8 to 9 m. The depth to the shallow water table is within 0.1 m to 4.1 m bgs at the Property (within wells at depth maximum 6.4 m). Ground water in the deep well (9.2 m depth) was at 8 m bgs.

The Phase Two Conceptual Site Model was developed based on the findings of Phase One ESA.

As supported by the analytical laboratory results presented in Appendix D, all analytical sample results met the MECP Table 1 Full Depth, Background Standards, all property use and within 30 m of a water body (Table 8) in a potable ground water condition for the soil and ground water samples analyzed at the Property with the exception of Electrical Conductivity that exceeded the MECP Table 1 and Table 8 SCS at the location of borehole AR-7.

#### 6.10.2 Physical Setting of the Phase Two Property

#### **Stratigraphy**

The detailed stratigraphy at the Phase Two Property is presented in the borehole logs, Appendix B.

The general stratigraphy at the Phase Two property is as discussed in Section 6.1 and is generally comprised of silty clay to clayey silt till.

Below the native soil, all boreholes terminated in highly weathered bedrock shale.

#### Ground water

Two aquifers were identified in this investigation. Ground water levels were measured on February and March 2018 and found to range between 0.1 mbgs and 4.1 mbgs. Based on the ground water levels observed during this investigation and topography of the area, the direction of shallow ground water flow is expected to be towards creeks on the Property.

#### **Bedrock**

Shale bedrock was observed beneath 1.5 m to 9 m.

#### Depth to Ground Water Table

Based on the short-term ground water level monitoring the shallow ground water table is located at a depth of approximately 0.1 to 4.1 m below ground surface.

#### Imported Fill

The site investigation identified no imported fill materials at the location of boreholes. Disturbed soil was observed at the borehole locations to a maximum depth of 0.9 m consists of clayey silt, trace to some sand, with trace organic matters.

#### **Proposed Buildings**

The proposed use of the Property is to be residential use (Residential Subdivision).

# 6.10.3 Exceedances of Applicable Site Condition Standards

#### **Contaminant Locations and Distribution**

Soil and ground water analyses on the Property were compared to the Table 1 Standards as presented in the MECP document "Soil, Ground Water and Sediments Standards for Use Under Part XV.1 of the Environmental Protection Act" (2011).

Chemical analyses were conducted by AGAT Laboratories. AGAT is a member of the Canadian Association for Laboratory Accreditation (CALA) and meets the requirement of Section 47 of O.Reg. 153/04 certifying that the analytical laboratory be accredited in accordance with the International Standards ISO/IEC 17025 and with standards developed by the Standards Council of Canada.

The Phase Two ESA identified there were no exceedances of the MECP Table 1 and Table 8 SCS for soil and ground water.

#### Source of Contaminants

AR-7 is located along the eastern property boundary. The source of contamination is possible to be from offsite impact. Stockpile of fill materials were observed on the eastern adjoining property.

### **Contaminant Migration**

There are no indications of the migration of the contaminants of concern. No elevated value of EC was observed within ground water at the location AR-6, a downgradient location from AR-7 based on ground water flow towards the creek present at the Property.

#### **Climatic and Meteorological Conditions**

There are no significant climatic or meteorological conditions that are likely to have influenced the distribution of any contaminants of concern.

#### Soil Vapour Intrusion

There were no visual or olfactory observations that would suggest possible impact to the soil and expected to contribute to any significant soil vapour intrusion into the proposed building.

# 6.10.4 Contaminant Distribution

All soil and ground water samples meet the MECP Table 1 and 8 SCS with exception of minor exceedance of EC in AR-7 that extends to 1.4 m.

# 7. CONCLUSIONS

# 7.1 Summary

Based upon the results of the Phase Two ESA, the following conclusions were presented:

- The Phase Two ESA in conjunction with DS's Geotechnical Investigation, consisted of drilling a total of thirteen (13) boreholes on the Property. These boreholes were drilled to varying depths to a maximum of 9.2 m bgs to investigate the soil and ground water conditions at the Property. Monitoring wells were installed in six (6) selected locations to cover the Property.
- The stratigraphy beneath the investigated areas of the Property generally consisted of a maximum of 460 mm of topsoil followed by native glacial till (primarily clayey silt to silty clay). All boreholes terminated at shale bedrock with the exception of borehole AR-13 located to the northwest of the Property. Silty sand layer was observed from 4.3 m to 7.9 m above a layer of sand and gravel at this location. Depth of shale bedrock encountered at borehole locations varied between 1.5 to 9 m.
- The Property is located within 30 m of a water body. The results of the samples submitted for chemical analysis were compared to the generic site condition standards in a potable ground water condition for all type of property use as contained in Table 8 of the Ministry of Environment, Conversation and Parks (MECP) publication "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*", April 15, 2011. The Property includes a natural heritage system and wetlands. The chemical analysis results were also compared to the MECP Table 1 full depth background site condition standards.
- A total of twenty (20) soil samples from the selected borehole locations including quality control (QC) duplicates were submitted for chemical analysis of petroleum hydrocarbons (PHCs) (F1-F4), volatile organic compounds (VOCs), organochlorine (OC) pesticides, metals and inorganic parameters and pH.
- No exceedances of the applicable standards (Table 1 or Table 8) for parameters analyzed in fine/medium or coarse textured soil were found in any of the soil samples analyzed with the exception of electrical conductivity (EC). Exceedance of EC from the site condition standards (Table 1 and 8) was observed at the location of borehole AR-7 within 1.4 m.
- A total of nine (9) ground water samples, including one QC and field and trip blanks samples from a total of six monitoring wells installed by DS on the Property, were analyzed for metal and inorganics, petroleum hydrocarbons (PHCs), OC pesticides, PCBs and volatile organic compounds (VOCs).

- No exceedances of the applicable standards for the parameters analyzed were found in any of the ground water samples. All ground water samples met the MECP Table 1 and 8 site condition standards.
- The measured pH values of soil and ground water samples were within the MECP guideline.

# 7.2 Recommendations

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

- Based on the available information, it is concluded that soil and ground water at the Property meet the MECP Table 8 site condition standards within 30 m of surface water in a potable ground water condition and Table 1 background site conditions with the exception of Electrical Conductivity (EC) that exceeds the site condition standards for soil at the location of borehole AR-7. Based on the findings of Phase Two ESA, DS recommends removal of EC-impacted soil during the property development. The extent of EC-impacted soil is recommended to be determined horizontally and vertically prior to offsite disposal. No other investigation is required at this time.
- All wells installed during the subsurface investigation are required to be decommissioned in accordance with O.Reg. 903 when they are no longer needed for ground water observation.

# 7.3 Signatures

The Phase Two Environmental Site Assessment has been completed under the direction and supervision of Shafi Andseta, Ph.D., P.Geo., QP<sub>ESA-RA</sub>. The findings and conclusions presented in this report have been determined on the basis of the information that was obtained and reviewed, and on an assessment of the existing conditions on the Property.

The Phase Two ESA was completed to satisfy the intent of the requirements, methodology and practices for a Phase Two ESA as described in Ontario Regulation 153/04 (as amended).

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.** 

Shafi Andseta, Ph.D., P.Geo., QP<sub>ESA-RA</sub> Senior Project Manager

Martin Cedia

Martin Gedeon, M.Sc., P.Geo. QP<sub>ESA</sub> Vice President, Environmental Services

# 8. **REFERENCES**

- 1. Armstrong, D.K. and Dodge, J.E.P. *Paleozoic Geology Map of Southern Ontario*. Ontario Geological Survey, Miscellaneous Release--Data 219.
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- 3. Freeze, R. Allen and Cherry, John A., 1979. Ground water. Page 29.
- 4. Ontario Ministry of the Environment, December 1996. *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario.*
- 5. Ontario Ministry of Environment, 15 April 2011. *Soil, Ground Water and Sediment Standards for use under part XV.1of the Environmental Protection Act.*
- 6. Ontario Ministry of the Environment, June 2011. *Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04.*
- 7. 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.*
- 8. The Ontario Geological Survey. 2003. *Surficial Geology of Southern Ontario*.
- Phase One Environmental Site Assessment, Concession 1, PT, Lot 8, NDS, Oakville, Ontario, July 20, 2018, Prepared for Argo (Joshua Creek) Limited by DS Consultants Ltd.
- 10. Geotechnical Investigation, Proposed Residential Subdivision Diam Property, Dundas Street East, Oakville, Ontario, April 2018.
## 9. LIMITATIONS

It should be noted that this Phase Two Environmental Site Assessment was focused on investigating of the areas of potential environmental concerns at the Property.

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.

This report was produced for the sole use of **Argo (Joshua Creek) Limited** and 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. TABLES

#### SOIL Table 1: Summary of Analytical Results for Metals and Inorganics in Soil

Client Sample ID				AR-4-SS-1	AR-6-SS-2	AR-9-SS-1	AR-13-SS-3	AR-7-SS-2	DUP-2
Date Sampled				01/30/2018	01/31/2018	01/31/2018	02/01/2018	01/31/2018	01/30/2018
AGAT Sample ID				9051255	9051262	9051268	9051289	9051299	9051302
Parameter	Units	G/S	RDL	Soil	Soil	Soil	Soil	Soil	Soil
Antimony	µg/g	1.3	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	5	6	11	6	6	6
Barium	µg/g	220	2	76	107	85	100	76	79
Beryllium	µg/g	2.5	0.5	0.9	0.8	0.8	0.7	0.8	1.0
Boron	µg/g	36	5	18	18	14	12	15	20
Boron (Hot Water Soluble)	µg/g	NA	0.10	0.19	1.26	0.22	0.24	1.24	0.23
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	70	2	23	21	19	20	20	24
Cobalt	µg/g	21	0.5	13.7	12.6	12.9	12.6	12.9	13.2
Copper	µg/g	92	1	8	35	22	28	30	9
Lead	µg/g	120	1	9	9	9	10	9	10
Molybdenum	µg/g	2	0.5	0.8	0.9	0.7	0.7	0.8	1.1
Nickel	µg/g	82	1	33	29	28	29	28	32
Selenium	µg/g	1.5	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g	0.5	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	2.5	0.5	<0.5	1.1	0.6	0.8	0.8	<0.5
Vanadium	µg/g	86	1	25	27	26	24	24	26
Zinc	µg/g	290	5	62	61	56	62	60	65
Chromium VI	µg/g	0.66	0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity	mS/cm	0.57	0.005	0.115	0.125	0.183	0.357	0.805	0.129
Sodium Adsorption Ratio	NA	2.4	NA	0.162	2.13	0.858	0.214	2.09	0.151
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.81	7.98	7.88	7.87	8.00	7.81
pH 2:1 Extr.	N/A		N/A	Y	Y	Y	Y	Y	Υ

#### Table 2: Summary of Analytical Results for VOCs in Soil

Client Sample ID				AR-10 - SS-2	AR-11 - SS-7
Date Sampled				02/01/2018	02/01/2018
AGAT Sample ID				9051271	9051282
Parameter	Units	G/S	RDL	Soil	Soil
Dichlorodifluoromethane	μg/g	0.05	0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g	0.25	0.05	<0.05	<0.05
Acetone	ug/g	0.5	0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.05	0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05	<0.05
Benzene	ug/g	0.02	0.02	<0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04
Toluene	ug/g	0.2	0.02	<0.02	<0.02
Dibromochloromethane	ug/g	0.05	0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04	<0.04
Chlorobenzene	ug/g	0.05	0.05	<0.05	<0.05
Ethylbenzene	ug/g	0.05	0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	<0.05

Client Sample ID				AR-10 - SS-2	AR-11 - SS-7
Bromoform	ug/g	0.05	0.05	<0.05	<0.05
Styrene	ug/g	0.05	0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05
Xylene Mixture	ug/g	0.05	0.05	<0.05	<0.05
1,3-Dichloropropene	μg/g	0.05	0.04	<0.04	<0.04
n-Hexane	μg/g	0.05	0.05	<0.05	<0.05
Toluene-d8	% Recovery			87	85
4-Bromofluorobenzene	% Recovery			87	87
Moisture Content	%		0.1	11.1	8.4

#### Table 3: Summary of Analytical Results for PHCs in Soil

Client Sample ID				AR-3 - SS-7	AR-5 - SS-2	AR-9 - SS-2	DUP-1
Date Sampled				01/30/2018	01/31/2018	01/31/2018	01/31/2018
AGAT Sample ID				9051253	9051256	9051265	9051300
Parameter	Units	G/S	RDL	Soil	Soil	Soil	Soil
Benzene	µg/g	0.02	0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	0.2	0.08	<0.08	<0.08	<0.08	<0.08
Ethylbenzene	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	25	5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	10	10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	240	50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	120	50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA	NA	NA	NA
Moisture Content	%		0.1	9.8	13.6	11.7	11.5
Terphenyl	%			99	76	96	93

Client Sample ID				AR-1 - SS-2	AR-2 - SS-3	AR-8 - SS-3	AR-12 - SS-2	AR-6 - SS-1	Dup-3
Date Sampled				01/30/2018	01/30/2018	02/01/2018	02/02/2018	01/31/2018	-
AGAT Sample ID				9051250	9051251	9051263	9051287	9051298	9051303
Parameter	Units	G/S	RDL	Soil	Soil	Soil	Soil	Soil	Soil
Hexachloroethane	µg/g	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Gamma- Hexachlorocyclohexane	µg/g	0.01	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDD	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDT	µg/g	1.4	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.01, 0.02	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	9.2	8.4	6.6	14.2	17.0	10.8
ТСМХ	%			70	66	62	80	76	66
Decachlorobiphenyl	%			84	70	74	92	80	70

#### Table 4: Summary of Analytical Results for OC Pesticides in Soil

#### **GROUND WATER**

#### Table 5: Summary of Analytical Results for Metal and Inorganics in Water

Client Sample ID				AR-MW2	AR-MW6	AR-MW9	AR-MW11	AR-MW12	QA/QC1
Date Sampled				03/21/2018	03/21/2018	03/21/2018	03/21/2018	03/21/2018	03/21/2018
AGAT Sample ID				9144184	9144186	9144187	9144192	9144198	9144201
Parameter	Units	G/S	RDL	Water	Water	Water	Water	Water	Water
Antimony	μg/L	1.5	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic	μg/L	13	1.0	<1.0	4.9	4.7	3.1	4.5	3.4
Barium	µg/L	610	2.0	260	30.6	31.4	34.1	30.1	33.1
Beryllium	μg/L	0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	μg/L	1700	10.0	99.2	1290	1260	1300	1290	1290
Cadmium	µg/L	0.5	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chromium	μg/L	11	2.0	2.8	2.3	<2.0	<2.0	<2.0	<2.0
Cobalt	μg/L	3.8	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	μg/L	5	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	μg/L	1.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Molybdenum	μg/L	23	0.5	1.7	8.2	8.8	8.4	8.1	8.1
Nickel	µg/L	14	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Selenium	μg/L	5	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver	μg/L	0.3	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	0.5	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Uranium	μg/L	8.9	0.5	5.5	0.7	0.7	0.8	0.7	0.7
Vanadium	μg/L	3.9	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Zinc	μg/L	160	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Mercury	μg/L	0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chromium VI	μg/L	25	5	<5	<5	<5	<5	<5	<5
Cyanide	μg/L	5	2	<2	<2	<2	<2	<2	<2
Sodium	μg/L	490000	1000	51600	100000	102000	100000	100000	101000
Chloride	μg/L	790000	500	184000	22900	22900	23500	23400	23500
Electrical Conductivity	uS/cm		2	1170	1070	1070	1080	1080	1080
рН	pH Units		NA	7.93	8.15	8.10	8.04	8.01	8.09

## Table 6: Summary of Analytical Results for PCBs in Water

Client Sample ID				AR-MW10
Date Sampled				03/21/2018
AGAT Sample ID				9144188
Parameter	Unit	G/S	RDL	Water
PCBs	μg/L	0.2	0.1	<0.1
Decachlorobiphenyl	%			70

#### Table 7: Summary of Analytical Results for VOCs in Water

Client Sample ID				AR-MW2	AR-MW6	AR-MW9	QA/QC1	Trip Blank	Field Blank
Date Sampled				03/21/2018	03/21/2018	03/21/2018	03/21/2018	03/21/2018	03/21/2018
AGAT Sample ID				9144184	9144186	9144187	9144201	9144204	9144207
Parameter	Units	G/S	RDL	Water	Water	Water	Water	Water	Water
Dichlorodifluoromethane	μg/L	590	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	0.5	0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Bromomethane	µg/L	0.89	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	150	0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Acetone	µg/L	2700	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethylene	μg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Methylene Chloride	µg/L	5	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl tert-butyl ether	μg/L	15	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	μg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Methyl Ethyl Ketone	μg/L	400	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	μg/L	2	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	μg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	μg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Carbon Tetrachloride	μg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzene	μg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloropropane	μg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethylene	μg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	µg/L	2	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl Isobutyl Ketone	µg/L	640	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Client Sample ID				AR-MW2	AR-MW6	AR-MW9	QA/QC1	Trip Blank	Field Blank
1,1,2-Trichloroethane	μg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	0.8	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	2	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Ethylene Dibromide	µg/L	0.2	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tetrachloroethylene	μg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1,2-Tetrachloroethane	μg/L	1.1	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chlorobenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Ethylbenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
m & p-Xylene	μg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Styrene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	μg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L		0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichlorobenzene	μg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichloropropene	μg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Xylene Mixture	μg/L	72	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
n-Hexane	µg/L	5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene-d8	% Recov	ery		95	98	95	94	93	93
4-Bromofluorobenzene	% Recov	ery		93	95	91	91	81	83

## Table 8: Summary of Analytical Results for PHCs in Water

Client Sample ID				AR-MW2	AR-MW6	AR-MW9	QA/QC1
Date Sampled				03/21/2018	03/21/2018	03/21/2018	03/21/2018
AGAT Sample ID				9144184	9144186	9144187	9144201
Parameter	Units	G/S	RDL	Water	Water	Water	Water
F1 (C6 to C10)	μg/L	420	25	<25	<25	<25	<25
F1 (C6 to C10) minus BTEX	μg/L	420	25	<25	<25	<25	<25
F2 (C10 to C16)	μg/L	150	100	<100	<100	<100	<100
F3 (C16 to C34)	μg/L	500	100	<100	<100	<100	<100
F4 (C34 to C50)	μg/L	500	100	<100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	μg/L	500	500	NA	NA	NA	NA
Terphenyl	%			82	74	80	81

#### Table 9: Summary of Analytical Results for OC Pesticides in Water

Client Sample ID				AR-MW10	AR-MW11	AR-MW12
Date Sampled				03/21/2018	03/21/2018	03/21/2018
AGAT Sample ID				9144188	9144192	9144198
Parameter	Units	G/S	RDL	Water	Water	Water
Gamma-Hexachlorocyclohexane	μg/L	0.01	0.01	<0.01	<0.01	<0.01
Heptachlor	μg/L	0.01	0.01	<0.01	<0.01	<0.01
Aldrin	μg/L	0.01	0.01	<0.01	<0.01	<0.01
Heptachlor Epoxide	μg/L	0.01	0.01	<0.01	<0.01	<0.01
Endosulfan	μg/L	0.05	0.05	<0.05	<0.05	<0.05
Chlordane	μg/L	0.06	0.04	<0.04	<0.04	<0.04
DDE	μg/L	10	0.01	<0.01	<0.01	<0.01
DDD	μg/L	1.8	0.05	<0.05	<0.05	<0.05
DDT	μg/L	0.05	0.04	<0.04	<0.04	<0.04
Dieldrin	μg/L	0.05	0.02	<0.02	<0.02	<0.02
Endrin	μg/L	0.05	0.05	<0.05	<0.05	<0.05
Methoxychlor	μg/L	0.05	0.04	<0.04	<0.04	<0.04
Hexachlorobenzene	ug/L	0.01	0.01	<0.01	<0.01	<0.01
Hexachlorobutadiene	ug/L	0.01	0.01	<0.01	<0.01	<0.01
Hexachloroethane	ug/L	0.01	0.01	<0.01	<0.01	<0.01
тсмх	%			95	66	72
Decachlorobiphenyl	%			78	95	67

**FIGURES** 











C:\0Sharon\18-518-40 Argo Diam Property. Oakville\1-QGIS\Phase Two\Figure 5 - Groundwater Characterization.ggs

**APPENDICES** 

Appendix A Survey Plan



#### BEARING NOTE:

ALL BEARINGS HEREON ARE GRID, NAD 83, 6" U.T.M., ZONF 17, CENTRAL MERIDIAN 81" WEST LONGTITUDE BEING RELATED TO CONTROL STATIONS 04519910052 & 00819800334.

DISTANCE NOTE: ALL DISTANCES SHOWN HEREDN ARE GROUND AND MAY BE CONVERTED TO GRO BY MULTIPLYING BY THE SCALE FACTOR 0.9997217.

#### COORDINATE TABLE

CONTROL STATION	NOR THING	EASTING
04519910052	4815804.238	603545.056
00619800334	4818536.858	605644.930

0	PHOMAS J. PACKO	WISKI VEYOR	TITLES DIVISION OF H	OR THE LAND IALTON (NO. 20)
		SC	HEDULE	
PART	DESCRIPTION	AREA	OWNER	PIN
1		0.307 HA		PART OF 24930-0022 (LT)
2	PART OF LOT 8	0.118 HA		PART OF 24930-0022 (LT)
3	CONCESSION 1 NORTH OF	0.870 HA.	DIAM CONTRACTORS LIMITED	PART OF 24930-0022 (LT)
4	OUNDAS STREET (TRAFALGAR)	0.101 HA.		PART OF 24930-0022 (LT)
5		0.018 HA.		PART OF 24930-0022 (LT)

LOT 7

PARTS 1, 2, 3, 4 & 5 COMPRISE PART OF 24930-0022 (LT)

PLAN OF SURVEY OF PART OF LOT 8, CONCESSION 1 NORTH OF DUNDAS STREET, TRAFALGAR TOWN OF OAKVILLE REGIONAL MUNICIPALITY OF HALTON SCALE 1:750

No. of Lot of Lo GRAPHIC SCALE

CUNNINGHAM McCONNELL LIMITED ONTARIO LAND SURVEYOR

#### METRIC

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIMDING BY 0.3048.

#### FENCE NOTE:

ALL LIMITS SHOWN HEREON ARE NOT FENCED UNLESS STATED OTHERWISE

#### LEGEND

	DENOTES	SLIRVEY MONUMENT FOUND
ū.		SURVEY MONUMENT SET
SIB		STANDARD IRON BAR
\$\$18		SHORT STANDARD IRON BAR
B		IRON BAR
IP.		IRON PIPE
WIT		WINESS
950	-	CUNNINGHAM MCCONNELL LIMITED
(NI)		NO IDENTIFICATION
PIN		PROPERTY IDENTIFIER HUMBER
DHO		DEPARTMENT OF HIGHWAYS OF ONTARIO
(8)	*	0.3 BELOW GROUND LEVEL
PI	*	PLAN HR-61
P2		PLAN 20R-18232
P3		PLAN 208-9420
P4	-	PLAN 20R-14689

SURVEYOR'S CERTIFICATE

I CERTIFY THAT.

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT

AND THE REGULATIONS MADE UNDER THEM.

2. THE SURVEY WAS COMPLETED ON AUGUST 25, 2010.

DATE: AUG. 25. 2010

45 metres

# CUNNINGHAM McCONNELL LIMITED

ONTARIO LAND SURVEYORS 205 MAIN STREET MILTON, ONTARIO L9T 1N7 PHONE (905) 878-6672 FAX (905) 878-6672 EMAIL ADDRESS: cml@primus.co

1200 SPEERS ROAD, UNIT 38 OAKVILLE, ONTARIO LEL 2X4 PHONE (905) 845-3497 FAX (905) 845-3519 EMAIL ADDRESS: cmiols@cogeco.net

OLS FILE # 10-80



a main and





# Appendix B Borehole Logs

## LOG OF BOREHOLE BH-AR1

DRILLING DATA

Diameter: 150mm

Date: Jan-30-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

o Dr 

	SOIL PROFILE		DYNA RESIS	MIC CO	NE PEN	ETRA	TION			NAT					PEN	ADKO					
(m)		F				TER		2	0 4	0 60	$\geq$	30 1	00	PLASTI LIMIT	C MOIS CON	UKAL STURE ITENT	Liquid Limit	, PEN.	NIT WT	A	ND
ELEV		V PLO	~		3 m	D WA	NOI	SHEA	AR STI	RENGT	H (kl	Pa)		W <sub>P</sub>		w o	WL	CKET P (KPa	RAL UI (kN/m <sup>3</sup> )	GRAI DISTR	N SIZE BUTION
DEPTH	DESCRIPTION	RATA	MBEI	щ	BLO	NUN	EVAT	0 UI • QI	NCONF JICK TF	INED RIAXIAL	+ ×	& Sensiti		WA	TER CO	ONTEN	T (%)	0 0 0 0	NATU )	(	%)
168.0		E S	R	Σ	ż	<del>К</del> О	ELE	2	0 4	0 60	6	30 1	00	1	0 2	20 3	30			GR SA	SI CL
- 16 <b>0.9</b> - 0.1	CLAYEY SILT: trace	Ŵ	1	SS	6			-								0					
-	topsoil/organics, trace to some sand, trace gravel, reddish brown,							-													
167.1	moist, firm (weathered/disturbed)		<u> </u>				407														
- 0.9	sandy, trace gravel, occasional		2	SS	57		167	-							• •		-1			15	62 32
166.5	fragments, reddish brown, moist,							-													
- 1.5	Nard TILL/SHALE COMPLEX: silty clay		3	SS	50/									0							
<u>-</u> 2	till mixed with shale fragments, reddish brown moist hard						166	-										-			
- 2.3	SHALE: Queenston Formation,		1		50/																
-	highly weathered, reddish brown, moist		4	SS	50/ 75mm									0							
3							165											-			
			5	22	50/																
				00	100mn	þ								ľ							
4							164	-													
							104														
								-													
-	wet below 4.6m		6	SS	50/ 50										0					wet sp	oon
-			Ľ		mm		163											1			
								-													
<u>⁻</u> ₀ - 161.8	auger refusal at 6.2m		7	00	50/		162	-						0				1			
6.2	END OF BOREHOLE		Ľ		75mm																
	1) Water level at 4.9m upon																				
	completion of borenole.																				
						GRAPH	. 3	×3.	Number	s refer		8=3%									

DS SOIL LOG DIAM PROPERTY- DUNDAS ST E. OAKVILLE-ARGO.GPJ DS.GDT 18-4-19



## LOG OF BOREHOLE BH-AR10

DRILLING DATA

Diameter: 150mm

Date: Feb-01-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

Construction         Construction<	DITE					FS	1		DYN	AMIC C		NETRA	TION							<u> </u>	
Index         Index <th< td=""><td>(m) <u>ELEV</u> DEPTH</td><td>DESCRIPTION</td><td>ATA PLOT</td><td>BER</td><td></td><td>BLOWS 0.3 m</td><td>UND WATER</td><td>ATION</td><td>SHE</td><td>20 EAR ST</td><td></td><td>50 8 </td><td>30 1 Pa) FIELD V &amp; Sensit</td><td>00 I ANE ivity</td><td></td><td></td><td>URAL STURE TENT W O</td><td></td><td>POCKET PEN. (Cu) (kPa)</td><td>ATURAL UNIT WT (kN/m<sup>3</sup>)</td><td>REMARKS AND GRAIN SIZE DISTRIBUTION (%)</td></th<>	(m) <u>ELEV</u> DEPTH	DESCRIPTION	ATA PLOT	BER		BLOWS 0.3 m	UND WATER	ATION	SHE	20 EAR ST		50 8 	30 1 Pa) FIELD V & Sensit	00 I ANE ivity			URAL STURE TENT W O		POCKET PEN. (Cu) (kPa)	ATURAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
1:04 2       1:05 2:00mm       0	165.0		STR/	NUM	TYPE	ż	GRO	ELEV	•	2010K 1 20	RIAXIAI 40 (	- × 50 8	LAB V/ 30 1	ANE 00	1	0 2	20 3	30		Ż	GR SA SI CL
Image: Structure of the second seco	<u>165.0</u> <u>169.9</u> 0.2 <u>164.2</u> <u>1</u> 0.8	TOPSOIL: 150mm CLAYEY SILT: trace topsoil/organics, trace to some sand, trace gravel, reddish brown, moist, firm (weathered/disturbed) SILTY CLAY TILL: some sand to sandy, trace gravel, occasional cobble/boulder, trace shale fragments, reddish brown, moist, hard			SS SS SS SS SS	23 23 30 45 46		W. L. Mar 2 163	11,20	m						0 2 c			-		GR SA SI CL
6.2     highly weathered, reddish brown, moist       END OF BOREHOLE       Notes:       1) 50mm dia. monitoring well       installed upon completion.       2) Water Level Readings       Date       Water Depth (mbgs)       March 21, 2018       0.9       February 13, 2018       1.4	- - - - - - - - - - - - - - - - - - -	SHALE: Outpanaton Formation		6	SS	39		160	- - - - - - - - - - - - - - - - - - -						0	0			-		
	DS SOIL LOG DIAM PROPERTY- DUNDAS ST E, OAKVILLE-ARGO.GPJ DS.GDT 18-4-19 7.9	highly weathered, reddish brown, moist END OF BOREHOLE Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings Date Water Depth (mbgs) March 21, 2018 0.9 February 13, 2018 1.4					GRAPI	+ . 3		Numbe	rs refer		6=3%								

