Phase Two Environmental Site Assessment

951 Gladstone Avenue & 145 Loretta Avenue North
Ottawa, Ontario

Prepared for:
Trinity Development Group Inc.

August, 2017

DST File No.: TS-SO-029563

DST Consulting Engineers Inc.
2150 Thurston Drive, Suite 203, Ottawa, Ontario, K1G 5T9
Tel.: (613) 748-1415 Fax: (613) 748-1356 E-mail: ottawa@dstgroup.com

EXECUTIVE SUMMARY

DST Consulting Engineers Inc. (DST) was retained by Trinity Development Group Inc. (hereinafter referred to as the "Client") to conduct a Phase Two Environmental Site Assessment (ESA) for the properties located at 951 Gladstone Avenue and 145 Loretta Avenue North in Ottawa, Ontario (herein referred to as "the Site" or the "Phase Two Property"). DST has performed this Phase Two ESA in accordance with the Ontario Regulation 153/04 Records of Site Condition, as amended.

DST understands that the Client intends to redevelop the Site with a multi-tenant residential and commercial development, including mid and high rise residential buildings, commercial/retail spaces, ground surface parking lot, two levels of below ground parking, sewers and water pipes installation. The proposed new buildings include one 18-storey tower, one 20-storey tower, one building with a 20-storey tower and a 5-storey podium, and one 5-storey building. It should be noted that DST completed a geotechnical investigation for this proposed development concurrently with this Phase Two ESA, and the results of this investigation will be submitted separately.

The Site is an irregular parcel of land approximately 1.1 ha (2.6 acres) in size located in Ottawa, Ontario. The property is bordered by: a commercial property (131 Loretta Avenue North) to the north, a railway corridor to the east, Gladstone Avenue to the south, and Loretta Avenue North followed by an industrial property (975 Gladstone Avenue – former British American Bank Note) to the west. The Site is currently zoned as General Industrial IG (1).

The objective of a Phase Two ESA is to conduct intrusive investigation with sample collection and analyses to confirm the presence or absence of potential contaminants of concern in soils and groundwater, based on Areas of Potential Environmental Concern (APECs) identified within the following report:

- *Phase One Environmental Site Assessment, 951 Gladstone Avenue & 145 Loretta Avenue North, Ottawa, Ontario*, July 2017, DST Consulting Engineers Inc., DST File No. TS-SO-029563.

The field program of the Phase Two ESA consisted of the following activities:

- The advancement of fourteen (14) boreholes (BH2017-01 through BH2017-13 and BH2017-5A) to depths of ranging from approximately 1.8 m below ground surface (bgs) to 16.6 m bgs. It should be noted that BH2017-12 was advanced for geotechnical purposes only;
- Groundwater monitoring wells were installed in ten (10) boreholes (BH2017-02 through BH2017-11);
- The collection of soil samples, including field duplicate samples, from thirteen of the advanced boreholes, for laboratory analysis of contaminants of potential concern (COPCs);

- Twenty-five (25) soil samples, including two (2) field duplicate samples, were analysed for petroleum hydrocarbons (PHC) fractions F1 – F4 (PHCs F1-F4) and benzene, toluene, ethylbenzene, and xylenes (BTEX);
- Thirteen (13) soil samples, including one (1) field duplicate samples, were analysed for metals;
- Ten (10) soil samples were analysed for volatile organic compounds (VOCs), metals;
- Five (5) soil samples were analysed for polycyclic aromatic hydrocarbons (PAHs); and,
- One (1) soil sample was analysed for pH and four (4) soils samples were analysed for grain size.

- The collection of groundwater samples, including field duplicate samples, from seven (7) newly installed monitoring wells and one existing monitoring well (Unknown 1), for laboratory analysis of COPCs;
  - Eleven (11) ground water samples, including one field duplicate sample for each parameter, were analysed for each of PHCs F1-F4, BTEX, VOCs and metals & inorganics.
- The submission of one (1) field blank water sample for laboratory analysis of petroleum hydrocarbon (PHC) fractions F1 – F4, benzene, toluene, ethylbenzene and xylenes (BTEX) and volatile organic compounds (VOCs), and one (1) trip blank water sample for laboratory analysis of volatile compounds (PHC F1, BTEX and VOCs).

Based on the field observations and laboratory analytical results, DST noted the following:

- The general stratigraphy at the Site consisted of the following:
  - Asphalt: A layer of asphalt ranging in thickness from 25 mm to 85 mm was present at some of the boreholes;
  - Fill Materials: Sand and gravel fill materials were present within all the boreholes and extended to depths ranging from 0.7 m bgs to 4.3 m bgs;
  - Clay: A layer of clay and silty clay with trace to some sand and gravel was present from a minimum depth of 0.7 m bgs to a maximum depth of 8.3 m bgs;
  - Probable Till: A layer of probable till consisting of sand and gravel was present in some of the boreholes at depths ranging from 7.3 m bgs to 9.0 m bgs; and
  - Bedrock: Bedrock was encountered within some of the boreholes at depths ranging from 6.4 m bgs to 9.0 m bgs.

- Current and historic soil impacts, defined as concentrations of contaminants above the Ontario Ministry of the Environment and Climate Change (MOECC) Table 3 standards for residential/parkland/ institutional property use, coarse textured soils, were identified at the Site as follows:

- Southwest portion of the Site, near the former on-Site retail fuel outlet (RFO). Based on the results of this Phase Two ESA and historical data, the native soils in this area were found to be impacted with PHC F1-F2, BTEX, naphthalene, 1,1,2-trichloroethane and hexane; while fill materials in this area were found to be impacted with lead and zinc;
- A suspected waste oil tank was encountered within BH2017-05A, which was located to the northeast of the building associated with 951 Gladstone Avenue. Soils near this area were found to be impacted by PHC F1-F3, 1,2-dichloroethane, and vanadium;
- Northwest portion of the Site, near BH2017-07. The soils were found to be impacted with PHC F2-F3; and,
- Fill materials at the Site, ranging in maximum depths of 1.4 m bgs to 4.3 m bgs. These fill materials were found to be impacted with 1,2-dichloroethane, vanadium, various PAHs, arsenic, lead, cobalt, and zinc, at varying locations across the Site.

- Current and historic groundwater impacts were identified at the Site as follows:
  - Southwest portion of the Site, near the former on-Site retail fuel outlet. The groundwater in this area was found to be impacted with PHC F1-F2, benzene, xylenes, hexane and lead;
  - Northeast of the Site building associated with 951 Gladstone Avenue. Groundwater in this area was found to be impacted 1,2-dichloroethane and methylene t-butyl ether (MTBE); and,
  - East of the Site building associated with 145 Loretta Avenue North. Groundwater in this area was found to the impacted with 1,2-dichloroethane.

- The results from metals in the soil samples collected from BH2017-11 and BH2017-13 indicate the presence of potentially hazardous soil materials. Toxicity Characteristic Leachate Procedures (TCLP) analysis was performed on these soils to confirm if the soil is hazardous. Based on the laboratory analytical test results, the submitted samples were below the applicable O.Reg. 558/00 leachate criteria for all of the analyzed chemical parameters, and therefore the soils would be considered non-hazardous for disposal purposes.

Based on the results of this Phase Two ESA and the historical data available for the Site, to proceed with the proposed redevelopment of the Site, the following will be required:

1) A Record of Site Condition (RSC) will need to be filed with the MOECC. To file this RSC, the extents of the identified soil and groundwater contamination at the Site will need to be delineated laterally and vertically. Additionally, all the identified areas of soil or groundwater contamination would be required to be remediated to at or below the applicable site condition standards, and/or a risk assessment be completed for areas where contamination is present above the applicable site condition standards.