REF. NO.: 518-10

ENCL NO.: 11

## LOG OF BOREHOLE BH-AR11

DRILLING DATA

Diameter: 150mm

Date: Feb-01-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

	SOIL PROFILE		s	AMPL	ES			DYNA	MIC CC			TION		1							
(m)		F				TER			20 4	10 6	<u>ح</u>	30 1	00	PLAST LIMIT	IC MOIS	URAL STURE TENT	Liquid Limit		UT WT	REMARI AND	KS .
ELEV	DECODIDITION	LO.	~		SWS E	AW C	No	SHE	AR ST	RENG	TH (kl	Pa)		W <sub>P</sub>	\	<i>N</i> 0	WL	u) (kPa	AL UN (N/m <sup>3</sup> )	GRAIN S	IZE TION
DEPTH	DESCRIPTION	RATA	MBEF	ЭС	BLO		EVATI		NCONF UICK TI	INED RIAXIAL	+ . ×	& Sensit	ivity ANE	WA	TER CC	ONTEN	T (%)	90 00	NATUF )	(%)	
167.0	)	STI	R	Σ	ŗ	8 S	ELE	:	20 4	40 6	<u>ه</u> 0	30 1	00	1	0 2	20 3	30			GR SA S	I CL
- 0.0	TOPSOIL: 460mm	<u> </u>	1	SS	14	<u>×</u>	W. L.	L 166.9	m						0						
- <u>166.</u> - 0.	5 CLAYEY SILT: trace	ĥ					Mar 2	1, 2018  -	5												
- 166.2	topsoil/organics, trace to some		1					E													
	noist, firm (weathered/disturbed)		2	SS	28		166	-							0						
	sandy, trace gravel, occasional							-													
Ē	fragments, reddish brown, moist,		3	SS	29			-							ο						
2	very stiff to hard						165	-													
-				99	50/			-													
-			<b> </b>	55	75mm			-													
3			1				164														
-			5	SS	50/ 25mm	目		-						0							
-			1					-													
-4			1				162	-													
E			1				. 103	-													
-162.4	4		1					-													
- 4.0	6 <b>SHALE:</b> Queenston Formation, highly weathered, reddish brown		6	SS	50/ 00mn			-						0							
-							162														
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<u>6</u>			-	~~~	50/	F	161	-						0							
160.0			$\vdash$	_ 33 _	00mr		:. 	-						-							
o 0.4	Notes:																				
8-4-1	2) 50mm dia. monitoring well																				
1	3) Water Level Readings																				
DS.G	Date Water Depth (mbgs) March 21, 2018 0.1																				
GPJ	February 13, 2018 0.4																				
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LE-AF																					
KVIL																					
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						GRAPH	1 . 3	×3.	Number	rs refer	~	8=3%									

# DS

## LOG OF BOREHOLE BH-AR12 (D)

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

┢	BH LC	CATION: See Drawing 1				E9		1	DYNA	MIC CO	NE PEI	NETRA	TION								
┝						.E3	Ë		RESIS	TANCE	PLOT	$\geq$			PLAST	C NATI	URAL		z	T MT	REMARKS
	(m)		5			ଷ୍ଟ	NATI NS	z	2					00	W <sub>P</sub>	CON	TENT N	WL	KPa)	LINN (ĵe m	GRAIN SIZE
	ELEV	DESCRIPTION	IA PI	Ë		0.3 n		IOI	SHE/	AR STI NCONF	RENG INED	IН (кн +	Pa) FIELD V	ANE	-		0		OCKE (Cu)	URAL (KN/	
ľ			[RA]	JMB	Ä		ND ND	EV.	• Q	UICK TR	RIAXIAL	. ×	LAB V/	ANE	WA	TER CC	ONTEN	T (%)	₽.	LAN	(%)
-	170.0	TOPCOIL + 175mm	5	ž	F	2 F	ចប័	ш	2	20 4	0 6	0 8	0 1	00	1	0 2	20 ;	30			GR SA SI CL
-	16 <b>9.8</b> 0.2	CLAYEY SILT: trace	tit	1	SS	17			-							0					
F		topsoil/organics, trace to some		1	00				-							-					
Ē	160 1	sand, trace gravel, reddish brown, moist, very stiff																			
1	0.9	(weathered/disturbed)				07		169	-									<u> </u>			
Ē		SILIY CLAY IILL: some sand to sandy, trace gravel, occasional			55	21			-												
F		cobble/boulder, trace shale							-												
E		hard	Ĥ	3	ss	26			-												
2								168	-												
F				1					-												
Ē					22	53			Ē								0				
F			Ĥ						-												
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<u>G</u>	<u>.</u>	till mixed with shale fragments, reddish brown, moist, hard				125mn	門目:	162										<u> </u>			
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E-AF				1			∣∶₿∶	W I	- 161 5	 m											
Ę							に目に	Mar 2	1, 2018	3											
OAK	161.0	SHALE: Queenston Formation					I F	161	-									+	-		
Щ	9.2	highly weathered, reddish brown, /		╞┻	<u>ss</u>	50/ 75mm		+							°			+			
AS S							1														
<u>a</u> NU		Notes:						1											1		
ю -/		1) 50mm dia. monitoring well installed upon completion.						1											1		
ERT		2) Water Level Readings						1											1		
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S SC								1											1		
				•				•	•											•	

GROUNDWATER ELEVATIONS  $\begin{array}{c} \begin{array}{c} 1 \\ \text{Measurement} \end{array} & \begin{array}{c} 1 \\ \underline{\nabla} \end{array} & \begin{array}{c} 2 \\ \underline{\Psi} \end{array} & \begin{array}{c} 3 \\ \underline{\Psi} \end{array} & \begin{array}{c} 4 \\ \underline{\Psi} \end{array} \end{array} \end{array}$  REF. NO.: 518-10 ENCL NO.: 13

CO	NIC	111	TA	NT	CI1	TD .
cu	143	UL	in	N.	3 5	10.

Diameter: 150mm Date: Jan-31-2018

DRILLING DATA

Method: Solid Stem Augers

## LOG OF BOREHOLE BH-AR12 (S)

DRILLING DATA

Diameter: 150mm

Date: Jan-31-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

DITEC	CATION. See Drawing 1		-											i				1	-		
	SOIL PROFILE		S	AMPL	ES	~		RESIS	TANCE	PLOT		HON			NAT	URAL			۲.	REMARK	S
(m)		F				ШЦ.		2	0 4	0 60	0 8	0 10	00	LIMIT	MOIS CON	TURE	LIMIT	EN.	NIT (	AND	
ELEV	ELEV DESCRIPTION				ŠΕ	AW 0	z	SHEA	AR ST	RENG	TH (kf	Pa)	1	W <sub>P</sub>	\	N	WL	(KPa	AL UI	GRAIN SIZ	Έ ΙΟΝ
DEPTH	DESCRIPTION	ATA	BER		BLO 0.3	IND	E E	O UI	NCONF	INED	÷	FIÉLD V & Sensiti	ANE vity	14/4			T (0/)	DO DO	ATUR (k	(%)	ON
470.0		STR/	MUM	ΓΥΡΕ	z	SR0		• QI 2		RIAXIAL	× 0 8	LAB VA 0 10	ANE 00	1 VVA	0 2	20 3	1 (%) 30		Ž		CI
- 0.0	Staright augered to 4.6m without	0,	2	-			ш	-							-		1			GR SA SI	
	soil sampling to install a shallow							-													
	monitoring well adjacent to BH-AR12 (D)							-													
	2							-													
1							169	-										-			
								-													
-								-													
								-													
2							168	-													
								-													
-								E													
								-													
3							167											-			
								Ē													
-						「目う		È.													
						1.目.		-													
4							166	È										-			
-							W. L. Mar 21	166.0 r 1, 2018	n }												
-165.4								É													
4.6	END OF BOREHOLE																				
	1) 50mm dia. monitoring well																				
	Installed at 4.6m, adjacent to BH-AR12 (D).																				
	2) Water Level Readings																				
	March 21, 2018 4.1																				
						GRAPH	3	3 1	Jumbor	re refer		8-30/									



REF. NO.: 518-10

ENCL NO.: 13A

## LOG OF BOREHOLE BH-AR13

DRILLING DATA

Diameter: 150mm

Date: Feb-01-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

	SOIL PROFILE		5	SAMPL	.ES							TION		Ì						DEMO	
		Ι.				Ë			20 4	. 6	<u>~</u>	30 1	00	PLASTI LIMIT			LIQUID LIMIT	z	IT WT	AND	
(m)							z	SHE	AR ST	RENG	TH (ki	Pa)	1	W <sub>P</sub>	001	w	WL	(KPa) (KPa)	AL UN	GRAIN SIZE	
DEPTH	DESCRIPTION	TA F	BER		0.3		ATIO	0 UI	NCONF	INED	+	FIELD V & Sensit	'ANE ivity					δQ DO	KTUR/	UISTRIBUTIO	N
474.0		STR <sup>A</sup>	MIN	ΥPE	ž	SRO	ELEV	• Q		RIAXIAL	. ×	LAB V/	ANE 00	WA 1	0 2	DNIEN 20 3	I (%) 30		Ž		~1
1/1.0 - 17 <b>0.8</b>	TOPSOIL: 175mm	<u>\\</u>	2	-	-	00	ш	-	-				1				1			GR SA SI (	-L
0.2	CLAYEY SILT: trace		1	SS	4			E								0					
-	topsoil/organics, trace to some sand_trace gravel_reddish brown		1					-													
170.1	moist, firm (weathered/disturbed)		1—			-		-													
<u> </u>	SILTY CLAY TILL: some sand to	191	2	SS	25		170								0						
-	cobble/boulder, trace shale	12	1					-													
E	fragments, reddish brown, moist,		$\vdash$					Ē													
-	nard	12	3	SS	29			-						0							
2							169	-													
-			1			-		-													
			1	SS	30			-													
-								-							Ĩ.						
3							168	-										-			
-								-													
-			5	SS	38			-						°							
-								-													
4		12	1				167											-			
166.7		1	4					-													
- 4.3	layers/interbeds of silt, trace clay,							-													
-	grey, wet, very dense		6	SS	90			F							0					2 73 19	6
5		臣	Ľ	00			166	-							-					2 10 10	0
-		間						-													
-		間						-													
-		臣						-													
<u>6</u>							165	-													
-					-			-							_						
-			· /	55	54			-							0						
2								-													
-		抱					164	-										-			
								-													
								F													
163.1			8	SS	44			E						0							
<sup>≗</sup> 7.9 162.8	SAND & GRAVEL: trace silt, grey,	0					163	-						0							
8.2	END OF BOREHOLE																				
	Notes: 1) Water level at 4 3m upon		1																		
	completion of borehole.																				
			1																		
			1																		
			1																		
			1																		
			1																		
			1																		
			1																		
		-	1	I	1	I	I	I	I	I	1	1	1	I	I	1	1	<b></b>	I	1	-

DS SOIL LOG DIAM PROPERTY- DUNDAS ST E, OAKVILLE-ARGO.GPJ DS.GDT 18-4-19



## LOG OF BOREHOLE BH-AR14

DRILLING DATA

Diameter: 150mm

Date: Feb-02-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

o Dr 

DITLO					<b></b> _			DYNA		NE PEN	IETRA	TION						1	1			
			<u>⊢</u>	ANPL	.=5	н		RESIS	TANCE	PLOT	$\geq$		00	PLASTI	C MATI	URAL		z	T WT	RE		S
(m)			S c	WAT NS	Z	2 015/			0 8	10 1 20	UU I	WP	CON	TENT N	WL	ET PEI (kPa)	LUNI1	GRA	IN SIZ	ZE		
ELEV DEPTH	DESCRIPTION	TAP	ËR		0.3 r		ΑΠΟ		NCONFI	NED	іп (кн +	FIELD V & Sensit	ANE		(	<b></b>		(CU)	TURA (kN	DISTF	RIBUT (%)	ION
100.0		STRA	IUME	ΥPE	ž	SONE	ILEV,	• QI 2			X N 8	LAB V	ANE 00	WAT 1	FER CC	NTENT	Г (%) 30	1	¥		(,,,) \	CI
166.0	TOPSOIL: 125mm	11/1	2	-	-	00	ш	-					1				,			GR 5/	4 51	UL
0.1	CLAYEY SILT: trace		1	SS	5											0						
- 165 2	sand, trace gravel, reddish brown,		]					-														
- 105.2 - 0.8	moist, firm (weathered/disturbed)						165	-														
-	sandy, trace gravel, occasional		2	SS	54		165	-						0	1	-1				03	72	25
164.5	fragments, reddish brown, moist,	1 A	<u> </u>					-														
- 1.5	hard		3	SS	50/ 125mn			-						0								
2	till mixed with shale fragments,					1	164															
163.7	reddish brown, moist, hard																					
2.3	SHALE: Queenston Formation, highly weathered. reddish brown		4	SS	50/ 100mn			F						0								
-	5, ,							-														
-					50/		163															
			5	SS	50/ 125mn	p I								0								
								-														
4							400															
							102	-														
								L														
			6	ss	_ 50/									0								
5					7 <u>5mm</u>		161															
								-														
								E														
<u>6</u> 159.8			7	66	50/		160	-						0								
6.2	END OF BOREHOLE		Ľ		25mr	4																
	1) Water level at 6.1m upon																					
	completion of borehole.																					
																			1			
																			1			
		1	I	1		GRAPH	3	√3. N	Numbers	s refer		<b>8</b> =3%	Otrain	L.		1	1	I				

DS SOIL LOG DIAM PROPERTY- DUNDAS ST E, OAKVILLE-ARGO.GPJ DS.GDT 18-4-19



#### LOG OF BOREHOLE BH-AR15

DRILLING DATA Method: Solid Stem Augers

Diameter: 150mm

Date: Mar-16-2018

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

SOL PROFILE         SAMRES         Bit Sol Provide for the second	⊦	BHLC	CATION. See Drawing 1		i –			1			MIC CO					1					-	
Import         DESCRIPTION         Import         Im			SOIL PROFILE		5	SAMPL	.ES	~		RESIS	STANCE	PLOT		NUN		PLAST	C NAT	URAL	LIQUID		₽	REMARKS
Image: Participant international constraints of the second seco		(m)		5				ATEF			20 4	ю е	80 8	80 1	00	LIMIT	CON	TENT	LIMIT	a) PEN.	ر TINĽ	
DESCRIPTION         Solution		ELEV	DESCRIPTION	PLO	~		3 mS	NOI	NO	SHE	AR ST	RENG	TH (ki	Pa)		W <sub>P</sub>	\ 	N 0	WL	Н Ц Ц Ц Ц Ц Ц	ZAL U KN/m	DISTRIBUTION
11200         15         2         2         3         1         3         2         4         00         000         10         20         30         1         3         2         1         35         4         00         000         10         20         000         100	I	DEPTH	DESCRIPTION	ATA	ABEF	щ	BLO		VAT			INED RIAXIAI	+	& Sensit		WA	TER CO	ONTEN	T (%)	9 0 0 0	IN V	(%)
1969         TOPSOL: 250mm         XS         1         SS         4           103         CLAVEY SUT, Yace to some topstillinganis, face to some active topstillinganis, face topstillinganis, face topstil		162.0		STR	NN	L∠T	ż	GRO	ELE		20 4	0 6	- ^ 80 8	BO 1	00	1	0 2	20 3	30		2	GR SA SI CL
03     CLVYF SILT: Isoc     0       103     byself buildingends, face to sorte and the same, isocial isocial condition.     1       10     CLVYF SILT: Isoc     0       10     CLVYF SILT: Isoc     0       10     CLVYF SILT: Isoc     0       21     Silt and grader, isocial same, isocial isocial condition.     1       2.1     Silt and grader, isocial same, isocial sa	Ē	161:8	TOPSOIL: 250mm	<u>x1/</u>	1	~~	4			E												
1013         1	Ē	0.3	CLAYEY SILT: trace			55	4			-									1			
0.01. fm (wateredistrict)         2         2         1         1         0 <td>Ē</td> <td>161.3</td> <td>sand. trace gravel. reddish brown.</td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td>Ē</td> <td></td>	Ē	161.3	sand. trace gravel. reddish brown.		1					Ē												
CLAYEY SILT TILL some said to be bedy, have gravel, accessed most, very stiff 100 0 2.1 SHALE: Coversion Formation highly weathered, reddish brown 2.4 AS2 50 159 158.8 3.2 END OF SOREHOLE Notes 1) Water fevel at 3.0m upon completion. 149.9 15	ŀ	0.7	moist, firm (weathered/disturbed)		╞──					E .												
Other         State         State <th< td=""><td>Ē</td><td>-</td><td>CLAYEY SILT TILL: some sand to sandy trace gravel occasional</td><td></td><td>2</td><td>SS</td><td>18</td><td></td><td>161</td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td>0</td><td></td><td></td><td></td><td></td><td></td></th<>	Ē	-	CLAYEY SILT TILL: some sand to sandy trace gravel occasional		2	SS	18		161	-							0					
Image:         Image:<	ŀ		cobble/boulder, reddish brown,	jø,						È.												
SHALE: Queenator Formation, Form	Ē	.	moist, very stiff	łł		~~				Ē												
159.0         SVALE: Queenston Formation         111         160         0         0           158.8         ENO OF BOREHOLE         Second         156         0         0         0           188.8         No of BOREHOLE         Second         Second         0         0         0           198.8         No of BOREHOLE         Second         Second         0         0         0           198.8         No of BOREHOLE         Second         Second         0         0         0         0           198.8         No of BOREHOLE         Second         Second         0	F	,			3	55	23			Ē							0					
Ingrity weathered, reddish brown         4         35         507         158           158.8         500         159         0 </td <td>Ē</td> <td>159.9 2 1</td> <td>SHALE: Queenston Formation</td> <td><u></u></td> <td></td> <td></td> <td></td> <td></td> <td>160</td> <td>-</td> <td></td>	Ē	159.9 2 1	SHALE: Queenston Formation	<u></u>					160	-												
Bond         Bond         Solution         Sol	F	2	highly weathered, reddish brown		4	SS /	50/			-						0						
198.8       END OF BOREHOLE       As an and a second secon	E						50mm	6		Ē												
1988     HD OF BOREHOLE     0     0     0     0       3.2     EMD OF BOREHOLE     Notes:     0     0     0       1988     Nate: level at 3.0m upon completion.     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0     0       0     0     0     0     0     0 <td>ŧ</td> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>450</td> <td>F</td> <td></td>	ŧ	3							450	F												
	E	158.8			5	SS	50/		159	-						0						
1) Water level at 3.0m upon completion.       1) Water level at 3.0m upon         10) Water level at 3.0m upon       1         10) Water level at 3.0m upon       1 <td></td> <td>3.2</td> <td>END OF BOREHOLE Notes:</td> <td></td> <td></td> <td></td> <td>50mm</td> <td>(</td> <td></td>		3.2	END OF BOREHOLE Notes:				50mm	(														
			1) Water level at 3.0m upon																			
			completion.																			
DS SOILLOGE DIAM PROPERTY- DUNDAS ST E.CARVILLE ARGO GPJ 1854	19																					
	8-4-																					
	5																					
DIS SOILLOG. DIAM PROPERTY- DUNDAS ST E. OAKVILLE-ARGO. GAU DIAM PROPERTY- DU	S.GI																					
DIS SOILLOG DIAM PROPERTY- DUNDAS ST E, OAKVILLE-ARGO GA																						
Dos soit. Loog. Diam PropRetty. DUNDAS ST E, OAKVILLE-ARGO	Ю. С																					
	/RG(																					
DS SOILLOG DIAM PROPERTY- DUNDAS ST E.OAK/IL	μ'																					
DS SOILLOG DIAM PROPERTY- DUNDAS ST E.OA	ΥĽ																					
DIS SOLLOG DIAM PROPERTY- DUNDAS STE	AO,																					
DIS SOIL LOG DIAM PROPERTY. DUNDAS	STE																					
DS SOL LOG DIAM PROPERTY- DUVING AND	DAS																					
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DISSOLLOG DIAMPROPER	ž																					
	ËR																					
DIS SOIL LOG DIAMF	PRO																					
	AMF																					
	Ē																					
	ĽŐ																					
	SOIL																					
	SO																					





#### LOG OF BOREHOLE BH-AR16

DRILLING DATA

Diameter: 150mm

Date: Mar-16-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BHL	OCATION: See Drawing 1		<u> </u>			i – –	<u> </u>	DYNA			JETRA	TION		1				-	1	i
	SOIL PROFILE		5	SAMPL	.ES	Ľ.		RESIS	TANCE	PLOT	$\geq$			PLAST			LIQUID		¥	REMARKS
(m)		5			0	/ATE IS		2	0 4	0 6	8 0	80 1	00	LIMIT	CON	ITENT	LIMIT	Pa)	UNIT (	AND GRAIN SIZE
ELEV	DESCRIPTION	A PL	щ		3 m		NOL	SHE/	AR STI	RENG	TH (kF	Pa) FIELD V	ANE	•• <sub>P</sub>		o		CKET SU	(kN/m	DISTRIBUTION
DEPTH		AT/	MBE	щ	瞐=				JICK TF	INED RIAXIAL	. ×	& Sensit	tivity ANE	WA	TER CO	ONTEN	T (%)	05	NATL	(%)
162.0		STF	Ŋ	Ľ	ż	КS	E	2	0 4	0 6	8 0	80 1	00	1	0 2	20 3	30			GR SA SI CL
160.0	TOPSOIL: 150mm	1.1. 171	1	99	11			-												
- 0.2	CLAYEY SILT: trace topsoil/organics_trace to some		<u>_</u>	- 55				-							Ū					
161.3	sand, trace gravel, reddish brown,							Ē												
- 0.7	moist, stiff (weathered/disturbed)		┢					-												
Ē	sandy, trace gravel, occasional		2	SS	22		161	-							0					
-	cobble/boulder, reddish brown,		┢					-												
-		<u>łł</u>						-												
E.			3	55	28			E							0					
-						1	160	-												
159.6				00	50/															
- 2.4	TILL/SHALE COMPLEX: silty clay till mixed with shale fragments		4	55	150mn	•		-						0						
-	reddish brown, moist, hard							-												
-			1				159	-												
- 159 5			5	SS	70										0					
3.5	END OF BOREHOLE																			
	Notes: 1) Water level at 3 4m upon																			
	completion.																			
			1														1			
			1														1			
			1														1			
L			1										1	I		1		1	1	

## LOG OF BOREHOLE BH-AR17

DRILLING DATA

Diameter: 150mm

Date: Mar-16-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

⊢	BH LC	CATION: See Drawing 1		50	<u> </u>		DYNAMIC CONE PENETRATION										1	1			
-						.ES	Ë		RESISTANCE PLOT					PLAST	C NAT	NATURAL LIQUI		-	TW.	REMARKS AND	
	(m)		[d			ଷ୍ଟ	NATI NS	z	2					00	W <sub>P</sub>	CON	TENT N	WL	ET PEI KPa)	LINN () س	GRAIN SIZE
	ELEV DEPTH	DESCRIPTION	TAP	Ë		0.3 n		ATIO	O U	NCONF	INED	тн (кн +	FIELD V. & Sensiti	ANE			э——		(CU)	TURAI (KN	DISTRIBUTION
			TRA.	UMB	ΥPE		ROL	ΓΕΛΊ	• Q			. ×	LAB VA	ANE	WA	TER CC	ONTEN	T (%)	L.	¥	(70)
-	163.0 16 <b>0 8</b>	TOPSOIL : 175mm	0 11/2	z	-	f	00	ш	-	20 4								50			GR SA SI CL
-	0.2	CLAYEY SILT: trace		1	SS	6			F							c	•				
E	162.3	topsoil/organics, trace to some sand trace gravel reddish brown		$\vdash$					-												
E	0.7	noist, firm (weathered/disturbed)		]			-														
-	<u> </u>	CLAYEY SILT TILL: some sand to sandy, trace gravel, occasional	11	2	SS	16		162	-							0					
Ē		cobble/boulder, reddish brown,	jø,	┢					-												
Ē			łł	1	~~~	20			E												
- -					55	32		101	-							0					
F	-			1				161	-												
Ē			1		<u> </u>	26	1		-												
-			H	1	- 33	30			-							Ĭ					
-3	3		ŀ.	·				160													
Ē				5	99	21			-												
Ē			10		- 55	51			-							Ŭ					
F									-												
-4	<u>+</u>		10	1				159	-												
Ē	158.6								-												
-	4.4 158.3	SHALE: Queenston Formation, highly weathered reddish brown		6	SS	50/			-						0						
	4.7	END OF BOREHOLE				<u>r 5mm</u>															
		1) Water level at 4.6m upon																			
		completion.																			
19																					
18-4-																					
Б																					
DS.G																					
L L L																					
0.05																					
-AR(																					
Ë																					
AKV																					
Ш																					
S S																					
7 DN																					
JO -				1															1		
ERT				1															1		
ROP				1															1		
MPI																					
DIA																					
ГОG																					
SOIL				1																	
SO																					
								3	3	Numbor	e rofor		<b>e</b> -3%								

#### LOG OF BOREHOLE BH-AR18

DRILLING DATA

Diameter: 150mm

Date: Mar-15-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

			SAMPLES					DYNA	MIC CC	NE PEN	IETRA	FION								
				SAMPLES		с.		RESISTANCE PLOT					PLAST		URAL	LIQUID		Tw1	REMARKS	
(m)		OT			0	A ATE			20 4	0 60	00	LIMI I Wo	CON	TENT	LIMIT W.	T PEN	UNIT (	GRAIN SIZE		
ELEV	DESCRIPTION	A PL	Ř		30 M		NOL N	SHE			ГН (kf	Pa) FIELD V	ANE				CCKET CU) (K	JRAL ( (KN/m	DISTRIBUTION	
DEPTH		RAT/	MBE	щ			-A-	QUICK TRIAXIAL				+ & Sensitivity × LAB VANE			TER CO	ONTENT (%)		000	NATL	(%)
164.0		STF	Ĩ	Ĕ	ż	ЯS	ELE	2	20 4	0 60	D 8	0 1	00	1	0 2	20 3	30			GR SA SI CL
160.0	TOPSOIL: 150mm	<u>, 17</u>	1	90	6	I		-	[											
0.2	CLAYEY SILI: trace topsoil/organics_trace to some	H	Ľ	33	0			-												
- 163.3	sand, trace gravel, reddish brown,							Ē												
0.7	CLAYEX SUIT TUL: some sand to		┣──					-												
-	sandy, trace gravel, occasional	11	2	SS	16		163	-							0					
-	cobble/boulder, reddish brown,		-																	
-	moist, very sun to hard	$\mathcal{W}$	1					-												
-	ſ		3	SS	35			-							0					
- 161 8		1.					162													
- 2.2	SHALE: Queenston Formation,	XX		<u> </u>	50/			-						0						
-	highly weathered, reddish brown		4	55	100mn	4		-						Ů						
								-												
<u>-</u> 3							161	-												
3.2	END OF BOREHOLE		5	<u>ss</u>	50/									<u> </u>				-		
	Notes:				(SIIII)															
	1) Borehole open and dry upon completion																			
																	1	1		
																	1	1		
																	1	1		
																	1	1		
																	1	1		
																	1	1		
			L	I	I	ı	I	L	I	L		I	I	·	I	I	1			