2) Contaminated media will be required to be managed at the Site during redevelopment activities as follows:

Location	Estimated Quantity of Impacted Material	Recommended Action
Soils		
Southwest portion of the Site.	6,350 m^3	Excavate and dispose in a MOECC approved landfill.
East-central portion of the Site	200 m^3	
West-central portion of the Site	700 m^3	
Fill Materials over the entire Site (Non-Hazardous Estimate)	8,100 m^3	
Fill Materials over the entire Site (potentially Hazardous Estimate)	100 m^3	
Total	**15,450 m^3**	
Groundwater		
Entire Site	5,100,000 L	Manage during construction dewatering via pumping, on-Site treatment, and disposal; or via pumping, and off-Site disposal at a treatment facility.

Further discussion regarding the above mentioned recommended remedial options and estimated quantities will be provided in a remedial options Letter report, which will be submitted separately.

TABLE OF CONTENTS

LIST OF TABLES

APPENDICES

1. INTRODUCTION

DST Consulting Engineers Inc. (DST) was retained by Trinity Development Group Inc. (herein referred to as the "Client") to conduct a Phase Two Environmental Site Assessment (ESA) for the properties located at 951 Gladstone Avenue and 145 Loretta Avenue North in Ottawa, Ontario (herein referred to as "the Site"). The Site Location Map and a Site Plan are provided in Figures 1 and 2, respectively (refer to Appendix A).

The objective of a Phase II ESA is to conduct intrusive investigation with sample collection and analyses to confirm the presence or absence of potential contaminants of concern in soils and groundwater, based on Areas of Potential Environmental Concern (APECs) identified within the following report:

- Phase One Environmental Site Assessment, 951 Gladstone Avenue & 145 Loretta Avenue North, Ottawa, Ontario, July 2017, DST Consulting Engineers Inc., DST File No. TS-SO-029563.

The APECs are shown on Figure 2. The investigation was performed in accordance with professional standards and procedures, which generally reflect the guidance provided under Ontario Regulation (O. Reg.) 153/04, as amended. DST understands that this Phase Two ESA was completed for due diligence purposes prior to the potential purchase of the Site and that a Record of Site Condition (RSC) will not be submitted with the Ontario Ministry of the Environment and Climate Change (MOECC) at this time.

1.1 Site Description

The Site is an irregular parcel of land approximately 1.1 ha (2.6 acres) in size located in Ottawa, Ontario (refer to Figure 1 – Site Location Map in Appendix A). The Site is bordered by: a commercial property (131 Loretta Avenue North) to the north, a railway corridor to the east, Gladstone Avenue to the south, and Loretta Avenue North to the west. The Site is currently zoned as General Industrial IG (1).

The Site is occupied by two multi-tenant commercial/light industrial buildings (Site buildings). The Site building associated with 145 Loretta Avenue North is a two-storey building with a single-level full basement located on the north portion of the Site, and was constructed in approximately 1952. The Site building associated with 951 Gladstone Avenue consists of three separate sections built in stages located on the south portion of the Site; the north portion of this building consists of a two storey brick building with no basement, which was constructed in approximately 1924; the central portion consists of a single-storey concrete block building with no basement, which was constructed in approximately the early 1950s; and, the east portion consists of a three-storey with a single-level basement/parking garage, which was constructed in approximately 1924. Exterior areas of the Site consisted of asphalt-paved surface parking and driveway areas, concrete walkways, or landscaped areas.

The Site is legally described as:

- 951 Gladstone Avenue: Property Identification Number (PIN) 04107-0276 (LT) – Lots 1-3 (west side of Champagne Avenue), Block C, Plan 73, Lots 1-4 (east side of Loretta Avenue), Block C, Plan 73, & Part of Champagne Avenue, Plan 17, as in N620724; and
- 145 Loretta Avenue North: PIN 04107-0013 (LT) – Lots 5-8, Block C, Plan 73, east side of Loretta Avenue.