1 OF 1

## LOG OF BOREHOLE BH-AR19

DRILLING DATA

Diameter: 150mm

Date: Mar-15-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

DITE	DOATION. Dee Diawing T	-			1								1					1				
	SOIL PROFILE	5	SAMPL	.ES	~		RESISTANCE PLOT						PLAST		URAL			₽	REMA	RKS		
(m)		5		A TEI				20 40 60 80 100					LIMIT	ITENT	LIMIT	PEN.	LINI (					
ELEV		PL0	~		3 m	NO <sup>1</sup>	NO	SHE	AR ST	RENG	iTH (kl	Pa)		W <sub>P</sub>		w o	WL	Н Ц Ц Ц Ц Ц Ц	AL L RN/m	DISTRIBUTION		
DEPTH	DESCRIPTION	ATA	ABEF	ш	BLO	DUN	VAT		NCONF		+	& Sensit		WA	TER CO		T (%)	о О	INTAU)	(%	o)	
165.0		STR	Ŋ	Z	ż	CONC CONC	ELE		20 4	10 6	- ^ 60 8	BO 1	00	1	0 2	20 3	30		2	GR SA	SI CL	
- 16 <b>9.9</b>	TOPSOIL: 125mm	11/		-				-	1													
E 0.1	CLAYEY SILT: trace		1	SS	7			E								0						
- 164.3	topsoil/organics, trace to some sand trace gravel reddish brown							-														
- 0.7	moist, firm (weathered/disturbed)		1			-		-														
<u>1</u>	CLAYEY SILT TILL: some sand to	ΗĽ	2	SS	20		164								0							
-	cobble/boulder, reddish brown,					-		-														
-	moist, very stiff to hard		1			-		-														
			3	SS	31			E							0							
2		19.	$\vdash$				163	-														
-		1	1					-														
E		ŕ	4	99	30			E														
-		H		00	50			-							Ĩ							
3		[]					162	-														
-			┢				102	-														
Ē			5	SS	41			-							0							
-		ŀΗ						-														
4		Į.	1				101	-														
160 7			·				101	-														
- 4.3	TILL/SHALE COMPLEX: silty clay	1/						-														
-	till mixed with shale fragments,		<u> </u>					Ē														
-	reddish brown, moist, hard		6	SS	98			-														
-			—				160	-														
Ē																						
-								-														
150.0			1					Ē														
- 159.0	SHALE: Queenston Formation,		1		50/		159	-														
6.2	highly weathered, reddish brown		É	<u> </u>	50mm																	
	Notes:																					
19	1) Borehole open and dry upon																					
18-4	completion.																					
5																						
S.GI																						
.GP																						
RGC																						
Ч-																						
DAK																						
Ш																						
S																						
ADV																						
DO																						
-≻T%																						
Ш			1														1	1				
PRC			1																			
AM			1														1	1				
			1																			
Ĭ			1														1	1				
10 golf			1														1	1				
SO			1																			
		•	•			GRAPH	. 3	×3.	Number	rs refer	-	8=3%							-			
GROUN	IDWATER ELEVATIONS 1st 2nd 3rd 4th					NOTES	+ °,	× -:	to Sens	itivity	C	, 5.0	Strain	at ⊢ailur	e							
Measure	ement 💟 🗴 🗴 🔽																					

REF. NO.: 518-10

ENCL NO.: 20

## LOG OF BOREHOLE BH-AR2

DRILLING DATA

Diameter: 200mm

Date: Jan-30-2018

Method: Hollow Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

	SOIL PROFILE	s	AMPL	ES			DYNAMIC CONE PENETRATION RESISTANCE PLOT										DEMADIZ				
(m)						TER		2	20 40 60			2 80 100			PLASTIC NATURAL MOISTURE LIMIT CONTENT			Ľ.	UIT WT	AND	>
ELEV		PLO.	~		SN E	o WA	N	SHE	AR ST	RENG	TH (k	Pa)	1	W <sub>P</sub>		w 0	WL	) (kPa	AL UN	GRAIN SIZ	.E ON
DEPTH	DESCRIPTION	ATA	1BEF	ш	BLC 0.3		VATI				+	FIELD V & Sensit	ANE	WA	TER CO		Т (%)	00 00 00	INTUR (	(%)	
166.0		STR	NUN	ТҮР	"z	GRC CON	ELE		20 4	10 6	0 8	30 1		1	10 2	20 3	30		2	GR SA SI	CL
168.9	TOPSOIL: 125mm	11/						-													
- 0.1	CLAYEY SILT: trace topsoil/organics, trace to some		1	SS	7			-							0						
165.2	sand, trace gravel, reddish brown,							Ē													
- <u>1</u> 0.8	SILTY CLAY TILL: some sand to	19.					165	-													
-	sandy, trace gravel, occasional		2	SS	44		105	-						c	2						
-	fragments, reddish brown, moist,				50/			-													
- 164.2	hard		3	SS	50/									0							
- <u>-</u> 1.8	SHALE: Queenston Formation, highly weathered reddish brown				<u>/ mm /</u>		164											-			
-	moist				50/			-													
-			4	55	100mr	n.∙ ⊠`.		E						Ŭ							
-						· ·   -   ·	W.L.	163.4 i 2018	m R												
-				00	50/		163		1												
-			<u>ہ</u>	55	100	日		Ē						Ŭ							
Ē					<u>mm</u>	し目		Ē													
4								-													
-						1:目:	162	-													
-							·.	_													
-	wet below 4.6m		6	ss	50/	日		-							0						
5					125 mm	[]目:	161														
-						日		-													
-						1:目:	:	-													
E						「目		E													
 - 159.8			7	99	50/	ŀ ₽:	. 160	-							0						
6.2	END OF BOREHOLE		Ľ		50																
	1) Auger refusal at 6.2m.				\ <u>mm</u> /																
4-15	installed upon completion.																				
18	3) Water Level Readings Date Water Depth (mbgs)																				
:GD]	March 21, 2018 2.6																				
SO	February 13, 2018 2.6																				
.GP.																					
RGC																					
LE-A																					
KVIL																					
E OA																					
STI																					
DAS																					
DU																					
Ľ																					
OPE																					
1 PR(																					
DIAN																					
1 90																					
SS SC																					
	1							3	Numbe	re refer		<b>e</b> -3%			1	1	1				

REF. NO.: 518-10

ENCL NO.: 3

Strain at Failure C
## LOG OF BOREHOLE BH-AR20

DRILLING DATA

Diameter: 150mm

Date: Mar-15-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

RH					50	1		DYNA	MIC CO		NETRA	TION						1	1	
		-	2		.ES	н. Н		RESIS	TANCE	PLOT	$\geq$			PLASTI	C NATI	URAL	LIQUID		TW.	REMARKS
(m)		10			<u>ဖ</u> ု_	VATE VS	7	2	20 4	06	8 0	30 1	00	LIMI I W⊳	CON	TENT N	LIMIT Wi	T PEN	"UNIT	GRAIN SIZE
		A PI	К		<u>10W</u>		10 E		AR STI NCONF	RENG	1H (kł +	Pa) FIELD V	ANE	<del>`</del>	(	<b>&gt;</b>		OCKE (ou)	URAL (KN/	DISTRIBUTION
		RAT	JMBI	Å			EVA.	• Q	UICK TF	RIAXIAL	. ×	LAB VA	ANE	WA	TER CC	ONTEN	Г (%)	ď.	NAT	(%)
164		5	ž	7	ŗ	50	Ш	2	20 4	0 6	8 0	30 1	00	1	0 2	20 3	30 			GR SA SI CL
- 169	1 CLAYEY SILT: trace	ĥ	1	SS	9										0					
- 163	5 topsoil/organics, trace to some		╢					-												
Ē	5 sand, trace gravel, reddish brown, noist. stiff (weathered/disturbed)																			
<u>1</u>	CLAYEY SILT TILL: some sand to	łW	2	SS	21		163	-							0					
E	sandy, trace gravel, occasional cobble/boulder, reddish brown.	H	<u> </u>					Ē												
F	moist, very stiff to hard					-		-												
Ē			3	SS	24									0						
2		Ŷk					162	-												
-		r k	<u> </u>					-												
Ē			4	SS	33			-							0					
E.		[	·					-												
-		K	1				161	-												
E		14	5	SS	26										þ					
F			├──					-												
E		10	1					-												
-							160													
159		16						-												
- 159	bighly weathered_reddish brown		6	- 55	50/			-												
4	END OF BOREHOLE     Notes:				25mŋ	1														
	1) Borehole open and dry upon																			
	completion.																			
19																				
18-4-																				
Б																				
DS.G																				
L																				
0.0																				
ARG																				
Ú.																				
AKV																		1		
О Ш																		1		
S ST																				
NDA																				
RTY																		1		
OPE																		1		
A PR																		1		
DIAN																		1		
g																		1		
																		1		
SS SC																				
		-		L	I		·	L		· · ·	I	•	I	I	I	I	1			

### LOG OF BOREHOLE BH-AR21

DRILLING DATA

Diameter: 150mm

Date: Mar-15-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

					ES	1		DYNA	MIC CO	NE PEN	IETRA	TION							1	
	SUIL PROFILE				_ES	с.		RESIS	TANCE	PLOT	$\geq$			PLASTI		URAL	LIQUID		¥	REMARKS
(m)		Ы			S	VATE	_	2	20 4	0 6	<u>ع</u> 0	30 1	00		CON	ITENT W	LIMIT W.	T PEN	UNIT (°	GRAIN SIZE
ELEV	DESCRIPTION	APL	к		3 m O M		NOL	SHEA			TH (kl	Pa) FIELD V	ANE	⊢ —				ЦЦ) ЭСКП ЭС	(KN/n	DISTRIBUTION
DEDIH		RAT,	MBE	щ			-A-	• Q	NCONF UICK TF	INED RIAXIAL	+ ×	& Sensit	ivity ANE	WA	TER CO	ONTEN	T (%)	00	NATC	(%)
167.0		STF	R	Ϊ	"Z	GR CC	ELE	2	20 4	0 6	0 8	30 1 I	00	1	0 2	20 ;	30			GR SA SI CL
16 <b>8.9</b>	TOPSOIL: 100mm	ŔŤŧ	1	ss	7			-								0				
-	CLAYEY SILT: trace topsoil/organics, trace to some		1_	00	<u> </u>			-												
166.3	sand, trace gravel, reddish brown,							Ē												
- 0.7	CLAYEY SILT TILL: some sand to		┢				400	-												
Ė	sandy, trace gravel, occasional	ŗ,	2	SS	24		166	_							0					
	cobble/boulder, reddish brown,	jø,	┢					-												
-	moist, very still to hard	łł						-												
-			3	55	39			E							0					
-							165	-										1		
		[.]	1—																	
-		Ĥł	4	SS	43			-							0					
-164.0		Ηł	1					-												
16 <b>9</b> :9	SHALE: Queenston Formation,		-		50/		164	-												
3.2	highly weathered, reddish brown		┡	<u> </u>	75mm	(												1	1	
	Notes:																			
	1) Borehole open and dry upon																			
	completion.																			
																			1	
																			1	
																			1	
																			1	
																			1	
·			-		-	-		-							-			-	-	

#### LOG OF BOREHOLE BH-AR22

DRILLING DATA

Diameter: 150mm

Date: Mar-15-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

⊢				-			1	<u> </u>	DYNA				TION		1				1	1	
		SOIL PROFILE		5	SAMPL	.ES	r -		RESIS	TANCE	PLOT	$\geq$			PLASTI	C NAT	URAL	LIQUIN		Ę	REMARKS
	(m)		F				×TEF		2	20 4	40 G	8 0	0 1	00	LIMIT	CON	TENT	LIMIT	EN.	NIT (	AND
	FLEV		PLO			SΣE	NO NG	z	SHE	AR ST	RENG	TH (kf	Pa)		W <sub>P</sub>		w	WL	KET (	ALU	
ī	DEPTH	DESCRIPTION	TA	BER		0.3	IN E	Ĩ	οu	NCONF	INED	÷	FIÉLD V & Sensit	ANE ivity				T (0()	00 00	, TUR ×	(%)
			TRA	ШШ	ΥPE	5	ON	LEV L	• Q	UICK TI	RIAXIAL	. ×	LAB V	ANE	WA			I (%)	[ <sup>-</sup>	₹	
H	169.0	TOPSOIL : 125mm	0	z	- I	f	00	ш		4	+0 0			+			20	30		_	GR SA SI CL
Ē	16 <b>8.9</b> 0.1	CLAYEY SILT: trace	Ŵ	1	SS	5			-								o				
E		topsoil/organics, trace to some		—			-		_												
Ē	168.3	sand, trace gravel, reddish brown,							-												
Ē	1 0.7	TILL/SHALE COMPLEX: silty clay						160	-												
E	-	till mixed with shale fragments,		2	SS	28		100	-							0					
Ē		reddish brown, moist, hard	///						-												
F							1		-												
Ē				3	SS	73			Ē							0					
-	2							167													
Ē				1		50/	-		-												
F				4	SS	50/ 125mr	h		-						0						
E							1		-												
5	3		V/ð	1				166	-												
È	165.8		<i>\.//</i> .	15	SS /	50/			-												
	3.2	Notes:				50mm	í														
		1) Water level at 3.1m upon																			
		completion.																			
4-15																					
18-																					
Ц																					
SS.G																					
2																					
Ū.																					
RG																					
ЧЧ																					
DAK																					
Ц																					
S S																					
ADA																					
ĺΩ				1																	
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ROF				1																	
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DIA				1																	
g																					
Ľ																					
SO				1																	
SD																			1		

REF. NO.: 518-10

## LOG OF BOREHOLE BH-AR23

DRILLING DATA

Diameter: 150mm

Date: Mar-15-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

╞	BH LC	CATION: See Drawing 1					i						TION							-	
		SOIL PROFILE		s	SAMPL	ES	<u>د</u>		RESIS	TANCE	PLOT		HON .		PLASTI		URAL	LIQUID		¥	REMARKS
	(m)		ы				ATEF		2	20 4	40 6	i0 8	30 1	00	LIMIT	CON	TENT	LIMIT	PEN.	UNIT (	AND GRAIN SIZE
	ELEV	DESCRIPTION	A PL	щ		3 m		NOL	SHE	AR ST	RENG	TH (kl	Pa) FIELD V	ANE	•• <sub>P</sub>		o	WVL	CKET SU	(kN/m	DISTRIBUTION
ľ	DEPTH		RAT/	MBE	щ	립이	NNO		0 U	NCONF UICK TI	INED RIAXIAL	+ . ×	& Sensit LAB V	ivity ANE	WA	TER CO		T (%)	00	NATL	(%)
	164.0		STF	N	Σ	"Z	<u>я</u> С	ELE	2	20 4	40 6	i0 8	30 1	00	1	0 2	20 3	30			GR SA SI CL
F	169.9	TOPSOIL: 175mm	<u></u>	1	SS	7			-									6			
E	. 0.2	topsoil/organics, trace to some		<u> </u>					_												
Ē	163.3	sand, trace gravel, reddish brown,							E												
E	1 0.7	CLAYEY SILT TILL: some sand to	11	2	SS	16		163									0				
Ē		sandy, trace gravel, occasional cobble/boulder, reddish brown.		Ē																	
F	-	moist, very stiff to hard					-		-												
E				3	SS	23			E							0					
Ē	2							162	-										-		
F							-		-												
F	-			4	SS	36			-							0					
Ē				1					-												
Ē	3	arey to reddish brown at 3.1m						161	-										1		
F		grey to reduish brown at 3. htt		5	SS	45			E												
Ē	-	ſ		—					Ē												
Ē	4	·		1				160	-												
F								100	-												
F	159.6 15 <b>9.4</b>	SHALE: Queenston Formation,	1 <i>k</i> .I			50/			-												
Ī	4.6	Nighly weathered, reddish brown		Þ	<u></u>	50/ 50mm															
		Notes:																			
		1) Water level at 4.5m upon completion.																			
4-19																					
18-																					
GDT																					
DS.																					
GP																					
О Ю																					
E-AF																					
OAK																					
Ц																					
AS 9																					
S																					
Ę																					
ERT																					
ROF																					
AM P																					
D D																					
ГO																					
SOIL																					
SO																					
								3	3	Numbo	re rofor		<b>e</b> -20/								

### LOG OF BOREHOLE BH-AR24

DRILLING DATA

Diameter: 150mm

Date: Mar-15-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

					-0	<u> </u>	<u> </u>	DYNA	MIC CO	NE PEN	IETRA	TION		<u> </u>				1	1	
	SOIL PROFILE		5	SAMPL	.ES	~		RESIS	TANCE	PLOT	$\geq$			PLASTI	C NAT	URAL			₽	REMARKS
(m)		F				Ë,		2	0 4	0 6	0 8	30 1	00	LIMIT	CON	TENT	LIMIT	EN.	ÍN (	AND
		PLO			SSE	AN ONS	z	SHE/	AR STR	RENG	TH (kl	Pa)	I	W <sub>P</sub>	1	w	WL	Ē	N/m N/m	GRAIN SIZE
DEPTH	DESCRIPTION	TAI	ËR		0.3		ATIC	O UI	NCONF	INED	+	FIELD V & Sensit	ANE			0		<u>Š</u>	JUL X	UISTRIBUTION (%)
		<b>IRA</b>	Ψ	Å	ш, Е	N N	Ъ	• QI	JICK TF	RIAXIAL	×	LAB VA	AŃE	WA	TER CO	ONTEN	T (%)	Ľ	₹	(70)
167.0		0	ž	F	f	σŏ		2	:0 4	0 6	υε	su 1	00		υ 2 	20 3	50	_		GR SA SI CL
160.0	IOPSOIL: 200mm	<u>ヽ''</u> オモレ	1	ss	5			F								0		1		
0.2	CLAYEY SILI: trace topsoil/organics_trace to some	H	Ľ	00	Ŭ			F												
166.3	sand, trace gravel, reddish brown,							Ē												
0.7	noist, firm (weathered/disturbed)		┣──			-		E												
-	CLAYEY SILT TILL: some sand to	11	2	SS	25		166	-							c					
-	cobble/boulder, reddish brown,		<u> </u>					È.												
-	moist, very stiff	11						-												
-			3	SS	29			Ē							0					
2		19.					165	-												
164.8		XX						È .												
2.2	SHALE: highly weathered, grey		4	SS	50/	1		È.						0				1		
F					1 <u>25m</u> ŋ	f		F										1		
E								E												
3	grey to reddish brown at 3 0m		5	SS	50/	1	164							•				1		
3.2	END OF BOREHOLE				<u>r5mm</u>	1							1					-		
	Notes:																			
	1) Water level at 2.7m upon																			
	completion.																			
																		1		
																		1		
																		1		
																		1		
																		1		
																		1		
			I	I	I		I	I				I	I	L	I	I	1	I	I	



#### LOG OF BOREHOLE BH-AR25

DRILLING DATA Method: Solid Stem Augers

Diameter: 150mm

Date: Mar-14-2018

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

					FS		<u> </u>	DYNA			NETRA	TION		1							-
			Ĕ			Ë		RESIS			$\geq$		00	PLAST	C NAT	URAL	LIQUID LIMIT	z	TWT	REMARKS AND	
(m)		LOT			S r	WAT NS	z				い と 	ນ 1 	1	W <sub>P</sub>	CON	W ENT	WL	ET PE (kPa)	(m <sup>3</sup> )	GRAIN SIZE	
<u>ELEV</u> DEPTH	DESCRIPTION	TAP	ËR		0.3 r		ATIO		NCONF	INED	+	FIELD V & Sensit	'ANE ivity			o		Ϋ́ς	TURA (KN	DISTRIBUTION	ł
405.0		TRA	IUME	ΥPE	z	SROL	ILEV,	• Q			. X	LAB V.	ANE 00	WA 1	IER CO	ONTEN 20	I (%) 30	Ē	₹		
165.0	-TOPSOIL: 100mm		2	-	-	00	ш	-						- ·			1	-		GR SA SI U	Ľ
- 1001	CLAYEY SILT: trace		1	SS	8			E								0					
F	sand, trace gravel, reddish brown,					1		-													
164.2	moist, stiff (weathered/disturbed)		1			-		-													
	sandy, trace gravel, occasional	HH	2	SS	28		164	-							0						
-	cobble/boulder, reddish brown, moist, verv stiff to hard							-													
E	, ,	77	3	SS	24			F							0						
2			<u> </u>			-	163	-													
-		ΗÜ						-													
-		1	4	SS	47			-							o						
-		H	}—					-													
-		ľ.	·				162	-													
-			5	SS	39									c							
-		14	┢					-													
-								-													
-		10	1				161	-													
-								-													
-		10	┢		40			-													
5		ŕH.	6	SS	16		160	-							0						
-		6	1					-													
-159.4			'					-													
- 5.6	TILL/SHALE COMPLEX: silty clay till mixed with shale fragments, grey							-													
-	to reddish brown, moist, hard				50/		159	-													
-			7	SS	125mn	p .		-						· ·	Þ						
-								-													
4-19							150	-													
<sup>∞</sup> 157.7							130	-													
- 7.3	SHALE: Queenston Formation,							-													
임 <u>- 157.3</u> - 7.7	END OF BOREHOLE		8	<u>_ 88</u> _	50/			-													_
.GP.	Notes:				r smn																
RGC	completion.																				
LE-A																					
KVIL																					
ΒOA																					
ST																					
SADI																					
4DD																					
-ΥTΥ-																					
OPE																					
A PR			1											1				1	1		
DIAN																					
g			1											1				1	1		
oll																					
JS St																					
		I	•						1							1	1	-	•		-

REF. NO.: 518-10

ENCL NO.: 26

  $\frac{\text{GRAPH}}{\text{NOTES}} + {}^3, \times {}^3: \begin{array}{c} \text{Numbers refer} \\ \text{to Sensitivity} \end{array}$ 

O <sup>8=3%</sup> Strain at Failure

## LOG OF BOREHOLE BH-AR26

DRILLING DATA

Diameter: 150mm

Date: Mar-14-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LC	DCATION: See Drawing 1																			
	SOIL PROFILE		S	AMPL	.ES	~		DYNA RESIS	MIC CO	NE PEN PLOT		TION			_ NAT	URAL			F	REMARKS
(m)		F				TER		2	20 4	0 6	0 8	30 1	00	LIMIT	C MOIS	TURE	LIQUID	Ľ.	N LIN	AND
		PLO			SSE	AW NC	z	SHE	AR STI	RENG	TH (k	⊥ Pa)	1	W <sub>P</sub>		w	WL	(KPa	AL UP	GRAIN SIZE
DEPTH	DESCRIPTION	ATA	BER		BLO 0.3		ATIC	οu	NCONF	INED	÷	FIÉLD V & Sensit	'ANE ivity	10/0			T (0/)	DOC DOC	ATUR.	(%)
107.0		TR/	MUN	ΥPE	ż	NON NON	ГШ	• Q			n X	LAB V/	ANE 00		0 2		1 (%) 30		Ž	
167.0 - 16 <b>6.0</b>	<b>TOPSOIL</b> : 125mm	5) 11/2	2	-		00	ш	-					1		-		+			GR SA SI CL
166.6	CLAYEY SILT: trace		1	SS	7			-							0					
- 0.4	topsoil/organics, trace to some	K						-												
-	noist, firm (weathered/disturbed)	11				-		-												
1	CLAYEY SILT TILL: some sand to		2	SS	21		166								0			-		
	cobble/boulder, reddish brown to	11	1			-		Ę												
-	brown, moist, very stiff to hard	ŀ	┣			-		-												
-		Kit	3	SS	20			Ē							0					
2		11				-	165	-										-		
164.8	SHALE: highly weathered grey to	19.1																		
	reddish brown		4	SS	31			-							0					
			Ľ		<u> </u>			-												
3							164	-												
-								-												
E I			5	55	52			E.												
-								-												
4							163													
F								Ę												
E								Ē												
162.3			6,	SS	50/			-												
4.7	Notes:				7 <u>5</u> mm	(														
	1) Borehole dry and open upon																			
	completion.																			
						GRAPH	. 3	. 3	Number	e rofor	-	8=3%								

### LOG OF BOREHOLE BH-AR27

DRILLING DATA Method: Solid Stem Augers

Diameter: 150mm

Date: Mar-15-2018

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

	DCATION: See Drawing 1		-			1	r											1	<del></del>	
	SOIL PROFILE		5	SAMPL	ES	~		RESIS	STANCE	E PLOT		non			NAT	URAL			F	REMARKS
(m)		⊢⊢				LEH.			20 4	10 6	0 8	80 1	00	LIMIT	MOIS CON	TURE	LIQUID	Ľ.	×⊥	AND
(m)		2			Sε	NS NS	z	SHE				ـــــــــــــــــــــــــــــــــــــ	I	W <sub>P</sub>	١	N	$W_{L}$	(KPa P	Ϋ́́́́́́́́́́́́́́́́́́́́́́́́́́́́́́́́́́́́	GRAIN SIZE
DEPTH	DESCRIPTION	Γ	Ë		0.3	QE	DIA	0 0	NCONF	INED	+	FIELD V	ANE			0		Š.	L R	DISTRIBUTION
		RA.	E B	Ц			E K	• Q	UICK TI	RIAXIAL	×	LAB VA	ANE	WA	TER CO	ONTEN	T (%)	L .	¥	(70)
169.0		S	ź	≥	Ž	50	Ш	2	20 4	0 6	8 0	80 10	00	1	0 2	20 :	30			GR SA SI CL
16 <b>8.8</b>	TOPSOIL: 175mm	1/1/		60	5			È .												
0.2	CLAYEY SILT: trace	H.	<u>_</u>	33	5			È .												
168.3	sand, trace gravel, reddish brown,	Mł	1					F												
- 0.7	moist, firm (weathered/disturbed)	1/	<u> </u>			-		F												
1	TILL/SHALE COMPLEX: silty clay		2	SS	22		168								0			1		
	reddish brown, moist, very stiff to		<u> </u>					-												
-	hard		1		50/			-												
-			13		50/			È .						°						
2							407	F												
E		16					107	-										1		
			4	SS	50/			-						0						
-				$\uparrow$	50mŋ	4		F												
-								-												
- <u>₃166.0</u>	CHALE: highly weathered grow to	1/16/	1				166	-										-		
169:9	SHALE: highly weathered, grey to		5	SS	50/	1		-						0				-	<u> </u>	
3.2	END OF BOREHOLE				1 <u>,50m</u>	ĥ														
	Notes:																			
	1) Borehole dry and open upon completion																			
	completion.																			
			1															1		
			1															1		
			1															1		
			1															1		
			1															1		
			1															1		
			1																	

### LOG OF BOREHOLE BH-AR28

DRILLING DATA

Diameter: 150mm

Date: Mar-13-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

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<u> </u>			0.110	50	-		DYNAM	AIC CO	NE PEN	JETRA	FION						1	1	
L			SAMP	LES	с		RESIS	TANCE	PLOT	$\geq$			PLASTI		JRAL TURE	LIQUID		ΜT	REMARKS
(m)	l t	5			'ATE S		2	0 4	0 6	08	0 10	00		CON	TENT	LIMIT	- PEN	UNIT (	AND GRAIN SIZE
ELEV	DESCRIPTION		4	3 M		NOI	SHEA	R STF	RENG	TH (kF	Pa) FIELD VA	NE	•••p		, 		ы К Ш С С С	(kN/n	DISTRIBUTION
DEPTH					NDO IN	-A'	• QL	JICK TF	RIAXIAL	×	& Sensitiv LAB VA	/ity NE	WA	TER CC		「(%)	d S	NATI	(%)
167.0	Ho	ōĪ	<u>₹</u>	ż	ъS	ELI	2	04	0 6	08	0 10	00	1	0 2	0 3	0			GR SA SI CL
16 <b>8.9</b>		<u>/*</u> 121 1	ss	8			-								•				
165:5	topsoil/organics, trace to some	<u>  </u> _					Ē												
- 0.4	sand, trace gravel, reddish brown,						-												
1	CLAYEY SILT TILL: some sand to			00		166	-												
-	sandy, trace gravel, occasional	2	2 55	20		100								0					
-	moist, very stiff						-												
-		_	s ss	26										0					
2	i i i i i i i i i i i i i i i i i i i	۲Ľ	,	20		165	-							-					
-						105													
-				0.1	1		-												
-		4	1 35	24			-							0					
3	į	łH				164	-												
-						104	-												
È		5	5 SS	18										0					
							-												
4		1				163	_												
-		ŀŊ				105	-												
È	A CONTRACTOR						-												
	grey at 4.6m						-												
5		6	S SS	29		162	-						0						
-						102	-												
È		5.L					-												
-	И	И					F												
r i		И					-												
- 161.1	SHALE: Queenston Formation	ľ				161	-												
-161.1 -16 <b>5</b> .9 6.1	SHALE: Queenston Formation,		<u>2 A SS</u>	<del>/ 50/</del> 25mm		161	-												
- 161.1 - <u>6165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes:		<u>' A SS</u>	<del>/ 50/</del> 25mm		161	-										-		
- <u>161.1</u> - <u>616<b>5.9</b></u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon		<u>/ SS</u>	<del>/ 50/</del> 25mm		161	-										-		
<u>161.1</u> <u>165.9</u> 6.1	SHALE: Queenston Formation, Ngnly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>ss</u>	<del>/ 50/</del> 25mm	-	161	-										-		
- <u>161.1</u> - <u>616<b>5.9</b></u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<del>Z <u>A</u> SS</del>	<del>/ 50/</del> £5mm		161	-												
- <u>161.1</u> - <u>6</u> 16 <u>5</u> .9 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u> </u>	<del>/ 50/</del> 25mm		161	-										-		
- <u>161.1</u> - <u>6165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>2                                    </u>	<del>A 50/</del> 25mm		161	-										-		
- <u>161.1</u> - <u>165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>2 A SS</u>	<del>/ 50/</del> 25mm		161	-										-		
- <u>161.1</u> - <u>165.9</u> - 6.1	SHALE: Queenston Formation, Ngnly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>2                                    </u>	<del>A 50/</del> 25mm	-	161											-		
- <u>161.1</u> <u>- 165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u> </u>	<del>A 50/</del> 25mm	-	161											-		
- <u>161.1</u> <u>- 165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u> </u>	<del>4 50/</del> 25mm	-	161											-		
- <u>161.1</u> - <u>*165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>2 A 88</u>	25mn		161													
- <u>161.1</u> <u>- <sup>6</sup>165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>2                                    </u>	<u>A 50/</u> ₽5mŋ		161													
- <u>161.1</u> <u>*165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		2 88	<del>25</del> mm		161													
- <u>161.1</u> <u>*165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>24.88</u>	<del>7 50/</del> 25mm		161													
- <u>161.1</u> - <u>*165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>7 88</u>	<del>25mŋ</del>		161													
- <u>161.1</u> - <u>*165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>2 A SS</u>	7 <del>50/</del> 25mm		161													
- <u>161.1</u> <u>- <sup>6</sup>165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>2 A SS</u>	<del>, 50/</del> 25mn		161													
- <u>161.1</u> <u>- <sup>6</sup>165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>2 A 88</u>	<del>, 50/</del> 25mn		161													
- <u>161.1</u> <u>- 165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>2                                    </u>	<del>, 50/</del> 25mn		161													
- <u>161.1</u> <u>*165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>24.88</u>	7 <del>50/</del> 25mm		161													
- <u>161.1</u> <u>-</u> <u>*</u> <u>165.9</u> 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>24 88</u>	25mn		161													
- <u>161.1</u> - <u>*165.9</u> - 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>24 88</u>	25mn		161													
- <u>161.1</u> - <u>165.9</u> - 6.1	SHALE: Queenston Formation, Nighly weathered, reddish brown END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		<u>2 A 88</u>	25mn		161													

DS SOIL LOG DIAM PROPERTY- DUNDAS ST E, OAKVILLE-ARGO.GPJ DS.GDT 18-4-19



### LOG OF BOREHOLE BH-AR29

DRILLING DATA

Diameter: 150mm

Date: Mar-14-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BHLC	SOIL PROFILE				ES			DYNA	MIC CO		VETRA	TION						1	1	
					.E3	Ë		RESIS	TANCE	PLOT	$\geq$		~~	PLASTI	C MAT	URAL		z	ΓMT	
(m)		LoT			SI ∈	WAT NS	z				0 8 L TU /V		00	W <sub>P</sub>	CON	TENT N	WL	ET PE (kPa)	LUNI ("m_)	GRAIN SIZE
ELEV DEPTH	DESCRIPTION	TAP	Ë		0.3 n		ATIO	O UI	NCONF	REING INED	тн (кі +	FIELD V & Sensit	ANE			0		(CU)	TURAI (KN	DISTRIBUTION
		TRA	UMB	ΥPE		ROU OND	LE V/	• Q			×	LAB V	ANE	WA	TER CO		Г (%)	Ē	¥	(70)
168.0		0	z	Ĥ	÷	00			20 4	0 6	ο ε 	1	00			20 3	1			GR SA SI CL
- 0.2	CLAYEY SILT: trace	111	1	SS	8			Ę							0					
167.2	topsoil/organics, trace to some		╢					-												
- 0.7	noist, stiff (weathered/disturbed)		1			-		-												
1	CLAYEY SILT TILL: some sand to	KK	2	SS	18		167	-							0					
	cobble/boulder, reddish brown,		╞			-		F												
	moist, very stiff to hard		├──			-		-												
-			3	SS	32			-							0					
- 165 8		Į.					166	-												
2.2	TILL/SHALE COMPLEX: silty clay		<u> </u>			-		Ē												
-	till mixed with shale fragments, reddish brown, moist, hard		4	SS	72			-												
165.0																				
- 16 <b>4</b> :9	SHALE: highly weathered, grey to			66	E0/	-	165	-										1		
3.2			r	∕⇒>	25mŋ	ĥ												1		
	Notes:																			
	1) Borehole dry and open upon completion																			
	completion																			
			1															1		
			1															1		
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			1															1		
			1															1		
		-	•												•			•		

## LOG OF BOREHOLE BH-AR3

DRILLING DATA

Diameter: 150mm

Date: Jan-30-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

DITE					50	1	<u> </u>	DYNA	MIC CO	NE PEN	IETRA	TION		1				1	1		
	SOIL PROFILE				.ES	<u>د</u>		RESIS	TANCE	PLOT	$\geq$			PLAST			LIQUID		¥	REMAR	ś
(m)		5				S		2	20 4	0 6	<u>ع</u> 0	30 1	00	LIMIT	CON	TENT	LIMIT	a) BEN	LIN (		75
ELEV	DESCRIPTION	PLO	n		3 m	N N	NOI	SHEA	AR ST	RENG	TH (kl	Pa)		W <sub>P</sub>		» >	W <sub>L</sub>	Н Ц Ц Ц Ц Ц Ц	RAL L	DISTRIBUT	
DEPTH	DESCRIPTION	ATA	1BEI	ш	O BLO		VAT				+	& Sensit	tivity	WA	TER CO		T (%)	90 00	NTU )	(%)	
172.0		STR	NC	ΥP	ż	GRO CON	Ш. Ш.		20 4		0 8	130 LAB V	ANE 00	1	10 2	20 3	30		2	GR SA SI	CI
- 170.9	TOPSOIL: 125mm	· · · /.	-		-			-					-								
0.1	CLAYEY SILT: trace		1	SS	6			-								0					
-	topsoil/organics, trace to some							-													
171 1	moist, firm (weathered/disturbed)	H						[													
1/1.1	SILTY CLAY TILL: some sand to	HA1			83/		171	-													
	sandy, trace gravel, occasional	XX	2	SS	250mn			-							ο						
170.5	cobble/boulder, trace shale							-													
- 1.5	hard	1/1/						F													
E	TILL/SHALE COMPLEX: silty clay		3	SS	63			E						0							
2	till mixed with shale fragments,						170	-													
-	readish brown, moist, hard							-													
-169.4		19/		~~~				-													
2.6	SHALE: Queenston Formation,		4	55	74			-						°							
3	highly weathered, reddish brown,		—				169	-													
	moist				50/			-													
			5	SS	75									0							
F					mm			F													
E								E													
-							168	-													
-								-													
E I								-													
E					50/			[													
5			6	SS	75mm		167	-													
								-													
-								-													
E								E													
-								-													
165.8	auger refusal at 6.2m		7	00	50/		166	-													
6.2	END OF BOREHOLE		Ľ		75mm																
	Notes: 1) Auger refusal at 6 2m																				
19	2) Water level at 5.5m upon																				
84	completion of borehole.																				
É l																					
GO																					
S																					
G																					
0.0																					
ARG																					
Ú.																					
1																					
1 OA																					
ш́ ⊢																					
S S																					
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ER																		1			
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Σ																					
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g																		1			
																		1			
SOI																		1			
S																					
						GRAPH	_ 3	 √3.∣	Number	s refer		8=3%									
GROUN	IDWATER ELEVATIONS				i	NOTES	+ ,	^ · · i	to Sensi	itivitv	C	,	Strain	at Fallui	e						

REF. NO.: 518-10

### LOG OF BOREHOLE BH-AR30

DRILLING DATA

Diameter: 150mm

Date: Mar-15-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

DITE					<b>F</b> 0	1		DYNA	MIC CC	NE PEN	IETRA	TION						1	1	
					.ES	к		RESIS	TANCE	PLOT	$\geq$			PLASTI			LIQUID		¥	REMARKS
(m)		ot			0	S		2	20 4	0 6	8 0	80 1	00		CON	TENT	LIMIT	- PEN	UNIT (°	AND GRAIN SIZE
ELEV	DESCRIPTION	A PL	ш		3 m 0 M0	NO <sup>™</sup>	NOL	SHE/	AR ST	RENG	TH (kf	Pa)		•• <sub>P</sub>		o		Я Э К Ш Х	RAL I	DISTRIBUTION
DEPTH		RAT/	MBE	щ	<u>я</u> о		LAV		NCONF UICK TI	INED RIAXIAL	+ ×	& Sensit	ivity	WA	FER CO	ONTEN	T (%)	9 Q Q	NATU	(%)
170.0		STF	Ñ	Ę	ż	GR	E		20 4	0 6	о <sup>^</sup> 8	80 1	00	1	0 2	20 3	30		[	GR SA SI CL
169.9	TOPSOIL: 150mm	\\ <i>\</i> 777		~~	E			-								_				
0.2	CLAYEY SILT: trace	H		55	5			-								0				
- 169.3	sand, trace gravel, reddish brown,	11	1					Ē												
0.7	moist, firm (weathered/disturbed)		}—					-												
-	sandy, trace gravel, occasional	11	2	SS	16		169	-							0					
	cobble/boulder, reddish brown,	jø.	┢──					-												
-	moist, very still to hard	717						-												
E	· · · · · · · · · · · · · · · · · · ·		3	SS	24			E							0					
-		٢ŀ					168													
-		11						Ē												
-			4	SS	39			F						0	<b>&gt;</b>					
-		11	1—					-												
3 - 166 8	ſ	k.					167	-												
160.8	SHALE: highly weathered, grey to		5	SS	81			-						0	>					
3.4	reddish brown																			
	Notes:																			
	1) Borehole dry and open upon																			
	completion.																			
																		1		
				I	I		I		1	1		1	1		1	1	1			

1 OF 1

#### LOG OF BOREHOLE BH-AR31

DRILLING DATA

Diameter: 150mm

Date: Mar-13-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

	DITEC			.9		FS			DYN/			IETRA	TION						İ 🗌			
							ER		RESI	20 4		$\geq$	20 4	00	PLASTI LIMIT			LIQUID LIMIT	z	T WT	REMARK AND	3
	(m)		Lot			S E	WAT	z	SHF				Pa)	1	WP	CON	W	WL	(KPa)	vL UNI √M³)	GRAIN SIZ	Έ
	DEPTH	DESCRIPTION	ΤAF	BER		0.3 I		ATIC	0 L	INCONF	INED	+	FIELD V & Sensit	ANE			0		SOC N	(KN	DISTRIBUT	ON
	167.0		STRA	NUME	ГУРЕ	ż	GROI	ELEV	• 6	UICK TI 20 4	RIAXIAL 10 6	. × 0 я	LAB V/ 30 1	ANE 00		1 ER CO 0 2	20 :20	ı(%) 30	Ē	¥	GR SA SI	CI
	167.0 16 <b>6.9</b>	TOPSOIL: 125mm	11,.	~	F	=			-	1			1		<u> </u>			1			GR SA SI	01
	0.1	CLAYEY SILT: trace		1	SS	8											•					
	166.3	sand, trace gravel, reddish brown,							-													
	0.7	noist, stiff (weathered/disturbed)							-													
	-	sandy, trace gravel, occasional		2	SS	24		166	_							0						
	-	cobble/boulder, reddish brown, moist, verv stiff to hard							-													
	-			3	SS	20			-							0						
	2	:	<b>[</b> ].	-				165	-									<u> </u>				
	-	ĺ	łŀĮ																			
	-			4	SS	41			_							0						
	:		ł						-													
	3							164														
	-		F./	5	SS	34			-							0						
	-								-													
	-4		ľľ					162	-													
	-							103	-													
	-		łł						_													
				6	99	22																
	5		21	0		~~~		162							<u> </u>			<u> </u>				
	:								-													
	-								-													
	-		łł																			
	-	· · · · · · · · · · · · · · · · · · ·						161	_													
	-		Į.	7	SS	26			_						0							
6	-								-													
4-1	7							160										<u> </u>				
μ	- 159 6	ŕ							_													
S.G	-159.4	SHALE: highly weathered, grey to		8/	ss /	50/			-									<u> </u>				
2	7.6	END OF BOREHOLE				25mm																
D.O		Notes: 1) Borehole dry and open upon																				
ARG		completion.																				
ΪĽ																						
AKV																						
Щ																						
S SI																						
<b>Z</b>																						
JO -																						
ERT																						
ROP															1							
AM P																						
io c															1							
ΓΟĊ															1							
SOIL																						
SD																						

## LOG OF BOREHOLE BH-AR32

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

- I.						FS			DYNA			IETRA	TION									
┢				$\vdash$			Н		RESIS			$\geq$	20 4	00	PLASTI LIMIT	C NAT	URAL	LIQUID LIMIT	z	TWT	REMARKS AND	
	(m)		LOT			S c	WAT NS	Z	2	ט 4 		ບ 6  /	00 1 ⊥ Do\	1	WP	CON	i ENT N	WL	ET PE (kPa)	, m <sup>3</sup> )	GRAIN SIZE	
ī	ELEV DEPTH	DESCRIPTION	TAP	Ë		0.3 n		ATIO	O UI	NCONF	REING INED	ін (кі +	FIELD V & Sensit	'ANE	<del>-</del>		э——		(CCKE	TURAI (KN	DISTRIBUTIO	N
			TRA	UMB	/PE		ROU OND	EV#	• Q		RIAXIAL	×	LAB V	ANE	WA	TER CC	ONTEN <sup>®</sup>	T (%)	_	Γ <b>Α</b> Ζ	(70)	
ŀ	168.0		0 11/1	z	ŕ-	£	υõ		2	20 4	0 6	ο ε 	30 1	00	1	0 2	20 3	30			GR SA SI (	Ľ
Ē	0.2	CLAYEY SILT: trace	h	1	SS	7			-							0						
Ē	407.0	topsoil/organics, trace to some		╢					-													
F	0.7	noist, firm (weathered/disturbed)		1					_													
Ē	1	CLAYEY SILT TILL: some sand to	ΗĤ	2	SS	20		167								0			-			
F		cobble/boulder, reddish brown,		╞			-		_													
Ē	.	moist, very stiff to hard	μÜ	<u> </u>			-		-													
F				3	SS	27			-							0						
Ē	2		K					166											1			
F				_					-													
F				4	SS	54			-							o						
Ē			H	1—					-													
F	3							165														
Ē				5	SS	42										0						
F	·		[]¢]	1—			-		-													
E	.		Į.																			
É	4							164	_													
F									-													
E	·	grev at 4 6m		[—			-		-													
Ŀ	163.1		ŕΜ	6	SS	73		100	_							þ						
Ē	≤ 4.9	shale: highly weathered, grey to reddish brown	_					163	_													
F									-													
F				-					-													
- F									-													
Ę	<sup>6</sup> 161 0							162	-													
-	<u>161.9</u> 6.1	reddieh brewn at 6.0m		7	<u>. ss</u> ,	<del>50/</del> 25mm		162	-													
	<u>161.9</u> 6.1	reddish brown at 6.0m END OF BOREHOLE Notes:		7	<u>.ss</u> ,	<del>50/</del> 25mm		162	-										-			
6	<u>161.9</u> 6.1	reddish brown at 6.0m END OF BOREHOLE Notes: 1) Borehole dry and open upon completion		7	<u>ss</u> ,	<del>50/</del> 25mm		162	-										-			
-4-19	<u>161.9</u> 6.1	reddish brown at 6.0m END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.			<u>. 88</u> .,	<del>50/</del> 25mm	-	162	-													
T 18-4-19	<u>161.9</u> 6.1	reddish brewn at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.		7	. 22 /	<del>50/</del> 25mm		162	-										-			
.GDT 18-4-19	<u>161.9</u> 6.1	reddish brown at 6.0m END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.			<del>. 88.</del> /	<del>50/</del> 25mm	-	162	-										-			
I DS.GDT 18-4-19	<sup>₽</sup> <u>161.9</u> 6.1	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.		7	<del>. 88</del> .)	<del>50/</del> 25mm		162	-													
.GPJ DS.GDT 18-4-19	<u>161.9</u> 6.1	reddish brown at 6.0m END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.		.7	<del>. 88.</del> /	<del>50/</del> 25mm		162	-										-			
3GO.GPJ DS.GDT 18-4-19	<u>161.9</u> 6.1	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.		<u>, 7</u> ,	. 88 -	<del>50/</del> 25mm	-	162	-										-			
E-ARGO.GPJ DS.GDT 18-4-19	<u>161.9</u> 6.1	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.			<del>. 23 /</del>	<del>25mm</del>	-	162	-										_			
VILLE-ARGO.GPJ DS.GDT 18-4-19	ື <u>່ 161.9</u> 6.1	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.			. 88 .	25mm	-	162														
DAKVILLE-ARGO.GPJ DS.GDT 18-4-19	<u>ື້ 161.9</u> 6.1	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.		7	. 88.	25mm		162	-										-			
T E,OAKVILLE-ARGO.GPJ DS.GDT 18-4-19	<u>161.9</u> 6.1	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.			. 33	<del>€0/</del> ≵5mm		162											-			
AS ST E, OAKVILLE-ARGO.GPJ DS.GDT 18-4-19	<u>6.1</u>	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.			. 33	<del>60/</del> 25mn		162														
INDAS ST E,OAKVILLE-ARGO.GPJ DS.GDT 18-4-19	6.1	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.		7	. 33	<del>60/</del> 25mn		162														
- DUNDAS ST E,OAKVILLE-ARGO.GPJ DS.GDT 18-4-19	6.1	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.		7	. 33	<del>60/</del> 25mn		162														
RTY- DUNDAS ST E, OAKVILLE-ARGO.GPJ DS.GDT 18-4-19	6.1	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.			. 22	<del>50/</del> 25mn		162														
OPERTY- DUNDAS ST E,OAKVILLE-ARGO.GPJ DS.GDT 18-4-19	6.1	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.			. 88.	<del>50/</del> 25mn		162														
1 PROPERTY- DUNDAS ST E,OAKVILLE-ARGO.GPJ DS.GDT 18-4-19	<u>6.1</u>	reddish brown at 6.0m END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.			. 88.	<del>50/</del> 25mn		162														
DIAM PROPERTY- DUNDAS ST E, OAKVILLE-ARGO.GPJ DS.GDT 18-4-19	6.1	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.			. 88.	<del>50/</del> 25mn		162														
DG DIAM PROPERTY- DUNDAS ST E,OAKVILLE-ARGO.GPJ DS.GDT 18-4-19	<u>6.1</u>	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.			. 88.	<del>50/</del> 25mr/		162														
1LOG DIAM PROPERTY- DUNDAS ST E, OAKVILLE-ARGO.GPJ DS.GDT 18-4-19	6.1	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.			. 33	<del>50/</del> 25mn		162														
S SOIL LOG DIAM PROPERTY- DUNDAS ST E, OAKVILLE-ARGO.GPJ DS.GDT 18-4-19	6.1	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.			. 22	<del>50/</del> 25mn		162														
DS SOIL LOG DIAM PROPERTY- DUNDAS ST E,OAKVILLE-ARGO.GPJ DS.GDT 18-4-19	6.1	reddish brown at 6.0m <b>END OF BOREHOLE</b> Notes: 1) Borehole dry and open upon completion.			. 88.	<del>50/</del> 25mn		162														

 $\begin{array}{c|c} \mbox{Measurement} & \underline{\overset{1st}{\underline{V}}} & \underline{\overset{2nd}{\underline{V}}} & \underline{\overset{3rd}{\underline{V}}} & \underline{\overset{4th}{\underline{V}}} \end{array}$ 

REF. NO.: 518-10 ENCL NO.: 33

Method: Solid Stem Augers Diameter: 150mm

Date: Mar-13-2018

DRILLING DATA

#### LOG OF BOREHOLE BH-AR33

DRILLING DATA

Diameter: 150mm

Date: Mar-12-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

	SOIL PROFILE		S		ES			DYNA			IETRA	TION								
		+				ER		12010		. FLUI	$\geq$	30 1	00	PLASTI LIMIT	C MAT		LIQUID LIMIT	z	T WT	REMARKS AND
(m)		LOT			SS F	WAT	z	SHE			с с ТН /и	Pal	1	W <sub>P</sub>	CON	N	WL	(KPa)	(r UNI	GRAIN SIZE
ELEV DEPTH	DESCRIPTION	ΤA Ρ	äER		0.3 r		ATIO		NCONF	INED	+	FIELD V & Sensit	ANE			0		ЗŐС К	(kN	DISTRIBUTION
400 -		STRA	IUME	ΥPE	z	SROL	ILEV.	• Q			X n s	LAB V	ANE 00	WA 1	IER CO	NTEN 20	i (%) 30	<b>[</b>	l₹	
166.0	TOPSOIL: 275mm	<u>, 1/2</u>	2	-	-	00	ш	-									1			GR SA SI CL
- 165.7	CLAYEY SILT: trace	177	1	SS	9			-								0				
165.3	topsoil/organics, trace to some					1		F												
0.7	noist, firm (weathered/disturbed)							E												
Ē	CLAYEY SILT: trace sand, trace		2	SS	6		165									0				
- 164.6	CLAVEY SILT TILL: some sand to					1		-												
E 1.4	sandy, trace gravel, occasional	111	3	SS	36			F							o					
2	moist, very stiff to hard		-			-	164													
Ē		111																		
-			4	SS	40			-							0					
Ē		11				-														
- <u>3</u>	~						163	-										-		
Ē		ΡIJ	5	SS	26									0						
F								-												
F_																				
Ē							162	-										1		
- 161.6	TILL/SHALE COMPLEX: silty clay	Ľ.																		
	till mixed with shale fragments,		6	SS	50/			-						0						
5	reddish brown, moist, hard		-		<u>50mm</u>	l	161													
Ē																				
E								F												
F								-												
<u>-</u> 6 -			7	SS	50/		160							0				1		
Ē					25mŋ	1		-												
Ē																				
4-19							150													
			8 /	_SS_/	50/ 25mm		159	-												
0-158.4					<u>+0</u> ,			-												
7.6	END OF BOREHOLE	777																		
.GP.	1) Borehole dry and open upon																			
RGC	completion.																			
R-A																				
KVIL																				
VO U																				
ST																				
IDAS																				
4NG																				
- - - -																				
DE																				
A PR(																				
DIAN																				
8																				
OIL L																				
SS S(																				
						ı	·	I	-			I	I	I	I	I	1	-	<u>ا</u>	



 ${\rm O}~^{{\pmb 8}=3\%}$  Strain at Failure

## LOG OF BOREHOLE BH-AR34

DRILLING DATA

Diameter: 150mm

Date: Mar-13-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

BITE	SOIL PROFILE		5	SAMPL	ES			DYNA				TION		1						DEMADIKA
(						TER			20 4	40 6		 30 1	00	PLASTI LIMIT	IC MOIS	URAL STURE	Liquid Limit	Ľ.	IT WT	AND
(m) ELEV		PLO <sup>-</sup>			SN E	NNS ONS	N	SHE	AR ST	RENG	TH (k	Pa)	1	W <sub>P</sub>		w 0	WL	KET P (KPa	("MUN")	GRAIN SIZE
DEPTH	DESCRIPTION	RATA	ABEF	ш	BLC 0.3		VATI			INED RIAXIAI	+	FIELD V & Sensit	ANE ivity	WA	TER C	ONTEN	T (%)	00 00	NATUR 4)	(%)
167.0		STF	NUN	ΤYF	ŗ	GR(	ELE	• •	20 4	40 6	- ^  0   8	30 1	00	1	0	20 3	30		-	GR SA SI CL
- 16 <b>8.9</b>	TOPSOIL: 125mm		1	SS	8			-								0				
-	topsoil/organics, trace to some		1—		-			-												
- 166.3	sand, trace gravel, reddish brown, noist, stiff (weathered/disturbed)		1					-												
<u>1</u>	CLAYEY SILT TILL: some sand to		2	SS	18		166	-							0			-		
E	cobble/boulder, reddish brown,		┢			-		E												
-	moist, very stiff to hard	FH			0.1			E												
-				55	24		105	-							0					
-		71	1				105	-												
-		r of	4	SS	30	1		-							0					
-			1					-												
- <u>3</u>						-	164	-										1		
-			5	SS	42			-							0					
-			1—					-												
4			1				163	-												
-								-												
-			1					-												
-			6	SS	34			-						c	>					
-			┢				162	-												
-								-												
- 161 1			1																	
6 5.9 - 160.8	SHALE: Queenston Formation,		7	SS /	50/		161	-										-		
6.2	END OF BOREHOLE				rsmn															
	Notes: 1) Borehole dry and open upon																			
4-15	completion.																			
11 18																				
S.GD																				
0.0																				
-ARG																				
OAK																				
ST E																				
SAC																				
Ě																				
OPEF																				
A PR																				
DIA																				
LOG																				
soll																				
S																				
GROUN	IDWATER ELEVATIONS					<u>GRAPH</u> NOTES	+ 3,	× <sup>3</sup> :	Numbe to Sens	rs refer itivity	C	8=3%	Strain	at Failur	re					

1 OF 1

REF. NO.: 518-10

### LOG OF BOREHOLE BH-AR35

DRILLING DATA

Diameter: 150mm

Date: Mar-13-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

LL OO ATION O \_ 

BHLC	SOIL PROFILE		s	AMPL	.ES			DYNAI RESIS	MIC CO TANCE	NE PEN PLOT		TION			NAT.	URAI			F	REMARKS
(m) <u>ELEV</u> DEPTH	DESCRIPTION	TRATA PLOT	UMBER	/PE	J" <u>BLOWS</u> 0.3 m	ROUND WATER DNDITIONS	-EVATION	2 SHEA O UI • QI	0 4 AR STI NCONF JICK TF	0 6 RENG INED RIAXIAL	0 8 TH (kF + ×	Pa) FIELD V & Sensit LAB V/	00 ANE ivity ANE				LIQUID LIMIT WL T (%)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WI (kN/m <sup>3</sup> )	AND GRAIN SIZE DISTRIBUTION (%)
170.0 - 16 <b>9.8</b>	TOPSOIL: 175mm	5 5 5 5 7 7/2	ž	2	Z.	50	Ш	- 2	0 4	0 6	0 8	0 1	00	1	0 2	20 :	30			GR SA SI CL
- 0.2 - 169.3 - 0.7	CLAYEY SILT: trace topsoil/organics, trace to some sand, trace gravel, reddish brown, noist, stiff (weathered/disturbed) CLAYEY SILT TILL: some sand to sandy trace gravel occasional		2	SS	22		169	-							0	0				
-	cobble/boulder, reddish brown, moist, very stiff to hard				50/			-												hit boulder at
- - -			3	SS	75mm		168	-							0			-		1.5m
-			4	SS	19			-							0					
- - -			_		40		167	-										-		
-			5	55	18			-							o					
- <u>4</u> - - -							166	-										-		
	stiff at 4.6m		6	SS	13		165	-							o					
- - - - -		0					105													
- - - -			7	SS	21		164	-						0				-		
								-												
GDT 18-4							163	-												
G G 3 162.0			8	SS	39		162	-							0					
DS SOIL LOG DIAM PROPERTY- DUNDAS ST E,OAKVILLE-ARGO.GF	END OF BOREHOLE Notes: 1) Borehole dry and open upon completion.	<i>x</i>																		