1.2 Property Ownership

The Site is owned by 2561592 Ontario Inc. and managed by The Regional Group of Companies Inc. The contact information for the property owner's representative is as follows:

- Mr. Tal Scher (Director of Property Services) of The Regional Group of Companies Inc.
  - Telephone: (613) 230-2100 ext. 7219
  - Fax: (613) 230-9880
  - Email: tscher@regionalgroup.com
  - Business Address: 1737 Woodward Drive, 2nd Floor, Ottawa, Ontario, K2C 0P9

DST was retained by the Client to complete a Phase One and Phase Two ESA in regards to the potential purchase of the Site by the Client. The contact information for the Client's representative is as follows:

- Mr. Ryan Moore (Senior Development Manager) of Trinity Development Group Inc.
  - Telephone: (416) 255-8800 ext. 255
  - Fax: (416) 255-8355
  - Email: rmoore@trinity-group.com
  - Business Address: Sun Life Financial Tower, 3250 Bloor Street West, Suite 1000, Toronto, Ontario, M8X 2X9

1.3 Current and Proposed Future Uses

The Site is currently utilized for commercial and light industrial purposes. The proposed future use of the Site is multi-tenant residential and commercial development, including mid and high rise residential building, commercial/retail spaces, ground surface parking lot, two levels of below ground parking, sewers and water pipes installation. The proposed new buildings include one 18-storey tower, on 20-storey tower, one building with a 20-storey tower and a 5-storey podium, and one 5-storey building. The proposed buildings are as follows:

1) Building 1, for residential and commercial use, approximately 160,000 ft^2 and 1,900 ft^2, respectively.
2) Building 2, for residential and commercial use, approximately 177,000 ft^2 and 4,300 ft^2, respectively.
3) Building 3, for residential and commercial use, approximately 216,500 ft^2 and 12,340 ft^2, respectively.
4) Building 4, for residential and commercial use, approximately 33,660 ft^2 and 3,600 ft^2, respectively.

As the proposed future use of the Site would change the use of the property from commercial/industrial to residential/commercial, section 168.3.1 of the *Environmental Protection*

Act would prohibit the proposed future use of the Site unless a Record of Site Condition is filed with the Ontario Ministry of the Environment and Climate Change (MOECC).

1.4 Applicable Site Condition Standards

Based on Site conditions, the following Site Condition Standards were considered applicable to the Site:

Soil:

- Ontario Ministry of the Environment and Climate Change (MOECC) "Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act", April 2011, Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition. Residential/Parkland/Institutional Property Use, coarse textured soils.

Groundwater:

- MOECC "Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act", April 2011, Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition. All Type of Property Use, coarse textured soils.

The rationale for the selection of the above-referenced Site Condition Standards is as follows.

1.4.1 Potable Water Well Locations

The Site and all properties within 250 m of the Site are serviced with potable water via the City of Ottawa municipal system which obtains its water from the Ottawa River. A search of the available MOECC well records indicates no potable water wells were identified within 250 m of the Site.

1.4.2 Environmentally Sensitive Sites

The following conditions may result in a site being considered environmentally sensitive according to O. Reg. 153/04.

1.4.2.1 Areas of Natural Significance

According to O. Reg. 153/04, if a site is within an area of natural significance or is adjacent to or within 30 m of an area of natural significance, it is considered environmentally sensitive. The following table presents the criteria for areas of natural significance as they are defined in O. Reg. 153/04 and the actual site conditions as they relate to the criteria.

Table 1-4: Areas of Natural Significance Definitions and Site Conditions

Definition Under O. Reg. 153/04 *"area of natural significance" means any of the following:*	**Site Conditions and Characteristics**
1. *An area reserved or set apart as a provincial park or conservation reserve under the Provincial Parks and Conservation Reserves Act, 2006.*	The Site is not located within or adjacent to a provincial park according to the Ontario Ministry of Natural Resources and Forestry (MNRF) nor is it located within or adjacent to a conservation reserve under the *Provincial Parks and Conservation Reserves Act, 2006* (MNRF, 2014).