1 OF 1

REF. NO.: 518-10

### LOG OF BOREHOLE BH-AR36

DRILLING DATA

Diameter: 150mm

Date: Mar-13-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

DITEC	SOIL PROFILE		5	SAMPL	ES	~		DYNAI RESIS	MIC CC	NE PEN PLOT		TION		PI ASTI	NAT	URAL			5	REMARKS
(m) <u>ELEV</u> DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	түре	"N" <u>BLOWS</u> 0.3 m	GROUND WATE	ELEVATION	2 SHEA 0 UI • QI 2	AR ST NCONF UICK TI	IO 6 RENG INED RIAXIAL IO 6	0 8 TH (kl + . × 0 8	Pa) FIELD V & Sensit LAB V 80 1	00 / /ANE ivity ANE 00	LIMIT WP WA	TER CC	TENT w o ONTEN <sup></sup>	T (%)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT V (kN/m <sup>3</sup> )	AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CI
171.0 17 <b>0.8</b>	TOPSOIL: 175mm	<u>, 1,</u>	1		6											<b></b>				
- 0.2	CLAYEY SILT: trace topsoil/organics, trace to some		<u> </u>	- 55	0	-		-								Ť				
- 170.3 - 0.7	sand, trace gravel, reddish brown, noist, firm (weathered/disturbed)		1			-														ĺ
<u>1</u> - -	CLAYEY SILT TILL: some sand to sandy, trace gravel, occasional cobble/boulder, brown, moist, very		2	SS	23	-	170	-							0			-		
	stiff to hard							-												
2				55	22	-	169	-							0					
-			1			-														
			4	SS	30	-									0					
<u>-</u> 3	reddish brown below 3.0m					-	168	-												
			5	SS	26			-							0					
-							167	-												
-	grow and stiff at 4 6m		1					-												
- - 5	grey and sun at 4.0m		6	SS	10		166								0					
-								-												
- -							165	-												
	grey to reddish brown at 6.1m		7	SS	49									0						
2																				
163.7			1				164													
7.3	SILTY SAND: grey, wet, dense					_		-												
			8	SS	43		163								0					
							105													
								-												
8.8 8.8	SAND: grey, wet, compact to dense						162													
			9	SS	39			-							0					
							161	-												
			10	SS	listurbe	ed .									0					
			ŀ			]	160	-										1		
								-												
								-												
GROUN	Continued Next Page <u>DWATER ELEVATIONS</u>					<u>GRAPH</u> NOTES	+ 3,	×3:	Numbei to Sens	rs refer itivity	С	8=3%	Strain	at Failur	e					
Measure	ement 💆 🏆 🏆 🏆																			

REF. NO.: 518-10

### LOG OF BOREHOLE BH-AR36

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LO	OCATION: See Drawing 1					i —	<b></b>					TION		. – –			1	-		
	SOIL PROFILE		5	SAMPL	.ES	щ		RESIS	TANCE	PLOT	$\geq$			PLAST		LIQUID		¥	REMARKS	
(m) <u>ELEV</u> DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	ТҮРЕ	"N" <u>BLOWS</u> 0.3 m	GROUND WATE CONDITIONS	ELEVATION	2 SHEA 0 UI • QI 2	20 4 AR STI NCONF UICK TF 20 4	0 6 RENG INED RIAXIAL 0 6	i0 8 TH (kl + - × i0 8	Pa) FIELD V & Sensit LAB V 30 1	00 ANE ivity ANE 00	LIMIT W <sub>P</sub> WA	TER CC	LIMIT WL T (%)	POCKET PEN (Cu) (kPa)	NATURAL UNIT (kN/m <sup>3</sup> )	AND GRAIN SIZE DISTRIBUTIO (%) GR SA SI (	: N CL
- - - 158 5	SAND: grey, wet, compact to dense(Continued)		11	SS	11			-							0					
DS SOIL LOG DIAM PROPERTY- DUNDAS ST E,OAKVILLE-ARGO.GPJ DS.GDT 18-4-19	Notes: 1) Water level at 6.1m upon completion.																			

## DRILLING DATA

Method: Solid Stem Augers Diameter: 150mm

Date: Mar-13-2018

## LOG OF BOREHOLE BH-AR4

DRILLING DATA

Diameter: 150mm

Date: Jan-30-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

	SOIL PROFILF		S		ES			DYNA			NETRA	TION									
						Ë		RESIS			$\geq$		00	PLAST LIMIT	IC MOIS	JRAL TURE	LIQUID LIMIT	z	TWT	REMARI AND	KS
(m)		LoT			& -	WAT NS	z						00	Wp	CON	TENT V	WL	ET PE (kPa)	(m³) L UNI	GRAIN S	IZE
ELEV DEPTH	DESCRIPTION	Ρ	Я		0.3 n		OL		NCONF	RENG INED	тн (кі +	FIELD V	ANE		(	<b></b>		(OCK	URAI (KN	DISTRIBU	TION
52		[RA]	JMB	Ä		UO5 DND	ЧЧ	• QI	UICK TR	RIAXIAL	. ×	LAB V.	ANE	WA	TER CC	NTEN	Г (%)	۵.	LAN	(%)	
171.0	<b>TODOON</b> 450	5	ž	4	2.	50	Щ	2	20 4	0 6	3 0	30 1	00	1	0 2	0 3	30 			GR SA S	I CL
<u>- 17<b>0.9</b></u> 0.2	CLAYEY SILT: trace	ĥ	1	SS	6											0					
-	topsoil/organics, trace to some		1'					-													
170 1	sand, trace gravel, reddish brown, moist, firm (weathered/disturbed)																				
170.1	SILTY CLAY TILL: some sand to				00		170	-													
	sandy, trace gravel, occasional		12	55	29									°							
- 169.5	fragments, reddish brown, moist,	<u>X</u> X						-													
- 1.5	hard		3	SS	74			Ē							×						
2	highly weathered, reddish brown,		ľ	00			169	-													
-	moist																				
-			4	ss	50/ 00mn			-						ľ							
-								-													
<u>-</u> 3							168	-													
-			5	SS	50/			-						0							
Ē					20111)			F													
E								-													
-							167														
-																					
-	wet below 4 6m		6	22	50/			-							6						
-	wet below 4.011		$\sim$		125			-							Ī						
5					<u>mm</u>		166														
-								-													
-								-													
-							165	-													
- 164.8	auger refusal at 6.2m		7,	SS /	50/		105	-							0						
6.2	Notes:				75 mm																
	1) Water level at 3.7m upon																				
-4-1	completion of borehole.																				
T 18																					
.GD																					
.GP.																					
RGC																					
E-A																					
4VIL																					
OA																					
STE																					
SAC																					
INN																					
<u>ا</u>																					
ER.																					
5RO																					
AMF																					
D																					
LO																					
SOIL																					
SQ																					
						GRAPH	, 3	v 3. I	Number	s refer	~	8=3%									

## LOG OF BOREHOLE BH-AR5

DRILLING DATA

Diameter: 150mm

Date: Jan-31-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

BHLU	CATION. See Drawing T					1	-					TION		i				-			
	SOIL PROFILE		5	SAMPL	ES			RESIS	TANCE	E PLOT		HON .			- NAT	URAL			⊢	REMA	RKS
						Ë			20 4	10 6	0 8	30 1	00	LIMIT	IC MOIS	STURE	LIQUID	zi	×⊥	AN	D
(m)		10			ଷ୍ଟ	NS NS	z						1	W <sub>P</sub>	CON	W	WL	KPa)	ر ۳	GRAIN	SIZE
ELEV	DESCRIPTION	API	Ŕ		No Co	ΞĒ	ē	SHE/			IH (KI	Pa) FIELD \	/ANE	—		·0		NO(1)	RAL KN	DISTRIB	UTION
DEPTH		RAT,	ABE	ш		Ŋ	A			RIAXIAI	+	& Sensi	tivity ANF	WA	TER C	ONTEN	T (%)	P S	ATL	(%	))
163.0		STR	NN N	μ	ż	S OS			20 4	10 6	0 8	30 1	00	1	0	20 3	30		<b>[</b> ^	GR SA	SI CI
- 160 8	TOPSOIL: 175mm	1 14	-									+			<u> </u>	+	+				
0.2	CLAYEY SILT: trace	111	1	SS	9			È .								э					
-	topsoil/organics, trace to some	11A	1					È.													
F	sand, trace gravel, reddish brown,							È .													
162.1		111					400	F													
- 0.9	sandy trace gravel occasional		2	SS	28		162	-						C	×						
-	cobble/boulder, trace shale	X	1					F													
-	fragments, reddish brown, moist,					1		-													
E	hard	12			26			E													
2		1 it	1	00	50		161	-							1						
			}—					E .													
		W	├──					È .													
-		1.	4	SS	33			-							6						
		K	1					È .													
3		11				1	160	-									<u> </u>	-			
-		181	1			1		È .													
-		1. Co	5	SS	49			F							•						
-		11	1					F													
F						1		F													
4		12	1				159										+	-			
F		1st	1					F													
E150 A								E													
- 4.6	SHALE: Queenston Formation	<u>r:x:</u>	6	SS	50/			Ŀ													
-	highly weathered, reddish brown,			<u> </u>	25mn	4		È .													
-	moist						158	-								-					
								È .													
-								È.													
-								È .													
-							457	F													
156.8	auger refusal at 6.2m		7		50/		157	-													
6.2	END OF BOREHOLE		Ľ		50mm																
	Notes:																				
,	completion of borehole.																				
			1									1							1		
																		1			
																		1			
<b>  </b>			1									1							1		
																		1			
i İ			1									1							1		
																		1			
			1									1							1		
																		1			
																		1			
:			1									1						1	1		
																		1			
9 I			1									1							1		
																		1			
			1									1							1		
			1									1									
			<u> </u>															1			
<u>GROUNI</u>	DWATER ELEVATIONS					<u>GRAPH</u> NOTES	+ 3,	× <sup>3</sup> :	Number to Sens	rs refer itivity	С	8=3%	Strain	at Failu	e						

REF. NO.: 518-10

ENCL NO.: 6

1 OF 1



DS SOIL LOG DIAM PROPERTY- DUNDAS ST E, OAKVILLE-ARGO.GPJ DS.GDT 18-4-19

## LOG OF BOREHOLE BH-AR6

DRILLING DATA

Diameter: 200mm

Date: Jan-31-2018

Method: Hollow Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

DITE					FS			DYNA	MIC CC		ETRA	TION								
						ËR		RESIS		: PLOI	$\geq$	- 1	00	PLASTI LIMIT	C NAT	URAL	LIQUID LIMIT	z	T WT	REMARKS AND
(m)		LOT			Sε	WAT NS	z	SHE	ARST		H (k	Pa)	1	WP	CON	W	WL	(KPa)	AL UNI	GRAIN SIZE
DEPTH	DESCRIPTION	ATA F	BER		BLO/ 0.3		ATIC	0 0	NCONF	INED	+	FIELD V. & Sensiti	ANE vity				T (0/)	POCK (CU)	ATUR/ (Kľ	(%)
165.0		STR/	NUM	TYPE	z	GRO CON	ELE	• Q	UICK TI 20 4	RIAXIAL 10       60	× ŧ	LAB VA 30 1	ANE DO	1	0 2	20 ;	1 (%) 30		≥	GR SA SI CL
16 <b>0.0</b>	TOPSOIL: 150mm	11/2		-	-			-												
0.2	CLAYEY SILT: trace topsoil/organics, trace to some		1	SS	7			-						c	•					
- 164.2	sand, trace gravel, reddish brown,							-												
- <u>1</u> 0.8	SILTY CLAY TILL: some sand to					×	W. L.	164.2	m											
	sandy, trace gravel, occasional cobble/boulder_trace shale		2	SS	33		iviar 2	, 2018 L						0						
-	fragments, reddish brown, moist,		╞					-												
	nard		3	SS	33			-							o					
-			1				163	-										-		
- 162.7 - 2.3	SHALE: Queenston Formation.	ŶX		99	50/			-												
	highly weathered, reddish brown,		<b>+</b>	- 33	75mm			-							]					
3	moist						100	-												
-			-		50/		162	-												wet spoon
-			5		50/ 50mm			-												
-						に目		-												
4						日	161	-										-		
-						l:目:		-												
-					50/	::目:	:	-												
-					50/ 50mm			-												
- 159.8							160	-												
5.2	END OF BOREHOLE Notes: 1) Auger refusal at 5.2m. 2) 50mm dia. monitoring well installed upon completion. 3) Water Level Readings Date Water Depth (mbgs) March 21, 2018 0.8 February 13, 2018 1.0																			

DS SOIL LOG DIAM PROPERTY- DUNDAS ST E, OAKVILLE-ARGO.GPJ DS.GDT 18-4-19



O<sup>8=3%</sup> Strain at Failure

## LOG OF BOREHOLE BH-AR7

DRILLING DATA

Diameter: 150mm

Date: Jan-31-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

	SOIL PROFILE		s		ES			DYNA			NETRA	TION		Ì						
(m) ELEV		A PLOT	Ч		3 m 8	D WATER IONS	NOL	SHE	AR ST	PLOT 6 RENG	0 8 TH (k	 30 1 Pa)		PLASTI LIMIT W <sub>P</sub>	IC NAT MOIS CON	URAL STURE ITENT W	LIQUID LIMIT W <sub>L</sub>	CKET PEN. Su) (kPa)	RAL UNIT WT (kN/m <sup>3</sup> )	REMARKS AND GRAIN SIZE DISTRIBUTION
164 0	DESCRIPTION	STRAT/	NUMBE	ТҮРЕ	"N"	GROUN	ELEVAT	0 U • Q	NCONF UICK TI 20 4	INED RIAXIAL 10 6	+ . × 0 8	& Sensit LAB V/ 30 1	ANE 00	WA <sup>-</sup> 1	TER CO	ONTEN 20 :	T (%) 30	00	NATU	(%) GR SA SI CL
16 <b>9.9</b>	<b>CDPSOIL:</b> 100mm <b>CLAYEY SILT:</b> trace topsoil/organics, trace to some sand, trace gravel, reddish brown,		1	SS	10			-							c	þ				
- 163.1 -1 0.9	moist, firm (weathered/disturbed) SILTY CLAY TILL: some sand to sandy, trace gravel, occasional cobble/boulder, trace shale		2	SS	35		163	-						c	>					
- - - - - -	fragments, reddish brown, moist, hard		3	SS	23		162	- - - - -							0					
- - - - -			4	SS	46			-							o					
- - - - -			5	SS	57		161	-						c	>					
- - - - -							160	-										-		
			6	SS	27		159								0			-		
- - - <u>158.2</u> - 5.8	TILL/SHALE COMPLEX: silty clay							-												
- <u>157.6</u> -15 <b>Ø.4</b>	till mixed with shale, reddish brown, moist, hard SHALE: Queenston Formation,		7	ss į	93/ 275mn	n	158	-						0						
SOIL LOG DIAM PROPERTY- DUNDAS ST E,OAKVILLE-ARGO.GPJ DS.GDT 18-4-19 9	Nighly weathered, reddish brown, rhoist END OF BOREHOLE Notes: 1) Borehole open and dry upon completion.																			
S						GRAPH	. 3		Number	rs refer		<b>8</b> =3%	<u> </u>					<u> </u>		



Strain at Failure C

## LOG OF BOREHOLE BH-AR8

DRILLING DATA

Diameter: 150mm

Date: Feb-01-2018

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

Measurement  $\underbrace{\stackrel{1st}{\underline{\nabla}}} \underbrace{\stackrel{2nd}{\underline{\Psi}}} \underbrace{\stackrel{3rd}{\underline{\Psi}}} \underbrace{\stackrel{4th}{\underline{\Psi}}}$ 

BHLC	JCATION: See Drawing 1		-				i	DVC	10.00		ETD			i					i		
	SOIL PROFILE		5	SAMPL	ES	~		RESIS	TANCE	PLOT		TION		DIACT	NAT	URAL			۲	REMARK	S
(m)		F				TER		2	20 4	0 60	3 0	30 1	00	LIMIT	MOIS CON	TURE	LIQUID	ż.	× ⊨	AND	
(m)		[0]			Sε	WA.	z	SHE	I AR STI		TH (kl	l Pa)	1	Wp	1	N	WL	(KPa (KPa	L UN	GRAIN SI	ZE
DEPTH	DESCRIPTION	TAP	Ë		0.3	a E	DIT	O U	NCONF	INED	+	FIELD V & Sensit	ANE	-		0		ŠÕ	NUR X	DISTRIBUT	ION
		RA	MB	Å	=		E <	• Q	UICK TF	RIAXIAL	×	LAB V	ANE	WA	TER CO	ONTEN	T (%)	۵.	¥	(70)	
167.0		ST	ž	₽	Ş	50	Щ	2	20 4	0 60	3 (	30 1	00	1	0 2	20 3	30			GR SA SI	CL
- 160.0	TOPSOIL: 200mm	<u>11/2</u>						-													
- 0.2	CLAYEY SILT: trace		1	SS	7			-													
E	sand, trace gravel, reddish brown,							Ē													
- 0.8	moist, firm (weathered/disturbed)							E													
-	SILTY CLAY TILL: some sand to sandy trace gravel occasional	XX	2	ss	47		166	-													
F	cobble/boulder, trace shale		-					-													
165.5	fragments, reddish brown, moist,				0.4.4			-													
E 1.3	nard		3	SS .	91/ 225mm			-													
2	till mixed with shale fragments,						165	-													
164.7	reddish brown, moist, hard	///	1					-													
- 2.3	SHALE: Queenston Formation,		4	SS	50/			_													
-	highly weathered, reddish brown				<u>50mm</u>			-													
-								-													
-			5	66	50/		164	-						0				1			
E				<u> </u>	75mm			-													
-								-													
-								-													
4							163	-										-			
								-													
								-													
			6	ss	50/			-													
5					50mm/		162	-													
-							102	-													
								-													
-								-													
E								-													
- 160 8	auger refusal at 6.2m		L_		50/		161	-													
6.2	END OF BOREHOLE		۲÷	<del>                                     </del>	25m/																
	Notes:				<u></u>																
6	completion of borehole.																				
4																					
2																					
GD																					
S																					
<u> </u>																					
0.0																					
ARG																					
Ľ																					
OAP																					
ш́ н																					
S S																					
ZUND																					
D			1																		
È			1																		
ЬЩ.																					
0 <sup>2</sup>																					
MF			1																		
10			1																		
ő																					
ssc																					
ă			1											L	<u> </u>	L	1	I			
GROUN	IDWATER ELEVATIONS				<u>(</u>	<u>GRAPH</u> NOTES	+ 3,	׳:	Number to Sensi	s refer tivity	С	<b>8</b> =3%	Strain	at Failu	e						

REF. NO.: 518-10

ENCL NO.: 9

1 OF 1

## LOG OF BOREHOLE BH-AR9

DRILLING DATA

Method: Solid Stem Augers

PROJECT: Geotechnical Investigation- Diam Property

CLIENT: Argo Development Corporation

PROJECT LOCATION: Dundas Street East, Oakville, ON

DATUM: Geodetic

BH LOCATION: See Drawing 1

							<u> </u>	DYNA	MIC CO		TRA	TION		1				1	1	
L	SOIL PROFILE		s	SAMPL	.ES	с		RESIS	TANCE	PLOT	$\geq$			PLAST			LIQUID		۲	REMARKS
(m)						ATEI 0		2	0 4	0 60	8	0 1	00	LIMIT	CON	NTENT	LIMIT	a) BEN	ÍN.	
ELEV	DECODIDITION	PL0	~		S E	NO NO	NO	SHEA	R STI	RENGT	H (kF	Pa)		W <sub>P</sub>		w -0	WL	Н Н С	SAL U	GRAIN SIZE
DEPTH	DESCRIPTION	ATA	BEF		0.3	INN	ATI		NCONF	INED	+	FIELD V & Sensit	ANE	W/A			T (%)	0 Q Q Q	ATUFA 4)	(%)
100.0		STR/	MUM	ΥPE	z	SR0	E	• QI 2	JICK TF	RIAXIAL	X	LAB VA	ANE 00	1	0 :	20	30		Ż	
169.0 - 16 <b>8 0</b>	TOPSOIL: 150mm	1.11/2	2	-	•		ш	-					1				1		-	GR 3A 3I CL
0.2	CLAYEY SILT: trace		1	SS	9			-								0				
-	topsoil/organics, trace to some		1					-												
168 1	moist, firm (weathered/disturbed)	H						-												
1 0.9	SILTY CLAY TILL: some sand to			~~	00		168	-							~			-		
	sandy, trace gravel, occasional		2	55	32										0					
-	fragments, reddish brown, moist,					$\nabla$		Ŀ												
E	hard	H.	3	SS	36		W. L. Mar 21	167.5 ľ . 2018	n }						0					
2							167	É												
E							-	Ē												
-			4	SS	50/			-						0						
-		(P)			2011			-												
<sup>3</sup> 165 9		1					166	-												
- 3.1	SHALE: Queenston Formation,		5	SS	50/	l:⊟:		-						0						
-	highly weathered, reddish brown				1 <u>25m</u>	N∃∶		-												
-						k∶⊟∷		-												
4							165	-												
-						日日		-												
						::∃∷		_												
			6	ss	50/		·	F												
164.1			_		75mm	l.•   .•		-									-			
	Notes:																			
	1) Auger refusal at 4.9m. 2) 50mm dia, monitoring well																			
	installed upon completion.																			
	3) Water Level Readings Date Water Depth (mbgs)																			
	March 21, 2018 1.5																			
	February 13, 2018 1.9																			
		1		I	I		<u></u>	ـــــــــــــــــــــــــــــــــــــ	 	n refer		e-20/	1		I		1	1	I	l

REF. NO.: 518-10

ENCL NO.: 10

Diameter: 150mm Date: Jan-31-2018

# Appendix C Grain Size Analysis



# Appendix D Certificates of Analysis



#### CLIENT NAME: DS CONSULTING 6221 HIGHWAY 7 WEST, UNIT #16 VAUGHAN, ON L4H 0K8 905-264-9393

#### **ATTENTION TO: Shafi Andseta**

PROJECT: 518-20

AGAT WORK ORDER: 18T308900

SOIL ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

TRACE ORGANICS REVIEWED BY: Gyulhan Yalamova, Report Reviewer

DATE REPORTED: Feb 13, 2018

PAGES (INCLUDING COVER): 16

VERSION\*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

AGAT Laboratories (V1)

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Page 1 of 16

Results relate only to the items tested and to all the items tested All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request



**ATTENTION TO: Shafi Andseta** 

SAMPLED BY:Simarjeet S

AGAT WORK ORDER: 18T308900 PROJECT: 518-20 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.aqatlabs.com

#### CLIENT NAME: DS CONSULTING

#### SAMPLING SITE: Dundas St, Oakville

## O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2018-02-06								C	ATE REPORTE	ED: 2018-02-13	
			SAMPLE DE	SCRIPTION:	AR-4 - SS-1	AR-6 - SS-2	AR-9 - SS-1	AR-13 - SS-3	AR-7 - SS-2	Dup-2	
			SA	MPLE TYPE:	Soil	Soil	Soil	Soil	Soil	Soil	
			DAT	E SAMPLED:	2018-01-30	2018-01-31	2018-01-31	2018-02-01	2018-01-31	2018-01-30	
Parameter	Unit	G / S: A	G / S: B	RDL	9051255	9051262	9051268	9051289	9051299	9051302	
Antimony	µg/g	1.3	1.3	0.8	<0.8[ <a]< td=""><td>&lt;0.8[<a]< td=""><td>&lt;0.8[<a]< td=""><td>&lt;0.8[<a]< td=""><td>&lt;0.8[<a]< td=""><td>&lt;0.8[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.8[ <a]< td=""><td>&lt;0.8[<a]< td=""><td>&lt;0.8[<a]< td=""><td>&lt;0.8[<a]< td=""><td>&lt;0.8[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.8[ <a]< td=""><td>&lt;0.8[<a]< td=""><td>&lt;0.8[<a]< td=""><td>&lt;0.8[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.8[ <a]< td=""><td>&lt;0.8[<a]< td=""><td>&lt;0.8[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.8[ <a]< td=""><td>&lt;0.8[<a]< td=""><td></td></a]<></td></a]<>	<0.8[ <a]< td=""><td></td></a]<>	
Arsenic	µg/g	18	18	1	5[ <a]< td=""><td>6[<a]< td=""><td>11[<a]< td=""><td>6[<a]< td=""><td>6[<a]< td=""><td>6[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	6[ <a]< td=""><td>11[<a]< td=""><td>6[<a]< td=""><td>6[<a]< td=""><td>6[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	11[ <a]< td=""><td>6[<a]< td=""><td>6[<a]< td=""><td>6[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	6[ <a]< td=""><td>6[<a]< td=""><td>6[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	6[ <a]< td=""><td>6[<a]< td=""><td></td></a]<></td></a]<>	6[ <a]< td=""><td></td></a]<>	
Barium	µg/g	220	220	2	76[ <a]< td=""><td>107[<a]< td=""><td>85[<a]< td=""><td>100[<a]< td=""><td>76[<a]< td=""><td>79[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	107[ <a]< td=""><td>85[<a]< td=""><td>100[<a]< td=""><td>76[<a]< td=""><td>79[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	85[ <a]< td=""><td>100[<a]< td=""><td>76[<a]< td=""><td>79[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	100[ <a]< td=""><td>76[<a]< td=""><td>79[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	76[ <a]< td=""><td>79[<a]< td=""><td></td></a]<></td></a]<>	79[ <a]< td=""><td></td></a]<>	
Beryllium	µg/g	2.5	2.5	0.5	0.9[ <a]< td=""><td>0.8[<a]< td=""><td>0.8[<a]< td=""><td>0.7[<a]< td=""><td>0.8[<a]< td=""><td>1.0[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	0.8[ <a]< td=""><td>0.8[<a]< td=""><td>0.7[<a]< td=""><td>0.8[<a]< td=""><td>1.0[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	0.8[ <a]< td=""><td>0.7[<a]< td=""><td>0.8[<a]< td=""><td>1.0[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	0.7[ <a]< td=""><td>0.8[<a]< td=""><td>1.0[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	0.8[ <a]< td=""><td>1.0[<a]< td=""><td></td></a]<></td></a]<>	1.0[ <a]< td=""><td></td></a]<>	
Boron	µg/g	36	36	5	18[ <a]< td=""><td>18[<a]< td=""><td>14[<a]< td=""><td>12[<a]< td=""><td>15[<a]< td=""><td>20[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	18[ <a]< td=""><td>14[<a]< td=""><td>12[<a]< td=""><td>15[<a]< td=""><td>20[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	14[ <a]< td=""><td>12[<a]< td=""><td>15[<a]< td=""><td>20[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	12[ <a]< td=""><td>15[<a]< td=""><td>20[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	15[ <a]< td=""><td>20[<a]< td=""><td></td></a]<></td></a]<>	20[ <a]< td=""><td></td></a]<>	
Boron (Hot Water Soluble)	µg/g	NA	1.5	0.10	0.19[ <b]< td=""><td>1.26[<b]< td=""><td>0.22[<b]< td=""><td>0.24[<b]< td=""><td>1.24[<b]< td=""><td>0.23[<b]< td=""><td></td></b]<></td></b]<></td></b]<></td></b]<></td></b]<></td></b]<>	1.26[ <b]< td=""><td>0.22[<b]< td=""><td>0.24[<b]< td=""><td>1.24[<b]< td=""><td>0.23[<b]< td=""><td></td></b]<></td></b]<></td></b]<></td></b]<></td></b]<>	0.22[ <b]< td=""><td>0.24[<b]< td=""><td>1.24[<b]< td=""><td>0.23[<b]< td=""><td></td></b]<></td></b]<></td></b]<></td></b]<>	0.24[ <b]< td=""><td>1.24[<b]< td=""><td>0.23[<b]< td=""><td></td></b]<></td></b]<></td></b]<>	1.24[ <b]< td=""><td>0.23[<b]< td=""><td></td></b]<></td></b]<>	0.23[ <b]< td=""><td></td></b]<>	
Cadmium	µg/g	1.2	1.2	0.5	<0.5[ <a]< td=""><td>&lt;0.5[<a]< td=""><td>&lt;0.5[<a]< td=""><td>&lt;0.5[<a]< td=""><td>&lt;0.5[<a]< td=""><td>&lt;0.5[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.5[ <a]< td=""><td>&lt;0.5[<a]< td=""><td>&lt;0.5[<a]< td=""><td>&lt;0.5[<a]< td=""><td>&lt;0.5[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.5[ <a]< td=""><td>&lt;0.5[<a]< td=""><td>&lt;0.5[<a]< td=""><td>&lt;0.5[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.5[ <a]< td=""><td>&lt;0.5[<a]< td=""><td>&lt;0.5[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.5[ <a]< td=""><td>&lt;0.5[<a]< td=""><td></td></a]<></td></a]<>	<0.5[ <a]< td=""><td></td></a]<>	
Chromium	µg/g	70	70	2	23[ <a]< td=""><td>21[<a]< td=""><td>19[<a]< td=""><td>20[<a]< td=""><td>20[<a]< td=""><td>24[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	21[ <a]< td=""><td>19[<a]< td=""><td>20[<a]< td=""><td>20[<a]< td=""><td>24[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	19[ <a]< td=""><td>20[<a]< td=""><td>20[<a]< td=""><td>24[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	20[ <a]< td=""><td>20[<a]< td=""><td>24[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	20[ <a]< td=""><td>24[<a]< td=""><td></td></a]<></td></a]<>	24[ <a]< td=""><td></td></a]<>	
Cobalt	µg/g	21	22	0.5	13.7[ <a]< td=""><td>12.6[<a]< td=""><td>12.9[<a]< td=""><td>12.6[<a]< td=""><td>12.9[<a]< td=""><td>13.2[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	12.6[ <a]< td=""><td>12.9[<a]< td=""><td>12.6[<a]< td=""><td>12.9[<a]< td=""><td>13.2[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	12.9[ <a]< td=""><td>12.6[<a]< td=""><td>12.9[<a]< td=""><td>13.2[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	12.6[ <a]< td=""><td>12.9[<a]< td=""><td>13.2[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	12.9[ <a]< td=""><td>13.2[<a]< td=""><td></td></a]<></td></a]<>	13.2[ <a]< td=""><td></td></a]<>	
Copper	hð/ð	92	92	1	8[ <a]< td=""><td>35[<a]< td=""><td>22[<a]< td=""><td>28[<a]< td=""><td>30[<a]< td=""><td>9[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	35[ <a]< td=""><td>22[<a]< td=""><td>28[<a]< td=""><td>30[<a]< td=""><td>9[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	22[ <a]< td=""><td>28[<a]< td=""><td>30[<a]< td=""><td>9[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	28[ <a]< td=""><td>30[<a]< td=""><td>9[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	30[ <a]< td=""><td>9[<a]< td=""><td></td></a]<></td></a]<>	9[ <a]< td=""><td></td></a]<>	
Lead	µg/g	120	120	1	9[ <a]< td=""><td>9[<a]< td=""><td>9[<a]< td=""><td>10[<a]< td=""><td>9[<a]< td=""><td>10[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	9[ <a]< td=""><td>9[<a]< td=""><td>10[<a]< td=""><td>9[<a]< td=""><td>10[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	9[ <a]< td=""><td>10[<a]< td=""><td>9[<a]< td=""><td>10[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	10[ <a]< td=""><td>9[<a]< td=""><td>10[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	9[ <a]< td=""><td>10[<a]< td=""><td></td></a]<></td></a]<>	10[ <a]< td=""><td></td></a]<>	
Molybdenum	µg/g	2	2	0.5	0.8[ <a]< td=""><td>0.9[<a]< td=""><td>0.7[<a]< td=""><td>0.7[<a]< td=""><td>0.8[<a]< td=""><td>1.1[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	0.9[ <a]< td=""><td>0.7[<a]< td=""><td>0.7[<a]< td=""><td>0.8[<a]< td=""><td>1.1[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	0.7[ <a]< td=""><td>0.7[<a]< td=""><td>0.8[<a]< td=""><td>1.1[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	0.7[ <a]< td=""><td>0.8[<a]< td=""><td>1.1[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	0.8[ <a]< td=""><td>1.1[<a]< td=""><td></td></a]<></td></a]<>	1.1[ <a]< td=""><td></td></a]<>	
Nickel	µg/g	82	82	1	33[ <a]< td=""><td>29[<a]< td=""><td>28[<a]< td=""><td>29[<a]< td=""><td>28[<a]< td=""><td>32[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	29[ <a]< td=""><td>28[<a]< td=""><td>29[<a]< td=""><td>28[<a]< td=""><td>32[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	28[ <a]< td=""><td>29[<a]< td=""><td>28[<a]< td=""><td>32[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	29[ <a]< td=""><td>28[<a]< td=""><td>32[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	28[ <a]< td=""><td>32[<a]< td=""><td></td></a]<></td></a]<>	32[ <a]< td=""><td></td></a]<>	
Selenium	hð/ð	1.5	1.5	0.4	<0.4[ <a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.4[ <a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.4[ <a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.4[ <a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.4[ <a]< td=""><td>&lt;0.4[<a]< td=""><td></td></a]<></td></a]<>	<0.4[ <a]< td=""><td></td></a]<>	
Silver	µg/g	0.5	0.5	0.2	<0.2[ <a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.2[ <a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.2[ <a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.2[ <a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.2[ <a]< td=""><td>&lt;0.2[<a]< td=""><td></td></a]<></td></a]<>	<0.2[ <a]< td=""><td></td></a]<>	
Thallium	µg/g	1	1	0.4	<0.4[ <a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.4[ <a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.4[ <a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.4[ <a]< td=""><td>&lt;0.4[<a]< td=""><td>&lt;0.4[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.4[ <a]< td=""><td>&lt;0.4[<a]< td=""><td></td></a]<></td></a]<>	<0.4[ <a]< td=""><td></td></a]<>	
Uranium	µg/g	2.5	2.5	0.5	<0.5[ <a]< td=""><td>1.1[<a]< td=""><td>0.6[<a]< td=""><td>0.8[<a]< td=""><td>0.8[<a]< td=""><td>&lt;0.5[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	1.1[ <a]< td=""><td>0.6[<a]< td=""><td>0.8[<a]< td=""><td>0.8[<a]< td=""><td>&lt;0.5[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	0.6[ <a]< td=""><td>0.8[<a]< td=""><td>0.8[<a]< td=""><td>&lt;0.5[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	0.8[ <a]< td=""><td>0.8[<a]< td=""><td>&lt;0.5[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	0.8[ <a]< td=""><td>&lt;0.5[<a]< td=""><td></td></a]<></td></a]<>	<0.5[ <a]< td=""><td></td></a]<>	
Vanadium	hð/ð	86	86	1	25[ <a]< td=""><td>27[<a]< td=""><td>26[<a]< td=""><td>24[<a]< td=""><td>24[<a]< td=""><td>26[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	27[ <a]< td=""><td>26[<a]< td=""><td>24[<a]< td=""><td>24[<a]< td=""><td>26[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	26[ <a]< td=""><td>24[<a]< td=""><td>24[<a]< td=""><td>26[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	24[ <a]< td=""><td>24[<a]< td=""><td>26[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	24[ <a]< td=""><td>26[<a]< td=""><td></td></a]<></td></a]<>	26[ <a]< td=""><td></td></a]<>	
Zinc	µg/g	290	290	5	62[ <a]< td=""><td>61[<a]< td=""><td>56[<a]< td=""><td>62[<a]< td=""><td>60[<a]< td=""><td>65[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	61[ <a]< td=""><td>56[<a]< td=""><td>62[<a]< td=""><td>60[<a]< td=""><td>65[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	56[ <a]< td=""><td>62[<a]< td=""><td>60[<a]< td=""><td>65[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	62[ <a]< td=""><td>60[<a]< td=""><td>65[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	60[ <a]< td=""><td>65[<a]< td=""><td></td></a]<></td></a]<>	65[ <a]< td=""><td></td></a]<>	
Chromium VI	µg/g	0.66	0.66	0.2	0.3[ <a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.2[ <a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.2[ <a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.2[ <a]< td=""><td>&lt;0.2[<a]< td=""><td>&lt;0.2[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.2[ <a]< td=""><td>&lt;0.2[<a]< td=""><td></td></a]<></td></a]<>	<0.2[ <a]< td=""><td></td></a]<>	
Cyanide	µg/g	0.051	0.051	0.040	<0.040[ <a]< td=""><td>&lt;0.040[<a]< td=""><td>&lt;0.040[<a]< td=""><td>&lt;0.040[<a]< td=""><td>&lt;0.040[<a]< td=""><td>&lt;0.040[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.040[ <a]< td=""><td>&lt;0.040[<a]< td=""><td>&lt;0.040[<a]< td=""><td>&lt;0.040[<a]< td=""><td>&lt;0.040[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.040[ <a]< td=""><td>&lt;0.040[<a]< td=""><td>&lt;0.040[<a]< td=""><td>&lt;0.040[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.040[ <a]< td=""><td>&lt;0.040[<a]< td=""><td>&lt;0.040[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.040[ <a]< td=""><td>&lt;0.040[<a]< td=""><td></td></a]<></td></a]<>	<0.040[ <a]< td=""><td></td></a]<>	
Mercury	µg/g	0.27	0.27	0.10	<0.10[ <a]< td=""><td>&lt;0.10[<a]< td=""><td>&lt;0.10[<a]< td=""><td>&lt;0.10[<a]< td=""><td>&lt;0.10[<a]< td=""><td>&lt;0.10[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.10[ <a]< td=""><td>&lt;0.10[<a]< td=""><td>&lt;0.10[<a]< td=""><td>&lt;0.10[<a]< td=""><td>&lt;0.10[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.10[ <a]< td=""><td>&lt;0.10[<a]< td=""><td>&lt;0.10[<a]< td=""><td>&lt;0.10[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.10[ <a]< td=""><td>&lt;0.10[<a]< td=""><td>&lt;0.10[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.10[ <a]< td=""><td>&lt;0.10[<a]< td=""><td></td></a]<></td></a]<>	<0.10[ <a]< td=""><td></td></a]<>	
Electrical Conductivity	mS/cm	0.57	0.7	0.005	0.115[ <a]< td=""><td>0.125[<a]< td=""><td>0.183[<a]< td=""><td>0.357[<a]< td=""><td>0.805[&gt;B]</td><td>0.129[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	0.125[ <a]< td=""><td>0.183[<a]< td=""><td>0.357[<a]< td=""><td>0.805[&gt;B]</td><td>0.129[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	0.183[ <a]< td=""><td>0.357[<a]< td=""><td>0.805[&gt;B]</td><td>0.129[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	0.357[ <a]< td=""><td>0.805[&gt;B]</td><td>0.129[<a]< td=""><td></td></a]<></td></a]<>	0.805[>B]	0.129[ <a]< td=""><td></td></a]<>	
Sodium Adsorption Ratio	NA	2.4	5	NA	0.162[ <a]< td=""><td>2.13[<a]< td=""><td>0.858[<a]< td=""><td>0.214[<a]< td=""><td>2.09[<a]< td=""><td>0.151[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	2.13[ <a]< td=""><td>0.858[<a]< td=""><td>0.214[<a]< td=""><td>2.09[<a]< td=""><td>0.151[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	0.858[ <a]< td=""><td>0.214[<a]< td=""><td>2.09[<a]< td=""><td>0.151[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	0.214[ <a]< td=""><td>2.09[<a]< td=""><td>0.151[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	2.09[ <a]< td=""><td>0.151[<a]< td=""><td></td></a]<></td></a]<>	0.151[ <a]< td=""><td></td></a]<>	
pH, 2:1 CaCl2 Extraction	pH Units			NA	7.81	7.98	7.88	7.87	8.00	7.81	
pH 2:1 Extr.	N/A			N/A	Y	Y	Y	Y	Y	Y	

Certified By:

Inis Verastegui



AGAT WORK ORDER: 18T308900 PROJECT: 518-20 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.agatlabs.com

#### CLIENT NAME: DS CONSULTING

#### SAMPLING SITE:Dundas St, Oakville

#### ATTENTION TO: Shafi Andseta

SAMPLED BY:Simarjeet S

### O. Reg. 153(511) - Metals & Inorganics (Soil)

#### DATE RECEIVED: 2018-02-06

DATE REPORTED: 2018-02-13

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Table 1: Full Depth Background Site Condition Standards - Soil -Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use, B Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9051255-9051302 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio.

Certified By:

Inis Verastegui



**ATTENTION TO: Shafi Andseta** 

SAMPLED BY:Simarjeet S

AGAT WORK ORDER: 18T308900 PROJECT: 518-20 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.agatlabs.com

#### CLIENT NAME: DS CONSULTING

#### SAMPLING SITE:Dundas St, Oakville

#### O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2018-02-06								C	DATE REPORTE	ED: 2018-02-13	
			SAMPLE DE SA	SCRIPTION:	AR-1 - SS-2 Soil	AR-2 - SS-3 Soil	AR-8 - SS-3 Soil	AR-12 - SS-2 Soil	AR-6 - SS-1 Soil	Dup-3 Soil	
Parameter	Unit	G / S: A	DATI G / S: B	E SAMPLED: RDL	2018-01-30 9051250	2018-01-30 9051251	2018-02-01 9051263	2018-02-02 9051287	2018-01-31 9051298	2018-02-02 9051303	
Hexachloroethane	µg/g	0.01	0.01	0.01	<0.01[ <a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.01[ <a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.01[ <a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.01[ <a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.01[ <a]< td=""><td>&lt;0.01[<a]< td=""><td></td></a]<></td></a]<>	<0.01[ <a]< td=""><td></td></a]<>	
Gamma-Hexachlorocyclohexane	µg/g	0.01	0.01	0.005	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<>	<0.005[ <a]< td=""><td></td></a]<>	
Heptachlor	µg/g	0.05	0.05	0.005	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<>	<0.005[ <a]< td=""><td></td></a]<>	
Aldrin	µg/g	0.05	0.05	0.005	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<>	<0.005[ <a]< td=""><td></td></a]<>	
Heptachlor Epoxide	µg/g	0.05	0.05	0.005	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<>	<0.005[ <a]< td=""><td></td></a]<>	
Endosulfan	µg/g	0.04	0.04	0.005	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<>	<0.005[ <a]< td=""><td></td></a]<>	
Chlordane	µg/g	0.05	0.05	0.007	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<>	<0.007[ <a]< td=""><td></td></a]<>	
DDE	µg/g	0.05	0.05	0.007	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<>	<0.007[ <a]< td=""><td></td></a]<>	
DDD	µg/g	0.05	0.05	0.007	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<>	<0.007[ <a]< td=""><td></td></a]<>	
DDT	µg/g	1.4	1.4	0.007	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.007[ <a]< td=""><td>&lt;0.007[<a]< td=""><td></td></a]<></td></a]<>	<0.007[ <a]< td=""><td></td></a]<>	
Dieldrin	µg/g	0.05	0.05	0.005	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<>	<0.005[ <a]< td=""><td></td></a]<>	
Endrin	µg/g	0.04	0.04	0.005	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<>	<0.005[ <a]< td=""><td></td></a]<>	
Methoxychlor	µg/g	0.05	0.05	0.005	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<>	<0.005[ <a]< td=""><td></td></a]<>	
Hexachlorobenzene	µg/g	0.01	0.02	0.005	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.005[ <a]< td=""><td>&lt;0.005[<a]< td=""><td></td></a]<></td></a]<>	<0.005[ <a]< td=""><td></td></a]<>	
Hexachlorobutadiene	µg/g	0.01	0.01	0.01	<0.01[ <a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.01[ <a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<></td></a]<>	<0.01[ <a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.01[ <a]< td=""><td>&lt;0.01[<a]< td=""><td>&lt;0.01[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.01[ <a]< td=""><td>&lt;0.01[<a]< td=""><td></td></a]<></td></a]<>	<0.01[ <a]< td=""><td></td></a]<>	
Moisture Content	%			0.1	9.2	8.4	6.6	14.2	17.0	10.8	
Surrogate	Unit	A	cceptable Limi	ts							
тсмх	%		50-140		70	66	62	80	76	66	
Decachlorobiphenyl	%		60-130		84	70	74	92	80	70	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Table 1: Full Depth Background Site Condition Standards - Soil -

Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use, B Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

 $\textbf{9051250-9051303} \hspace{0.1in} \text{Results are based on the dry weight of the soil.}$ 

Note: DDT applies to the total of op'DDT and pp'DDT, DDD applies to the total of op'DDD and pp'DDD and DDE applies to the total of op'DDE. Endosulfan applies to the total of Endosulfan I and Endosulfan II.

Chlordane applies to the total of Alpha-Chlordane and Gamma-Chlordane.

Certified By:



AGAT WORK ORDER: 18T308900 PROJECT: 518-20 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.aqatlabs.com

#### CLIENT NAME: DS CONSULTING

#### SAMPLING SITE: Dundas St, Oakville

## SAMPLED BY:Simarjeet S

**ATTENTION TO: Shafi Andseta** 

# O. Reg. 153(511) - PHCs F1 - F4 (Soil)

DATE RECEIVED: 2018-02-06									DATE REPORTED: 2018-02-13
			SAMPLE DE	SCRIPTION:	AR-3 - SS-7	AR-5 - SS-2	AR-9 - SS-2	Dup-1	
			SA	MPLE TYPE:	Soil	Soil	Soil	Soil	
			DAT	E SAMPLED:	2018-01-30	2018-01-31	2018-01-31	2018-01-31	
Parameter	Unit	G / S: A	G / S: B	RDL	9051253	9051256	9051265	9051300	
Benzene	µg/g	0.02	0.02	0.02	<0.02[ <a]< td=""><td>&lt;0.02[<a]< td=""><td>&lt;0.02[<a]< td=""><td>&lt;0.02[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.02[ <a]< td=""><td>&lt;0.02[<a]< td=""><td>&lt;0.02[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.02[ <a]< td=""><td>&lt;0.02[<a]< td=""><td></td></a]<></td></a]<>	<0.02[ <a]< td=""><td></td></a]<>	
Toluene	µg/g	0.2	0.2	0.08	<0.08[ <a]< td=""><td>&lt;0.08[<a]< td=""><td>&lt;0.08[<a]< td=""><td>&lt;0.08[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.08[ <a]< td=""><td>&lt;0.08[<a]< td=""><td>&lt;0.08[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.08[ <a]< td=""><td>&lt;0.08[<a]< td=""><td></td></a]<></td></a]<>	<0.08[ <a]< td=""><td></td></a]<>	
Ethylbenzene	µg/g	0.05	0.05	0.05	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""><td>&lt;0.05[<a]< td=""><td>&lt;0.05[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""><td>&lt;0.05[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""><td></td></a]<></td></a]<>	<0.05[ <a]< td=""><td></td></a]<>	
Xylene Mixture	µg/g	0.05	0.05	0.05	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""><td>&lt;0.05[<a]< td=""><td>&lt;0.05[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""><td>&lt;0.05[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""><td></td></a]<></td></a]<>	<0.05[ <a]< td=""><td></td></a]<>	
F1 (C6 to C10)	µg/g	25		5	<5[ <a]< td=""><td>&lt;5[<a]< td=""><td>&lt;5[<a]< td=""><td>&lt;5[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<5[ <a]< td=""><td>&lt;5[<a]< td=""><td>&lt;5[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<5[ <a]< td=""><td>&lt;5[<a]< td=""><td></td></a]<></td></a]<>	<5[ <a]< td=""><td></td></a]<>	
F1 (C6 to C10) minus BTEX	µg/g	25	25	5	<5[ <a]< td=""><td>&lt;5[<a]< td=""><td>&lt;5[<a]< td=""><td>&lt;5[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<5[ <a]< td=""><td>&lt;5[<a]< td=""><td>&lt;5[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<5[ <a]< td=""><td>&lt;5[<a]< td=""><td></td></a]<></td></a]<>	<5[ <a]< td=""><td></td></a]<>	
F2 (C10 to C16)	µg/g	10	10	10	<10[ <a]< td=""><td>&lt;10[<a]< td=""><td>&lt;10[<a]< td=""><td>&lt;10[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<10[ <a]< td=""><td>&lt;10[<a]< td=""><td>&lt;10[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<10[ <a]< td=""><td>&lt;10[<a]< td=""><td></td></a]<></td></a]<>	<10[ <a]< td=""><td></td></a]<>	
F3 (C16 to C34)	µg/g	240	240	50	<50[ <a]< td=""><td>&lt;50[<a]< td=""><td>&lt;50[<a]< td=""><td>&lt;50[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<50[ <a]< td=""><td>&lt;50[<a]< td=""><td>&lt;50[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<50[ <a]< td=""><td>&lt;50[<a]< td=""><td></td></a]<></td></a]<>	<50[ <a]< td=""><td></td></a]<>	
F4 (C34 to C50)	µg/g	120	120	50	<50[ <a]< td=""><td>&lt;50[<a]< td=""><td>&lt;50[<a]< td=""><td>&lt;50[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	<50[ <a]< td=""><td>&lt;50[<a]< td=""><td>&lt;50[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	<50[ <a]< td=""><td>&lt;50[<a]< td=""><td></td></a]<></td></a]<>	<50[ <a]< td=""><td></td></a]<>	
Gravimetric Heavy Hydrocarbons	µg/g	120	120	50	NA[ <a]< td=""><td>NA[<a]< td=""><td>NA[<a]< td=""><td>NA[<a]< td=""><td></td></a]<></td></a]<></td></a]<></td></a]<>	NA[ <a]< td=""><td>NA[<a]< td=""><td>NA[<a]< td=""><td></td></a]<></td></a]<></td></a]<>	NA[ <a]< td=""><td>NA[<a]< td=""><td></td></a]<></td></a]<>	NA[ <a]< td=""><td></td></a]<>	
Moisture Content	%			0.1	9.8	13.6	11.7	11.5	
Surrogate	Unit	A	cceptable Lim	its					
Terphenyl	%		60-140		99	76	96	93	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Table 1: Full Depth Background Site Condition Standards - Soil -

Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use, B Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

#### 9051253-9051300 Results are based on sample dry weight.

The C6-C10 fraction is calculated using Toluene response factor.

The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.

Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present. The chromatogram has returned to baseline by the retention time of nC50.

Total C6 - C50 results are corrected for BTEX contributions.

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

nC6 and nC10 response factors are within 30% of Toluene response factor.

nC10, nC16 and nC34 response factors are within 10% of their average.

C50 response factor is within 70% of nC10 + nC16 + nC34 average.

Linearity is within 15%.

Extraction and holding times were met for this sample.

Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client. Quality Control Data is available upon request.



AGAT WORK ORDER: 18T308900 PROJECT: 518-20 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.agatlabs.com

#### CLIENT NAME: DS CONSULTING

#### SAMPLING SITE: Dundas St, Oakville

SAMPLED BY:Simarjeet S

**ATTENTION TO: Shafi Andseta** 

# O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2018-02-06

			SAMPLE DE	SCRIPTION:	AR-10 - SS-2	AR-11 - SS-7
			SA	MPLE TYPE:	Soil	Soil
Deremeter	110.14	C / S. A		E SAMPLED:	2018-02-01	2018-02-01
	Unit	G75: A	G73: B		9051271	9031262
	µg/g	0.05	0.05	0.05	<0.02[_A]	<0.02[ <a]< td=""></a]<>
	ug/g	0.02	0.02	0.02	<0.02[ <a]< td=""><td>&lt;0.02[<a]< td=""></a]<></td></a]<>	<0.02[ <a]< td=""></a]<>
	ug/g	0.05	0.05	0.05	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""></a]<></td></a]<>	<0.05[ <a]< td=""></a]<>
Irichlorofluoromethane	ug/g	0.25	0.25	0.05	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""></a]<></td></a]<>	<0.05[ <a]< td=""></a]<>
Acetone	ug/g	0.5	0.5	0.50	<0.50[ <a]< td=""><td>&lt;0.50[<a]< td=""></a]<></td></a]<>	<0.50[ <a]< td=""></a]<>
1,1-Dichloroethylene	ug/g	0.05	0.05	0.05	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""></a]<></td></a]<>	<0.05[ <a]< td=""></a]<>
Vethylene Chloride	ug/g	0.05	0.05	0.05	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""></a]<></td></a]<>	<0.05[ <a]< td=""></a]<>
Frans- 1,2-Dichloroethylene	ug/g	0.05	0.05	0.05	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""></a]<></td></a]<>	<0.05[ <a]< td=""></a]<>
Vethyl tert-butyl Ether	ug/g	0.05	0.05	0.05	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""></a]<></td></a]<>	<0.05[ <a]< td=""></a]<>
1,1-Dichloroethane	ug/g	0.05	0.05	0.02	<0.02[ <a]< td=""><td>&lt;0.02[<a]< td=""></a]<></td></a]<>	<0.02[ <a]< td=""></a]<>
Vethyl Ethyl Ketone	ug/g	0.5	0.5	0.50	<0.50[ <a]< td=""><td>&lt;0.50[<a]< td=""></a]<></td></a]<>	<0.50[ <a]< td=""></a]<>
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.05	0.02	<0.02[ <a]< td=""><td>&lt;0.02[<a]< td=""></a]<></td></a]<>	<0.02[ <a]< td=""></a]<>
Chloroform	ug/g	0.05	0.05	0.04	<0.04[ <a]< td=""><td>&lt;0.04[<a]< td=""></a]<></td></a]<>	<0.04[ <a]< td=""></a]<>
1,2-Dichloroethane	ug/g	0.05	0.05	0.03	<0.03[ <a]< td=""><td>&lt;0.03[<a]< td=""></a]<></td></a]<>	<0.03[ <a]< td=""></a]<>
1,1,1-Trichloroethane	ug/g	0.05	0.05	0.05	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""></a]<></td></a]<>	<0.05[ <a]< td=""></a]<>
Carbon Tetrachloride	ug/g	0.05	0.05	0.05	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""></a]<></td></a]<>	<0.05[ <a]< td=""></a]<>
Benzene	ug/g	0.02	0.02	0.02	<0.02[ <a]< td=""><td>&lt;0.02[<a]< td=""></a]<></td></a]<>	<0.02[ <a]< td=""></a]<>
1,2-Dichloropropane	ug/g	0.05	0.05	0.03	<0.03[ <a]< td=""><td>&lt;0.03[<a]< td=""></a]<></td></a]<>	<0.03[ <a]< td=""></a]<>
Trichloroethylene	ug/g	0.05	0.05	0.03	<0.03[ <a]< td=""><td>&lt;0.03[<a]< td=""></a]<></td></a]<>	<0.03[ <a]< td=""></a]<>
Bromodichloromethane	ug/g	0.05	0.05	0.05	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""></a]<></td></a]<>	<0.05[ <a]< td=""></a]<>
Methyl Isobutyl Ketone	ua/a	0.5	0.5	0.50	<0.50[ <a]< td=""><td>&lt;0.50[<a]< td=""></a]<></td></a]<>	<0.50[ <a]< td=""></a]<>
1.1.2-Trichloroethane	ua/a	0.05	0.05	0.04	<0.04[ <a]< td=""><td>&lt;0.04[<a]< td=""></a]<></td></a]<>	<0.04[ <a]< td=""></a]<>
Toluene	ua/a	0.2	0.2	0.02	<0.02[ <a]< td=""><td>&lt;0.02[<a]< td=""></a]<></td></a]<>	<0.02[ <a]< td=""></a]<>
Dibromochloromethane	ug/g	0.05	0.05	0.05	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""></a]<></td></a]<>	<0.05[ <a]< td=""></a]<>
Ethylene Dibromide	ug/g	0.05	0.05	0.04	<0.00[<,1]	<0.00[<,1]
Tetrachloroethylene	ug/g	0.05	0.05	0.04		<0.05[<]
	ug/g	0.05	0.05	0.03		
	ug/g	0.05	0.05	0.04	<0.04[ <a]< td=""><td>&lt;0.04[<a]< td=""></a]<></td></a]<>	<0.04[ <a]< td=""></a]<>
	ug/g	0.05	0.05	0.05	<0.05[_A]	[A>]CU.U>
Etnyibenzene	ug/g	0.05	0.05	0.05	<0.05[ <a]< td=""><td>&lt;0.05[<a]< td=""></a]<></td></a]<>	<0.05[ <a]< td=""></a]<>
m & p-Xylene	ug/g			0.05	<0.05	<0.05

Certified By:

**DATE REPORTED: 2018-02-13** 



**ATTENTION TO: Shafi Andseta** 

SAMPLED BY:Simarjeet S

AGAT WORK ORDER: 18T308900 PROJECT: 518-20 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.agatlabs.com

#### CLIENT NAME: DS CONSULTING

#### SAMPLING SITE:Dundas St, Oakville

O. Reg. 153(511) - VOCs (Soil)

#### DATE RECEIVED: 2018-02-06

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Table 1: Full Depth Background Site Condition Standards - Soil -

Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use, B Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9051271-9051282 The sample was analysed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil.

Certified By:

**DATE REPORTED: 2018-02-13** 



#### CLIENT NAME: DS CONSULTING

#### **ATTENTION TO: Shafi Andseta**

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9051299	AR-7 - SS-2	ON T1 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity	mS/cm	0.57	0.805
9051299	AR-7 - SS-2	ON T8 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity	mS/cm	0.7	0.805


# **Quality Assurance**

### **CLIENT NAME: DS CONSULTING**

#### **PROJECT: 518-20**

#### SAMPLING SITE: Dundas St, Oakville

# AGAT WORK ORDER: 18T308900 ATTENTION TO: Shafi Andseta SAMPLED BY:Simarjeet S

# Soil Analysis

						•									
RPT Date: Feb 13, 2018			C	UPLICATI	E		REFERENCE MATERIAL			METHOD	BLAN	( SPIKE	MAT	RIX SPI	KE
PARAMETER	Batch	Sample	Dup #1	Dup #2	RPD	Method Blank	Measured	Acce Lir	ptable nits	Recovery	Acce	ptable nits	Recovery	Acceptable Limits	
							value	Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Ino	rganics (Soil)	)													
Antimony	9050534		<0.8	<0.8	NA	< 0.8	110%	70%	130%	108%	80%	120%	86%	70%	130%
Arsenic	9050534		5	5	0.0%	< 1	115%	70%	130%	106%	80%	120%	111%	70%	130%
Barium	9050534		89	87	2.3%	< 2	115%	70%	130%	101%	80%	120%	120%	70%	130%
Beryllium	9050534		0.7	0.8	NA	< 0.5	93%	70%	130%	111%	80%	120%	108%	70%	130%
Boron	9050534		8	8	NA	< 5	81%	70%	130%	107%	80%	120%	94%	70%	130%
Boron (Hot Water Soluble)	9055256		0.25	0.24	NA	< 0.10	106%	60%	140%	100%	70%	130%	98%	60%	140%
Cadmium	9050534		<0.5	<0.5	NA	< 0.5	109%	70%	130%	102%	80%	120%	113%	70%	130%
Chromium	9050534		20	19	5.1%	< 2	86%	70%	130%	94%	80%	120%	96%	70%	130%
Cobalt	9050534		11.6	11.5	0.9%	< 0.5	91%	70%	130%	93%	80%	120%	93%	70%	130%
Copper	9050534		30	30	0.0%	< 1	98%	70%	130%	101%	80%	120%	114%	70%	130%
Lead	9050534		13	13	0.0%	< 1	109%	70%	130%	90%	80%	120%	100%	70%	130%
Molybdenum	9050534		0.6	0.6	NA	< 0.5	100%	70%	130%	96%	80%	120%	104%	70%	130%
Nickel	9050534		24	24	0.0%	< 1	102%	70%	130%	102%	80%	120%	101%	70%	130%
Selenium	9050534		0.6	0.6	NA	< 0.4	113%	70%	130%	105%	80%	120%	109%	70%	130%
Silver	9050534		<0.2	<0.2	NA	< 0.2	80%	70%	130%	92%	80%	120%	88%	70%	130%
Thallium	9050534		<0.4	<0.4	NA	< 0.4	92%	70%	130%	105%	80%	120%	108%	70%	130%
Uranium	9050534		0.5	<0.5	NA	< 0.5	89%	70%	130%	98%	80%	120%	108%	70%	130%
Vanadium	9050534		25	25	0.0%	< 1	89%	70%	130%	97%	80%	120%	88%	70%	130%
Zinc	9050534		65	69	6.0%	< 5	104%	70%	130%	100%	80%	120%	115%	70%	130%
Chromium VI	9050970		<0.2	<0.2	NA	< 0.2	77%	70%	130%	93%	80%	120%	94%	70%	130%
Cyanide	9048844		<0.040	<0.040	NA	< 0.040	105%	70%	130%	92%	80%	120%	98%	70%	130%
Mercury	9050534		<0.10	<0.10	NA	< 0.10	113%	70%	130%	102%	80%	120%	106%	70%	130%
Electrical Conductivity	9050548		0.787	0.813	3.2%	< 0.005	99%	90%	110%	NA			NA		
Sodium Adsorption Ratio	9050548		17.3	18.2	5.1%	NA	NA			NA			NA		
pH, 2:1 CaCl2 Extraction	9048844		7.82	7.91	1.1%	NA	102%	80%	120%	NA			NA		

Comments: NA signifies Not Applicable.

Duplicate Qualifier: 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.

Certified By:

Inis Verastegui

### **AGAT** QUALITY ASSURANCE REPORT (V1)

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# **Quality Assurance**

#### **CLIENT NAME: DS CONSULTING**

#### **PROJECT: 518-20**

#### SAMPLING SITE: Dundas St, Oakville

# AGAT WORK ORDER: 18T308900 ATTENTION TO: Shafi Andseta SAMPLED BY:Simarjeet S

# **Trace Organics Analysis**

					J												
RPT Date: Feb 13, 2018			D	UPLICATI	E		REFERENCE MATERIAL		METHOD	BLAN	SPIKE	МАТ	RIX SPI	KE			
PARAMETER	Batch	Sample	Dup #1	Dup #2	RPD	Method Blank	Measured	Acce Lii	eptable mits	Recovery	Acce Lii	ptable nits	ble Recovery		Acceptable Limits		
		Id					Value	Lower	Upper		Lower	Upper	,	Lower	Upper		
O. Reg. 153(511) - OC Pesticides	(Soil)																
Hexachloroethane	9051303	9051303	< 0.01	< 0.01	NA	< 0.01	98%	50%	140%	64%	50%	140%	62%	50%	140%		
Gamma-Hexachlorocyclohexane	9051303	9051303	< 0.005	< 0.005	NA	< 0.005	83%	50%	140%	68%	50%	140%	69%	50%	140%		
Heptachlor	9051303	9051303	< 0.005	< 0.005	NA	< 0.005	79%	50%	140%	90%	50%	140%	78%	50%	140%		
Aldrin	9051303	9051303	< 0.005	< 0.005	NA	< 0.005	80%	50%	140%	96%	50%	140%	86%	50%	140%		
Heptachlor Epoxide	9051303	9051303	< 0.005	< 0.005	NA	< 0.005	81%	50%	140%	90%	50%	140%	88%	50%	140%		
Endosulfan	9051303	9051303	< 0.005	< 0.005	NA	< 0.005	80%	50%	140%	78%	50%	140%	78%	50%	140%		
Chlordane	9051303	9051303	< 0.007	< 0.007	NA	< 0.007	79%	50%	140%	86%	50%	140%	80%	50%	140%		
DDE	9051303	9051303	< 0.007	< 0.007	NA	< 0.007	81%	50%	140%	96%	50%	140%	86%	50%	140%		
DDD	9051303	9051303	< 0.007	< 0.007	NA	< 0.007	81%	50%	140%	82%	50%	140%	75%	50%	140%		
DDT	9051303	9051303	< 0.007	< 0.007	NA	< 0.007	87%	50%	140%	84%	50%	140%	75%	50%	140%		
Dieldrin	9051303	9051303	< 0.005	< 0.005	NA	< 0.005	77%	50%	140%	90%	50%	140%	90%	50%	140%		
Endrin	9051303	9051303	< 0.005	< 0.005	NA	< 0.005	88%	50%	140%	86%	50%	140%	98%	50%	140%		
Methoxychlor	9051303	9051303	< 0.005	< 0.005	NA	< 0.005	84%	50%	140%	102%	50%	140%	94%	50%	140%		
Hexachlorobenzene	9051303	9051303	< 0.005	< 0.005	NA	< 0.005	84%	50%	140%	88%	50%	140%	88%	50%	140%		
Hexachlorobutadiene	9051303	9051303	< 0.01	< 0.01	NA	< 0.01	108%	50%	140%	76%	50%	140%	65%	50%	140%		
O. Reg. 153(511) - PHCs F1 - F4 (	Soil)																
Benzene	9051300	9051300	< 0.02	< 0.02	NA	< 0.02	112%	60%	130%	108%	60%	130%	103%	60%	130%		
Toluene	9051300	9051300	< 0.08	< 0.08	NA	< 0.08	113%	60%	130%	108%	60%	130%	106%	60%	130%		
Ethylbenzene	9051300	9051300	< 0.05	< 0.05	NA	< 0.05	112%	60%	130%	110%	60%	130%	109%	60%	130%		
Xylene Mixture	9051300	9051300	< 0.05	< 0.05	NA	< 0.05	103%	60%	130%	105%	60%	130%	110%	60%	130%		
F1 (C6 to C10)	9051300	9051300	< 5	< 5	NA	< 5	87%	60%	130%	99%	85%	115%	74%	70%	130%		
F2 (C10 to C16)	9050925		< 10	< 10	NA	< 10	93%	60%	130%	102%	80%	120%	72%	70%	130%		
F3 (C16 to C34)	9050925		< 50	< 50	NA	< 50	100%	60%	130%	107%	80%	120%	82%	70%	130%		
F4 (C34 to C50)	9050925		< 50	< 50	NA	< 50	102%	60%	130%	101%	80%	120%	88%	70%	130%		
O. Reg. 153(511) - VOCs (Soil)																	
Dichlorodifluoromethane	9055339		< 0.05	< 0.05	NA	< 0.05	82%	50%	140%	93%	50%	140%	88%	50%	140%		
Vinvl Chloride	9055339		< 0.02	< 0.02	NA	< 0.02	100%	50%	140%	101%	50%	140%	94%	50%	140%		
Bromomethane	9055339		< 0.05	< 0.05	NA	< 0.05	109%	50%	140%	89%	50%	140%	77%	50%	140%		
Trichlorofluoromethane	9055339		< 0.05	< 0.05	NA	< 0.05	76%	50%	140%	89%	50%	140%	84%	50%	140%		
Acetone	9055339		< 0.50	< 0.50	NA	< 0.50	106%	50%	140%	96%	50%	140%	102%	50%	140%		
1,1-Dichloroethylene	9055339		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	100%	60%	130%	96%	50%	140%		
Methylene Chloride	9055339		< 0.05	< 0.05	NA	< 0.05	90%	50%	140%	107%	60%	130%	72%	50%	140%		
Trans- 1,2-Dichloroethylene	9055339		< 0.05	< 0.05	NA	< 0.05	76%	50%	140%	89%	60%	130%	104%	50%	140%		
Methyl tert-butyl Ether	9055339		< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	85%	60%	130%	97%	50%	140%		
1,1-Dichloroethane	9055339		< 0.02	< 0.02	NA	< 0.02	97%	50%	140%	103%	60%	130%	98%	50%	140%		
Methyl Ethyl Ketone	9055339		< 0.50	< 0.50	NA	< 0.50	95%	50%	140%	101%	50%	140%	86%	50%	140%		
Cis- 1,2-Dichloroethylene	9055339		< 0.02	< 0.02	NA	< 0.02	82%	50%	140%	98%	60%	130%	104%	50%	140%		
Chloroform	9055339		< 0.04	< 0.04	NA	< 0.04	89%	50%	140%	106%	60%	130%	88%	50%	140%		
1,2-Dichloroethane	9055339		< 0.03	< 0.03	NA	< 0.03	86%	50%	140%	102%	60%	130%	84%	50%	140%		

### AGAT QUALITY ASSURANCE REPORT (V1)

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# **Quality Assurance**

### **CLIENT NAME: DS CONSULTING**

#### **PROJECT: 518-20**

#### SAMPLING SITE:Dundas St, Oakville

# AGAT WORK ORDER: 18T308900 ATTENTION TO: Shafi Andseta SAMPLED BY:Simarjeet S

# Trace Organics Analysis (Continued)

RPT Date: Feb 13, 2018			DUPLICATE				REFEREN	NCE MA	TERIAL	METHOD	BLANK		MAT	MATRIX SPIKE		
PARAMETER	Batch	Sample	Dup #1	Dup #2	RPD	Method Blank	Measured	Acce Lir	ptable nits	Recoverv	Acce Lir	ptable nits	Recoverv	Acce Lin	ptable nits	
		Ia					value	Lower	Upper		Lower	Upper	-	Lower	Upper	
1,1,1-Trichloroethane	9055339		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	100%	60%	130%	94%	50%	140%	
Carbon Tetrachloride	9055339		< 0.05	< 0.05	NA	< 0.05	73%	50%	140%	96%	60%	130%	93%	50%	140%	
Benzene	9055339		< 0.02	< 0.02	NA	< 0.02	88%	50%	140%	91%	60%	130%	98%	50%	140%	
1,2-Dichloropropane	9055339		< 0.03	< 0.03	NA	< 0.03	80%	50%	140%	90%	60%	130%	87%	50%	140%	
Trichloroethylene	9055339		< 0.03	< 0.03	NA	< 0.03	73%	50%	140%	91%	60%	130%	92%	50%	140%	
Bromodichloromethane	9055339		< 0.05	< 0.05	NA	< 0.05	86%	50%	140%	100%	60%	130%	99%	50%	140%	
Methyl Isobutyl Ketone	9055339		< 0.50	< 0.50	NA	< 0.50	72%	50%	140%	85%	50%	140%	81%	50%	140%	
1,1,2-Trichloroethane	9055339		< 0.04	< 0.04	NA	< 0.04	96%	50%	140%	97%	60%	130%	94%	50%	140%	
Toluene	9055339		< 0.02	< 0.02	NA	< 0.02	84%	50%	140%	87%	60%	130%	87%	50%	140%	
Dibromochloromethane	9055339		< 0.05	< 0.05	NA	< 0.05	79%	50%	140%	90%	60%	130%	83%	50%	140%	
Ethylene Dibromide	9055339		< 0.04	< 0.04	NA	< 0.04	87%	50%	140%	91%	60%	130%	85%	50%	140%	
Tetrachloroethylene	9055339		< 0.05	< 0.05	NA	< 0.05	79%	50%	140%	90%	60%	130%	85%	50%	140%	
1,1,1,2-Tetrachloroethane	9055339		< 0.04	< 0.04	NA	< 0.04	103%	50%	140%	89%	60%	130%	82%	50%	140%	
Chlorobenzene	9055339		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	91%	60%	130%	90%	50%	140%	
Ethylbenzene	9055339		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	84%	60%	130%	82%	50%	140%	
m & p-Xylene	9055339		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	92%	60%	130%	92%	50%	140%	
Bromoform	9055339		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	90%	60%	130%	79%	50%	140%	
Styrene	9055339		< 0.05	< 0.05	NA	< 0.05	73%	50%	140%	81%	60%	130%	75%	50%	140%	
1,1,2,2-Tetrachloroethane	9055339		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	103%	60%	130%	89%	50%	140%	
o-Xylene	9055339		< 0.05	< 0.05	NA	< 0.05	91%	50%	140%	95%	60%	130%	93%	50%	140%	
1,3-Dichlorobenzene	9055339		< 0.05	< 0.05	NA	< 0.05	83%	50%	140%	82%	60%	130%	79%	50%	140%	
1,4-Dichlorobenzene	9055339		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	95%	60%	130%	88%	50%	140%	
1,2-Dichlorobenzene	9055339		< 0.05	< 0.05	NA	< 0.05	90%	50%	140%	85%	60%	130%	82%	50%	140%	
1,3-Dichloropropene	9055339		< 0.04	< 0.04	NA	< 0.04	86%	50%	140%	90%	60%	130%	102%	50%	140%	
n-Hexane	9055339		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	92%	60%	130%	91%	50%	140%	

Comments:

When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

# Certified By:

### AGAT QUALITY ASSURANCE REPORT (V1)

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# **Method Summary**

### CLIENT NAME: DS CONSULTING

#### **PROJECT: 518-20**

SAMPLING SITE: Dundas St. Oakville

## AGAT WORK ORDER: 18T308900 ATTENTION TO: Shafi Andseta SAMPI ED BY:Simaricet S

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	EPA SW 846 6010C; MSA, Part 3, Ch.21	ICP/OES
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium VI	INOR-93-6029	SM 3500 B; MSA Part 3, Ch. 25	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE CN-3015 & E 3009 A;SM 4500 CN	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Electrical Conductivity	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010B	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	PH METER
pH 2:1 Extr.	INOR-93-6031	MSA part 3 & SM 4500-H+ B	N/A



# **Method Summary**

#### CLIENT NAME: DS CONSULTING

#### **PROJECT: 518-20**

SAMPLING SITE:Dundas St, Oakville

AGAT WORK ORDER: 18T308900 ATTENTION TO: Shafi Andseta SAMPLED BY:Simarjeet S

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	
Trace Organics Analysis			
Hexachloroethane	ORG-91-5113	EPA SW-846 3541 3620 & 8081	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	EPA SW-846 3541 3620 & 8081	GC/ECD
Hentachlor	ORG-91-5113	EPA SW-846 3541 3620 & 8081	GC/ECD
Aldrin	ORG-91-5113	EPA SW-846 3541 3620 & 8081	GC/ECD
Heptachlor Epoxide	ORG-91-5113	EPA SW-846 3541 3620 & 8081	GC/ECD
Endosulfan	ORG-91-5113	EPA SW-846 3541 3620 & 8081	GC/ECD
Chlordane	ORG-91-5113	EPA SW-846 3541.3620 & 8081	GC/ECD
DDE	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
קסס	ORG-91-5113	EPA SW-846 3541 3620 & 8081	GC/ECD
DDT	ORG-91-5113	EPA SW-846 3541.3620 & 8081	GC/ECD
Dieldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Methoxychlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobenzene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobutadiene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
тсмх	ORG-91-5112	EPA SW-846 3541,3620 & 8081	GC/ECD
Decachlorobiphenyl	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Moisture Content		MOE E3139	BALANCE
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID
Dichlorodifluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Acetone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1-I richloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&I)GC/MS
Carbon Tetrachloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Benzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS



# Method Summary

# CLIENT NAME: DS CONSULTING

### **PROJECT: 518-20**

#### SAMPLING SITE: Dundas St, Oakville

# AGAT WORK ORDER: 18T308900 ATTENTION TO: Shafi Andseta SAMPI ED BY:Simaricat S

SAMPLING SITE. Dunuas SI, Carving	8	SAWFLED BT.S	iniar jeer 5
PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
1,2-Dichloropropane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Styrene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Moisture Content	VOL-91-5002	MOE E3139	BALANCE

Laboratory Use Only Work Order #. 181 308900 Cooler Quantity: Nucl	It Custody Seal Intact: TYES IN 1.01 1.00	Turmaround Time (TAT) Required:       Regular TAT     X     5 to 7 Business Days       Rush TAT (main servingee Apply)     3 Business     2 Business       3 Business     3 Business     2 Business	ON Date Required (Rush Surcharges May Apply): Please provide prior notification for rush TAT *TAT is exclusive of weekends and statutory holidays For Same Day' analysis, please contact your AGAT CPM	- гр. соль слов. соль соль соль соль соль соль соль соль	Gewei Us Sewei Us Organoci PPCs F1 PPCs	X						19/2 16 25.42	Time Page L of C	
5835 Coopers Avenue Mississauga, Ontario L42 1Y2 Ph: 905.712.5100 Fax: 905.712.5122 webearth.agatabscom	orm (potable water consumed by humans) ts: 🗌 No Regulatory Requiremen	Sewer Use Regulation 558	Report Guideline on Certificate of Analysis	Eleid Filtered - Metals, Hg, CrVI	X         X           X         X			a X			X	pal - pa	31	Alt: Date Diff
itories	Regulatory Requirement (Press occi al spectrols bound)	Regulation 153/04         1           Table         1         2           Table         1         2           Ind/mono         0         0           Resp/Park         2         2           Soli Texture         Resp/n         1           Fina         1         1         2	Is this submission for a Record of Site Condition? X Yes D No	Sample Mattrix Legend B Biota GW Ground Water O Oil P Paint S Solin S Setiment SW Surface Water	ample Comments/ Matrix Special Instructions	-						4	Earning Perchas Dy Print Name and Su	SUI Samples Received By (Frint Nume and Sig
Labora	PF7	1, Unit 16 LHH OK8 brommentere	t Calkudle	ul te bilied full price for analysis. Bill To Same: Vester No	Time # of Sampled Containers		4	- ^	-	- 1	-0	2	Trueb. 5,18 Time	SOUNDLE T
Record man	DS Countrants	221 Highway Vourhen ON Vourhen ON S-264-9343 Far	SIS-20 Simelyest S	BS mole. If guarditien number is not provided, circuit	Ication Date Sampled	55-3 Jan30	55-7 Jan30	-55-2 Janzi	- 55 - 2 Jan 31	55-2 J m 31	- 55-1 Jan 31	- 55-7 Feboi	B	Start
Chain of Cust	Report Information Company:	Address:	Project Information Project Site Location: Sampled By:	AGAI Quote #: Aga Invoice Information Company: Comact: Address: Email:	Sample Identifi	BR-2 -	AR-3-	AR-S-	AR-6-	AR-9-	AR-10-	A R - 11	Sempler Symposics By Bring Name and	Sumples fictinguisoned By (Plux Name and

Laboratory Use Only Work Order #: Cooler Quantity:	Arrival Temperatures:	Notes:       Notes:         Turnaround Time (TAT) Required:       Furnaround Time (TAT) Required:         Regular TAT       5 to 7 Business Days         Rush TAT mean sectamper Appin       Next Business Days         Business       2 Business Days         Days       2 Business May Apply):         Plaste Required (Rush Surcharges May Apply):       Plaste Required (Rush Surcharges May Apply):         Plaste provide prior notification for rush TaT       Plaste provide prior motification for rush TaT         For "same Day" analysis, plasase contact your AGAT CPM	Sewer Use       Sewer Use       Sewer Use       PAHs       PAHs       PAHs       PAHs       PAHs			March 1 Mile Copy-AGMT 1 Mile Copy 1 Mil
5835 Coopers Avenue Mississauga, Ontario 142 172 Ph: 905.712.5100 Fax: 905.712.5122 webearth.agatlabs.com	potable water consumed by humans)	r Usa   Regulation 558 tary   COME m m m come m m lobectives (PWQO) come network m m m m m m m m m m m m m m m m m m m	Kiełd Fillered - Metals, Hg. CrWi           Metale and Inorganics           Metale and Inorganics           Metale and Inorganics           Metale D.153 Metals (Incl. Hydrofes)           Optimization Control (Incl. Hydrofes)           DeH LISAR           Optimization Control (Incl. Hydrofes)           DeH LISAR           Control (Incl. Hydrofes)           Relini Metals Control (Incl. Hydrofes)           Relini Metals Control (Incl. Hydrofes)           Relini Metals Control (Incl. Hydrofes)           Relini Metals Scent           Relini Metals Scent			Pluk Copy - Client 1 Yello
ories	use Drinking Water Chain of Custody Form ( Regulatory Requirements:	Regulation 153/04     Same       Table     1.8       IndyCom     Same       IndyCom     Regulation       IndyCom     Regulation       IndyCom     Regulation       IndyCom     Regulation       IndyCom     Regulation       IndyCom     Regulation       Samily and the check one     Regulation       Infine     Regon       Infine     Infine	Sample Matrix Legend B Blota GW Ground Water 0 Oil P Paint 5 Soil SD Sediment SW Surface Water SW Surface Water Die Comments/			Sampley Received by (Frint Name and Sign) A COLOT Mane and Sign Samuers Received by (Frint Name and Sign) Samples Received by (Frint Name and Sign)
<b>F</b> Laborat	a Drinking Water sample, please	(Init 16 14 H OKS comultants. cq	Bill To Same: Yes D No D			Den And Tame
u dan	STOOY KECORD HUMABA ION: D.S. Centrul trants	6221 Highmon 7 Vanohan 0NJ 05-264-9393 Fax 1041: and 247 Odn Int SI 8-2 U SI 8-2 U Cirrue geet S	Plause rate: if quantities number is not provided, currants, currants, for an antification batter Date 2 - 2 - 5 - 2 - 6 - 6 - 0 2	- 55-3 Febul - 55-7 Jun31 - 55-2 Jun31	-2 Jan30 -3 feboo	
	Criain of Cus Report informat	Contact: Address: Phone: Reports to be sent to: 1. Email: 2. Email: 2. Email: Project Informati Project: Site Location: Site Location: Sampled By:	Involce Informati compeny: contact: Address: Email: Sample ider	AR-13 AR-6 AR-7	Dud	Sampler References By Paral Nomes Compare References By Paral Nomes Compare References By Paral Nomes



#### CLIENT NAME: DS CONSULTANTS LTD. 6221 HIGHWAY 7 WEST, UNIT #16 VAUGHAN, ON L4H 0K8 905-264-9393

### ATTENTION TO: Shafi Andseta

PROJECT: 18-518-20

AGAT WORK ORDER: 18T322612

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: Mar 29, 2018

PAGES (INCLUDING COVER): 13

VERSION\*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES	

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

AGAT Laboratories (V1)

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA) Western Enviro-Agricultural Laboratory Association (WEALA) Environmental Services Association of Alberta (ESAA) AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Page 1 of 13

Results relate only to the items tested and to all the items tested All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request



AGAT WORK ORDER: 18T322612 PROJECT: 18-518-20 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.aqatlabs.com

### CLIENT NAME: DS CONSULTANTS LTD.

SAMPLING SITE:

ATTENTION TO: Shafi Andseta

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides (Water)

# DATE RECEIVED: 2018-03-22

		SAMPLE DESC	RIPTION:	AR-MW10	AR-MW11	AR-MW12	
		SAMPL	LE TYPE:	Water	Water	Water	
		DATE SA	AMPLED:	2018-03-21	2018-03-21	2018-03-21	
Parameter	Unit	G/S	RDL	9144188	9144192	9144198	
Gamma-Hexachlorocyclohexane	µg/L	0.01	0.01	<0.01	<0.01	<0.01	
Heptachlor	µg/L	0.01	0.01	<0.01	<0.01	<0.01	
Aldrin	µg/L	0.01	0.01	<0.01	<0.01	<0.01	
Heptachlor Epoxide	µg/L	0.01	0.01	<0.01	<0.01	<0.01	
Endosulfan	µg/L	0.05	0.05	<0.05	<0.05	<0.05	
Chlordane	µg/L	0.06	0.04	<0.04	<0.04	<0.04	
DDE	µg/L	10	0.01	<0.01	<0.01	<0.01	
DDD	µg/L	1.8	0.05	<0.05	<0.05	<0.05	
DDT	µg/L	0.05	0.04	<0.04	<0.04	<0.04	
Dieldrin	µg/L	0.05	0.02	<0.02	<0.02	<0.02	
Endrin	µg/L	0.05	0.05	<0.05	<0.05	<0.05	
Methoxychlor	µg/L	0.05	0.04	<0.04	<0.04	<0.04	
Hexachlorobenzene	ug/L	0.01	0.01	<0.01	<0.01	<0.01	
Hexachlorobutadiene	ug/L	0.01	0.01	<0.01	<0.01	<0.01	
Hexachloroethane	ug/L	0.01	0.01	<0.01	<0.01	<0.01	
Surrogate	Unit	Acceptable	e Limits				
тсмх	%	50-14	10	95	66	72	
Decachlorobiphenyl	%	60-14	0	78	95	67	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Ground Water - All Types of Property Uses

Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9144188-9144198 Note: DDT applies to the total of op'DDT and pp'DDT, DDD applies to the total of op'DDD and pp'DDD and DDE applies to the total of op'DDE. Endosulfan applies to the total of Endosulfan I and Endosulfan II.

Chlordane applies to the total of Alpha-Chlordane and Gamma-Chlordane.

Certified By:

**DATE REPORTED: 2018-03-29** 



AGAT WORK ORDER: 18T322612 PROJECT: 18-518-20 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.agatlabs.com

### CLIENT NAME: DS CONSULTANTS LTD.

SAMPLING SITE:

### ATTENTION TO: Shafi Andseta

SAMPLED BY:

# O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Water)

#### DATE RECEIVED: 2018-03-22

DATE REPORTED: 2018-03-29

		SAMPLE DESCR	RIPTION:	AR-MW2	AR-MW6	AR-MW9	QA/QC1
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SA	AMPLED:	2018-03-21	2018-03-21	2018-03-21	2018-03-21
Parameter	Unit	G / S	RDL	9144184	9144186	9144187	9144201
F1 (C6 to C10)	µg/L	420	25	<25	<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L	420	25	<25	<25	<25	<25
F2 (C10 to C16)	µg/L	150	100	<100	<100	<100	<100
F3 (C16 to C34)	µg/L	500	100	<100	<100	<100	<100
F4 (C34 to C50)	µg/L	500	100	<100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA	NA	NA	NA
Surrogate	Unit	Acceptable	Limits				
Terphenyl	%	60-14	.0	82	74	80	81

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Ground Water - All Types of Property Uses Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9144184-9144201 The C6-C10 fraction is calculated using Toluene response factor.

The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.

Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present. The chromatogram has returned to baseline by the retention time of nC50.

Total C6-C50 results are corrected for BTEX contributions.

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

nC6 and nC10 response factors are within 30% of Toluene response factor.

nC10, nC16 and nC34 response factors are within 10% of their average.

C50 response factor is within 70% of nC10 + nC16 nC34 average.

Linearity is within 15%.

Extraction and holding times were met for this sample.

Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.



AGAT WORK ORDER: 18T322612 PROJECT: 18-518-20 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.aqatlabs.com

### CLIENT NAME: DS CONSULTANTS LTD.

SAMPLING SITE:

### ATTENTION TO: Shafi Andseta

SAMPLED BY:

O. Reg. 153(511) - VOCs (Water)												
DATE RECEIVED: 2018-03-22								I	DATE REPORTED:	2018-03-29		
Parameter	SUnit	SAMPLE DESC SAMF DATE S G / S	CRIPTION: PLE TYPE: AMPLED: RDL	AR-MW2 Water 2018-03-21 9144184	AR-MW6 Water 2018-03-21 9144186	AR-MW9 Water 2018-03-21 9144187	QA/QC1 Water 2018-03-21 9144201	Trip Blank Water 2018-03-21 9144204	Field Blank Water 2018-03-21 9144207			
Dichlorodifluoromethane	µg/L	590	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Vinyl Chloride	µg/L	0.5	0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17			
Bromomethane	μg/L	0.89	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Trichlorofluoromethane	μg/L	150	0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40			
Acetone	µg/L	2700	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
1,1-Dichloroethylene	μg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30			
Methylene Chloride	µg/L	5	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30			
trans- 1,2-Dichloroethylene	μg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Methyl tert-butyl ether	μg/L	15	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
1,1-Dichloroethane	μg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30			
Methyl Ethyl Ketone	μg/L	400	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
cis- 1,2-Dichloroethylene	μg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Chloroform	μg/L	2	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
1,2-Dichloroethane	μg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
1,1,1-Trichloroethane	μg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30			
Carbon Tetrachloride	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Benzene	μg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
1,2-Dichloropropane	μg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Trichloroethylene	µg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Bromodichloromethane	μg/L	2	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Methyl Isobutyl Ketone	µg/L	640	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
1,1,2-Trichloroethane	μg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Toluene	µg/L	0.8	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Dibromochloromethane	µg/L	2	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10			
Ethylene Dibromide	μg/L	0.2	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10			
Tetrachloroethylene	µg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
1,1,1,2-Tetrachloroethane	µg/L	1.1	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10			
Chlorobenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10			
Ethylbenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10			
m & p-Xylene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			

Certified By:

teurs



AGAT WORK ORDER: 18T322612 PROJECT: 18-518-20 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.aqatlabs.com

# CLIENT NAME: DS CONSULTANTS LTD.

SAMPLING SITE:

### ATTENTION TO: Shafi Andseta

SAMPLED BY:

				3	,						
DATE RECEIVED: 2018-03-22								ļ	DATE REPORTED	: 2018-03-29	
	S	SAMPLE DES	CRIPTION:	AR-MW2	AR-MW6	AR-MW9	QA/QC1	Trip Blank	Field Blank		
		SAM	PLE TYPE:	Water	Water	Water	Water	Water	Water		
		DATE	SAMPLED:	2018-03-21	2018-03-21	2018-03-21	2018-03-21	2018-03-21	2018-03-21		
Parameter	Unit	G/S	RDL	9144184	9144186	9144187	9144201	9144204	9144207		
Bromoform	µg/L	5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
Styrene	μg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
1,1,2,2-Tetrachloroethane	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
o-Xylene	µg/L		0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
1,3-Dichlorobenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
1,4-Dichlorobenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
1,2-Dichlorobenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10		
1,3-Dichloropropene	µg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30		
Xylene Mixture	µg/L	72	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		
n-Hexane	µg/L	5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		
Surrogate	Unit	Acceptat	ole Limits								
Toluene-d8	% Recovery	50-	140	95	98	95	94	93	93		
4-Bromofluorobenzene	% Recovery	50-	140	93	95	91	91	81	83		

O. Reg. 153(511) - VOCs (Water)

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Ground Water - All Types of Property Uses Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Certified By:

teurs



AGAT WORK ORDER: 18T322612 PROJECT: 18-518-20

CLIENT NAME: DS CONSULTANTS LTD.

SAMPLING SITE:

ATTENTION TO: Shafi Andseta

SAMPLED BY:

	Total PCBs (water)												
DATE RECEIVED: 2018-03-22					DATE REPORTED: 2018-03-29								
		SAMPLE DES	CRIPTION:	AR-MW10									
		SAM	PLE TYPE:	Water									
		DATE S	DATE SAMPLED:										
Parameter	Unit	G/S	RDL	9144188									
PCBs	µg/L	0.2	0.1	<0.1									
Surrogate	Unit	Acceptab	le Limits										
Decachlorobiphenyl	%	60-1	30	70									

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Ground Water - All Types of Property Uses Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

teus

5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.agatlabs.com



AGAT WORK ORDER: 18T322612 PROJECT: 18-518-20 MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.agatlabs.com

5835 COOPERS AVENUE

### CLIENT NAME: DS CONSULTANTS LTD.

SAMPLING SITE:

### ATTENTION TO: Shafi Andseta

SAMPLED BY:

			-	-3(-	,		( )			
DATE RECEIVED: 2018-03-22								I	DATE REPORTED	0: 2018-03-29
Parameter	Unit	SAMPLE DESC SAMF DATE S G / S	CRIPTION: PLE TYPE: SAMPLED: RDL	AR-MW2 Water 2018-03-21 9144184	AR-MW6 Water 2018-03-21 9144186	AR-MW9 Water 2018-03-21 9144187	AR-MW11 Water 2018-03-21 9144192	AR-MW12 Water 2018-03-21 9144198	QA/QC1 Water 2018-03-21 9144201	
Antimony	µg/L	1.5	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Arsenic	μg/L	13	1.0	<1.0	4.9	4.7	3.1	4.5	3.4	
Barium	µg/L	610	2.0	260	30.6	31.4	34.1	30.1	33.1	
Beryllium	µg/L	0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Boron	µg/L	1700	10.0	99.2	1290	1260	1300	1290	1290	
Cadmium	µg/L	0.5	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Chromium	µg/L	11	2.0	2.8	2.3	<2.0	<2.0	<2.0	<2.0	
Cobalt	μg/L	3.8	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Copper	μg/L	5	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Lead	μg/L	1.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Molybdenum	µg/L	23	0.5	1.7	8.2	8.8	8.4	8.1	8.1	
Nickel	μg/L	14	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Selenium	µg/L	5	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Silver	µg/L	0.3	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Thallium	µg/L	0.5	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	
Uranium	μg/L	8.9	0.5	5.5	0.7	0.7	0.8	0.7	0.7	
Vanadium	μg/L	3.9	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	
Zinc	µg/L	160	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Mercury	µg/L	0.1	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
Chromium VI	µg/L	25	5	<5	<5	<5	<5	<5	<5	
Cyanide	µg/L	5	2	<2	<2	<2	<2	<2	<2	
Sodium	µg/L	490000	1000	51600	100000	102000	100000	100000	101000	
Chloride	µg/L	790000	500	184000	22900	22900	23500	23400	23500	
Electrical Conductivity	uS/cm		2	1170	1070	1070	1080	1080	1080	
рН	pH Units		NA	7.93	8.15	8.10	8.04	8.01	8.09	

O. Reg. 153(511) - Metals & Inorganics (Water)

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Ground Water - All Types of Property Uses Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9144184-9144201 Elevated RDLs indicate the degree of sample dilutions prior to analyses to keep analytes within the calibration range, reduce matrix interference and to avoid contaminating the instrument.

Certified By:

Iris Verastegui



# Quality Assurance

### CLIENT NAME: DS CONSULTANTS LTD.

#### PROJECT: 18-518-20

SAMPLING SITE:

AGAT WORK ORDER: 18T322612 ATTENTION TO: Shafi Andseta

SAMPLED BY:

#### Trace Organics Analysis DUPLICATE REFERENCE MATERIAL METHOD BLANK SPIKE RPT Date: Mar 29, 2018 MATRIX SPIKE Method Acceptable Acceptable Acceptable Sample Measured Blank Limits Limits Limits Dup #2 PARAMETER Batch Dup #1 RPD Recovery Recovery ld Value Lower Upper Lower Upper Lower Upper Total PCBs (water) PCBs τw 60% 140% < 0.1 95% 90% 140% < 0.1 NA < 0.1 60% 140% 60% NA O. Reg. 153(511) - VOCs (Water) Dichlorodifluoromethane 9144623 < 0.20 < 0.20 NΑ < 0.20 96% 140% 99% 140% 126% 50% 140% 50% 50% Vinvl Chloride 9144623 < 0.17< 0.17 NA < 0.17105% 50% 140% 83% 50% 140% 86% 50% 140% Bromomethane 9144623 < 0.20 < 0.20 NA < 0.20 119% 50% 140% 119% 50% 140% 93% 50% 140% Trichlorofluoromethane 9144623 < 0.40 < 0.40 NA < 0.40 114% 50% 140% 87% 50% 140% 73% 50% 140% 140% Acetone 9144623 < 1.0 < 1.0 NA < 1.0 95% 50% 140% 113% 50% 140% 111% 50% 1,1-Dichloroethylene 9144623 < 0.30 < 0.30 < 0.30 78% 50% 140% 92% 130% 78% 50% 140% NA 60% Methylene Chloride 9144623 < 0.30 < 0.30 NA < 0.30 101% 50% 140% 114% 60% 130% 87% 50% 140% trans- 1,2-Dichloroethylene 9144623 < 0.20 < 0.20 NA < 0.20 101% 50% 140% 105% 60% 130% 85% 50% 140% Methyl tert-butyl ether 9144623 < 0.20 81% 50% 108% 130% 90% 50% 140% < 0.20 < 0.20 NA 140% 60% 1,1-Dichloroethane 9144623 < 0.30< 0.3080% 50% 140% 117% 130% 120% 50% 140% < 0.30 NA 60% Methyl Ethyl Ketone 9144623 NA 101% 140% 105% 140% 94% 50% 140% < 1.0 < 1.0 < 1.0 50% 50% cis- 1.2-Dichloroethylene 9144623 < 0.20 < 0.20 NA < 0.2088% 50% 140% 89% 60% 130% 81% 50% 140% Chloroform 9144623 < 0.20 < 0.20 NA < 0.20 93% 50% 140% 95% 60% 130% 76% 50% 140% 140% 1,2-Dichloroethane 9144623 < 0.20 < 0.20 NA < 0.20 102% 50% 140% 99% 60% 130% 99% 50% 1,1,1-Trichloroethane 9144623 < 0.30 < 0.30 83% 50% 140% 103% 130% 81% 50% 140% < 0.30 NA 60% Carbon Tetrachloride 9144623 < 0.20 < 0.20 NA < 0.20 71% 50% 140% 88% 60% 130% 71% 50% 140% < 0.20 87% 50% 89% 88% 50% Benzene 9144623 < 0.20 < 0.20 NA 140% 60% 130% 140% 1,2-Dichloropropane 9144623 < 0.20 < 0.20 NA < 0.20 89% 50% 140% 89% 60% 130% 79% 50% 140% Trichloroethylene 9144623 < 0.20 < 0.20 NA < 0.20 76% 50% 140% 82% 60% 130% 82% 50% 140% Bromodichloromethane 9144623 < 0.20 87% 50% 140% 83% 130% 92% 50% 140% < 0.20 NA < 0.20 60% Methyl Isobutyl Ketone 9144623 < 1.0 < 1.0 NA 103% 50% 86% 50% 140% 103% 50% 140% < 1.0140% 1.1.2-Trichloroethane 9144623 < 0.20< 0.20NA < 0.20109% 50% 140% 94% 60% 130% 94% 50% 140% Toluene 9144623 < 0.20 < 0.20 NA < 0.20 99% 50% 140% 98% 60% 130% 87% 50% 140% Dibromochloromethane 9144623 < 0.10< 0.10 NA < 0.1083% 50% 140% 83% 60% 130% 71% 50% 140% Ethylene Dibromide 9144623 < 0.10 < 0.10 NA < 0.10 100% 50% 140% 89% 60% 130% 88% 50% 140% Tetrachloroethylene 9144623 < 0.20 < 0.20 NA < 0.20 87% 50% 140% 88% 60% 130% 77% 50% 140% 1,1,1,2-Tetrachloroethane 9144623 < 0.10 < 0.10 NA < 0.10 111% 50% 140% 85% 60% 130% 71% 50% 140% 9144623 50% 94% 88% 50% Chlorobenzene < 0.10 < 0.10 NA < 0.10 102% 140% 60% 130% 140% Ethylbenzene 9144623 < 0.10 < 0.10 NA < 0.10 100% 50% 140% 93% 60% 130% 86% 50% 140% m & p-Xylene 9144623 < 0.20 < 0.20 NA < 0.20 108% 50% 140% 101% 60% 130% 94% 50% 140% Bromoform 9144623 < 0.10 < 0.10 < 0.10 88% 50% 140% 80% 60% 130% 75% 50% 140% NA 9144623 < 0.10 < 0.10 NA < 0.10 73% 50% 140% 72% 60% 130% 83% 50% 140% Stvrene 1,1,2,2-Tetrachloroethane 9144623 < 0.10< 0.10 NA < 0.10 117% 50% 140% 106% 60% 130% 114% 50% 140% o-Xylene < 0.10 50% 140% 9144623 < 0.10NA < 0.10112% 140% 100% 60% 130% 96% 50% 1.3-Dichlorobenzene 140% 9144623 < 0.10 < 0.10 NA < 0.10 100% 50% 140% 84% 60% 130% 82% 50% 1.4-Dichlorobenzene 9144623 < 0.10 < 0.10 NA < 0.10 110% 50% 140% 93% 60% 130% 91% 50% 140%

### AGAT QUALITY ASSURANCE REPORT (V1)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Page 8 of 13



# Quality Assurance

CLIENT NAME: DS CONSULTANTS LTD.

#### PROJECT: 18-518-20

SAMPLING SITE:

AGAT WORK ORDER: 18T322612 ATTENTION TO: Shafi Andseta SAMPLED BY:

# Trace Organics Analysis (Continued)

							`			,					
RPT Date: Mar 29, 2018		DUPLICATE				REFERENCE MATERIAL			METHOD	BLAN	K SPIKE	MAT	KE		
PARAMETER	Batch	Sample	Dup #1	Dup #2	RPD	Method Blank	Measured	Acceptable Limits		Recovery	Acce Lir	eptable mits	Recovery	Acce Lir	ptable nits
		la					value	Lower	Upper		Lower	Upper		Lower	Upper
1,2-Dichlorobenzene	9144623		< 0.10	< 0.10	NA	< 0.10	105%	50%	140%	86%	60%	130%	87%	50%	140%
1,3-Dichloropropene	9144623		< 0.30	< 0.30	NA	< 0.30	74%	50%	140%	84%	60%	130%	91%	50%	140%
n-Hexane	9144623		< 0.20	< 0.20	NA	< 0.20	117%	50%	140%	86%	60%	130%	85%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (	BTEX) (Wa	iter)													
F1 (C6 to C10)	9141609		< 25	< 25	NA	< 25	108%	60%	140%	108%	60%	140%	110%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	101%	60%	140%	63%	60%	140%	65%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	107%	60%	140%	75%	60%	140%	78%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	98%	60%	140%	81%	60%	140%	96%	60%	140%
O. Reg. 153(511) - OC Pesticides	(Water)														
Gamma-Hexachlorocyclohexane		TW	< 0.01	< 0.01	NA	< 0.01	60%	50%	140%	55%	50%	140%	94%	50%	140%
Heptachlor		TW	< 0.01	< 0.01	NA	< 0.01	93%	50%	140%	114%	50%	140%	87%	50%	140%
Aldrin		TW	< 0.01	< 0.01	NA	< 0.01	87%	50%	140%	92%	50%	140%	88%	50%	140%
Heptachlor Epoxide		TW	< 0.01	< 0.01	NA	< 0.01	90%	50%	140%	103%	50%	140%	89%	50%	140%
Endosulfan		TW	< 0.05	< 0.05	NA	< 0.05	86%	50%	140%	91%	50%	140%	78%	50%	140%
Chlordane		TW	< 0.04	< 0.04	NA	< 0.04	86%	50%	140%	100%	50%	140%	86%	50%	140%
DDE		TW	< 0.01	< 0.01	NA	< 0.01	95%	50%	140%	117%	50%	140%	90%	50%	140%
DDD		TW	< 0.05	< 0.05	NA	< 0.05	97%	50%	140%	110%	50%	140%	86%	50%	140%
DDT		TW	< 0.04	< 0.04	NA	< 0.04	97%	50%	140%	103%	50%	140%	99%	50%	140%
Dieldrin		TW	< 0.02	< 0.02	NA	< 0.02	89%	50%	140%	107%	50%	140%	92%	50%	140%
Endrin		TW	< 0.05	< 0.05	NA	< 0.05	91%	50%	140%	113%	50%	140%	108%	50%	140%
Methoxychlor		TW	< 0.04	< 0.04	NA	< 0.04	110%	50%	140%	110%	50%	140%	112%	50%	140%
Hexachlorobenzene		TW	< 0.01	< 0.01	NA	< 0.01	89%	50%	140%	95%	50%	140%	82%	50%	140%
Hexachlorobutadiene		TW	< 0.01	< 0.01	NA	< 0.01	90%	50%	140%	95%	50%	140%	80%	50%	140%
Hexachloroethane		TW	< 0.01	< 0.01	NA	< 0.01	81%	50%	140%	90%	50%	140%	70%	50%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.

When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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### AGAT QUALITY ASSURANCE REPORT (V1)

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# **Quality Assurance**

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### CLIENT NAME: DS CONSULTANTS LTD.

#### PROJECT: 18-518-20

SAMPLING SITE:

AGAT WORK ORDER: 18T322612 ATTENTION TO: Shafi Andseta

SAMPLED BY:

				Wate	er An	alys	is									
RPT Date: Mar 29, 2018			DUPLICATE				REFEREN		TERIAL	METHOD	BLAN	K SPIKE	MATRIX SPIKE			
PARAMETER	Batch	Sample	Dup #1	Dup #2	RPD	Method Blank	Measured	Acceptable Limits		Recovery	Acce	eptable mits	Recovery	Acce	ptable mits	
		Ia					value	Lower	Upper		Lower	Upper		Lower	Upper	
O. Reg. 153(511) - Metals & Ir	norganics (Wate	er)														
Antimony	9144184 9	9144184	<1.0	<1.0	NA	< 1.0	105%	70%	130%	105%	80%	120%	109%	70%	130%	
Arsenic	9144184 9	9144184	<1.0	<1.0	NA	< 1.0	107%	70%	130%	97%	80%	120%	99%	70%	130%	
Barium	9144184 9	9144184	260	280	7.4%	< 2.0	105%	70%	130%	95%	80%	120%	96%	70%	130%	
Beryllium	9144184 9	9144184	<0.5	<0.5	NA	< 0.5	108%	70%	130%	105%	80%	120%	103%	70%	130%	
Boron	9144184 9	9144184	99.2	111	11.2%	< 10.0	104%	70%	130%	99%	80%	120%	92%	70%	130%	
Cadmium	9144184 9	9144184	<0.2	<0.2	NA	< 0.2	105%	70%	130%	97%	80%	120%	105%	70%	130%	
Chromium	9144184 9	9144184	2.8	3.7	NA	< 2.0	102%	70%	130%	95%	80%	120%	94%	70%	130%	
Cobalt	9144184 9	9144184	<0.5	<0.5	NA	< 0.5	103%	70%	130%	96%	80%	120%	93%	70%	130%	
Copper	9144184 9	9144184	<1.0	<1.0	NA	< 1.0	107%	70%	130%	99%	80%	120%	92%	70%	130%	
Lead	9144184 9	9144184	<0.5	<0.5	NA	< 0.5	106%	70%	130%	96%	80%	120%	96%	70%	130%	
Molybdenum	9144184 9	9144184	1.7	1.9	NA	< 0.5	108%	70%	130%	92%	80%	120%	102%	70%	130%	
Nickel	9144184 9	9144184	<1.0	<1.0	NA	< 1.0	102%	70%	130%	93%	80%	120%	90%	70%	130%	
Selenium	9144184 9	9144184	<1.0	<1.0	NA	< 1.0	108%	70%	130%	94%	80%	120%	100%	70%	130%	
Silver	9144184 9	9144184	<0.2	<0.2	NA	< 0.2	105%	70%	130%	102%	80%	120%	106%	70%	130%	
Thallium	9144184 9	9144184	<0.3	<0.3	NA	< 0.3	107%	70%	130%	97%	80%	120%	97%	70%	130%	
Uranium	9144184	9144184	5.5	5.9	7.0%	< 0.5	105%	70%	130%	95%	80%	120%	96%	70%	130%	
Vanadium	9144184 9	9144184	<0.4	<0.4	NA	< 0.4	100%	70%	130%	93%	80%	120%	94%	70%	130%	
Zinc	9144184 9	9144184	<5.0	<5.0	NA	< 5.0	105%	70%	130%	97%	80%	120%	92%	70%	130%	
Mercury	9144184 9	9144184	<0.02	<0.02	NA	< 0.02	103%	70%	130%	103%	80%	120%	95%	70%	130%	
Chromium VI	9144184 9	9144184	<5	<5	NA	< 5	101%	70%	130%	102%	80%	120%	100%	70%	130%	
Cyanide	9140929		<2	<2	NA	< 2	100%	70%	130%	101%	80%	120%	102%	70%	130%	
Sodium	9146949		704	715	NA	< 500	98%	70%	130%	99%	80%	120%	103%	70%	130%	
Chloride	9135780		48	49	NA	< 100	92%	70%	130%	109%	70%	130%	106%	70%	130%	
Electrical Conductivity	9143868		3880	3900	0.5%	< 2	99%	90%	110%	NA			NA			
рН	9143868		7.70	7.60	1.3%	NA	100%	90%	110%	NA			NA			

Comments: NA signifies Not Applicable.

Duplicate Qualifier: 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.

Certified By:

Inis Verastegui

### **AGAT** QUALITY ASSURANCE REPORT (V1)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

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# Method Summary

CLIENT NAME: DS CONSULTANTS LTD.

PROJECT: 18-518-20

SAMPLING SITE

AGAT WORK ORDER: 18T322612 ATTENTION TO: Shafi Andseta

SAMPLING SITE.		SAIVIFLED BT.	
PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis	L	L.	
Gamma-Hexachlorocyclohexane	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
Heptachlor	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
Aldrin	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
Heptachlor Epoxide	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
Endosulfan	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
Chlordane	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
DDE	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
DDD	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
DDT	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
Dieldrin	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
Endrin	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
Methoxychlor	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
Hexachlorobenzene	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
Hexachlorobutadiene	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
Hexachloroethane	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
тсмх	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
Decachlorobiphenyl	ORG-91-5112	EPA SW-846 3510 & 8081	GC/ECD
F1 (C6 to C10)	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC E3421	GC / FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC E3421	GC / FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC E3421	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID
Dichlorodifluoromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Acetone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
trans- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl tert-butyl ether	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Benzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS



# Method Summary

CLIENT NAME: DS CONSULTANTS LTD.

#### PROJECT: 18-518-20

#### SAMPLING SITE:

AGAT WORK ORDER: 18T322612 ATTENTION TO: Shafi Andseta SAMPLED BY

O/ WILLING OTTE.		O/ WIT EED DT.	
PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Tetrachloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Styrene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
PCBs	ORG-91-5112	EPA SW-846 3510 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5112	EPA SW-846 3510 & 8082	GC/ECD
Water Analysis			
Antimony	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Barium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Boron	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chromium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Copper	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Lead	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Nickel	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Selenium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Silver	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Thallium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Uranium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Zinc	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Mercury	MET-93-6100	EPA SW-846 7470 & 245.1	CVAAS
Chromium VI	INOR-93-6034	SM 3500-Cr B	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE METHOD CN- 3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
Sodium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Chloride	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Electrical Conductivity	INOR-93-6000	SM 2510 B	PC TITRATE
рН	INOR-93-6000	SM 4500-H+ B	PC TITRATE

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Chain of Custody Record       If this is a Drinking Water sample, please         Report Information:         Consultants Ltd.         Consultants Ltd.         Contact:         Short:         Contact:				please use Dr	Image: See Drinking Water Chain of Custody Form (potable water intended for human consumption)         Regulatory Requirements:         (Please check all applicable boxes)						Arrival Temperatures: <u>1.9</u> <u>2</u> <u>1.6</u> Custody Seal Intact: <u>Yes</u> <u>No</u> <u>N/A</u> Notes: <u>9.0</u> <u>1.6</u> <b>Turnaround Time (TAT) Required:</b> <b>Regular TAT</b> <u>5 to 7 Business Days</u> <b>Rush TAT</b> (Rush Surcharges Apply) <u>3 Business</u> <u>2 Business</u> <u>Day</u> <b>OR</b> Date Required (Rush Surcharges May Apply):											
Contact: Shaf: And Setur Address: 6221 Highway 7, Un+ 16 Phone: 905-264-9393 Fax: Reports to be sent to: 1. Email: Shaf: And Setu @ ds consultants.ca 2. Email: Scan. Ell', Son @ ds cunsultants.ca					Image: Constraint of the second se				,													
Project Information: Project: 18-518-20 Site Location: Hultun Sampled By: Secon Ellicon				R	Is this submission for a Record of Site Condition?		Re Cer	port tifica	Guldeline	on Iysis No		Please provide prior notification for rush TAT *TAT is exclusive of weekends and statutory holidays For 'Same Day' analysis, please contact your AGAT CPM										
AGAT Quote #:  Please note: If quotation num  Invoice Information: Company: Contact: Address: Email:	PO: provided, client	will be billed full price	e for analysis. Yes M	Sa B G G W O P S SD SW	ample Matrix Legend Biota W Ground Water Oil Paint Soil O Sediment V Surface Water	Field Filtered - Metals, Hg, CrVI	and Inorganics	tals 1153 Metals (excl. Hydrides) O	123 123 125 125 126 120 128 128 128 128 128 128 128 128	tals Scan	tory custom metals	s: Ovoc Obtex Othm	ractions 1 to 4			Total 🗆 Aroclors	chlorine Pesticides		Č	3	6_	
Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y/N	Metals		ORPs:   ORPs:   ORPs:	Full Me		Volatile	CCME F	ABNS	PAHS	PCBs:		Sewer		Hd	00	
AR-MWZ AR-MWB AR-MW9 AR-MW10	Judr. LI	10:30 11:45 12:50 13:30	9 9 2	GW			XXX									×			XXX	×××	×	
AR - MWIZ AR - MWIZ QA/QC I Trip Blank Field Blank		14:30	6 6 9 3 3	4			XXX												XXXXX	X	X	
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