Definition Under O. Reg. 153/04 *"area of natural significance" means any of the following:*	**Site Conditions and Characteristics**
2. *An area of natural and scientific interest (life science or earth science) identified by the Ministry of Natural Resources as having provincial significance.*	The Site is not located within or adjacent to an area of natural and scientific interest (life or earth sciences) (MNRF, 2014).
3. *A wetland identified by the Ministry of Natural Resources and Forestry as having provincial significance.*	The Site is not part of an area or within 30 m of an area identified by the MNRF as being a provincially significant wetland (MNRF, 2014).
4. *An area designated by a municipality in its official plan as environmentally significant, however expressed, including designations of areas as environmentally sensitive, as being of environmental concern and as being ecologically significant.*	The Site and surrounding properties are not considered to be environmentally sensitive, of environmental concern or ecologically significant according to the City of Ottawa's Official Plan.
5. *An area designated as an escarpment natural area or an escarpment protection area by the Niagara Escarpment Plan under the Niagara Escarpment Planning and Development Act.*	The Site and surrounding properties are not part of the Niagara Escarpment natural/protection areas as defined by the Niagara Escarpment Planning and Development Act (Niagara Escarpment Commission, 2008).
6. *An area identified by the Ministry of Natural Resources as significant habitat of a threatened or endangered species.*	This Site and surrounding properties are not in an area identified as significant habitat of a threatened or endangered species.
7. *An area which is habitat of a species that is classified under section 7 of the Endangered Species Act, 2007 as a threatened or endangered species.*	The Site and surrounding properties are not in an area that is classified as habitat for a threatened or endangered species.
8. *Property within an area designated as a natural core area or natural linkage area within the area to which the Oak Ridges Moraine Conservation Plan under the Oak Ridges Moraine Conservation Act, 2001 applies.*	The Site and surrounding properties are not part of the Oak Ridges Moraine core/linkage areas as defined by the Oak Ridges Moraine Act (MNRF, 2014).
9. An area set apart as a wilderness area under the Wilderness Areas Act;	The area is not set apart as a wilderness area under the Wilderness Area Act (MNRF, 2010).

Therefore, based on the information provided in the above table, the Site and surrounding properties are not considered to be an area of natural significance according to O. Reg. 153/04.

1.4.3 Shallow Soil Conditions

During drilling, bedrock was encountered at depths ranging from approximately 6.4 m below ground surface (bgs) to 9.0 m bgs.

Based on the results of the drilling activities, an area greater than 1/3 of the Site has greater than 2 m of soil (not including fill) overlying the bedrock. Therefore, the Site is not a shallow soil site according to O. Reg. 153/04 (as amended).

1.4.4 Surface Water Features

There are no surface water features on Site or on the properties surrounding the Site.

1.4.5 Soil Texture

Grain size analyses were completed for four soil samples, three samples from fill materials and one sample native materials. The results of the grain size analysis indicate, the fill materials contain 50% or more by mass of particles that are greater than 75 µm in mean diameter, while the native materials contain less than 50% by mass of particles that are greater than 75 µm in mean diameter.

Based on the stratigraphy at the Site (see Section 5.1), it was estimated that coarse textured soils occupy a volume which is marginally greater than one third of the volume of the soils at the property. Therefore, based on the requirements of O. Reg. 153/04, the site condition standards for coarse textured soils were applied for this investigation.

1.4.6 Land Use

The Site is currently used for commercial/light industrial purposes and DST understands that the proposed future land use of the Site is residential and commercial. Therefore, the land use of the Site for determining standards under O. Reg. 153/04 (as amended) is residential.

2. BACKGROUND INFORMATION

2.1 Physical Setting

Topographic information obtained from the Ontario Base Map (OBM) series indicated that the elevation of the Site is approximately 64 meters above mean sea level (m.a.s.l.). The regional topography appears to slope downwards towards the northwest. Surface water at the Site evidently drained into on-Site catch basins which discharged to the municipal sewer system, or infiltrated into the on-Site landscaped areas.

There are no surface water bodies within a 250-m radius of the Site. The closest major surface water body to the Site is the Ottawa River, located approximately 1.0 km to the northwest of the Site. Based on the topography. Based on the regional topography and location of the nearest surface water body, the inferred direction of the regional shallow horizontal groundwater flow is to the northwest. Depending on climate conditions and the amount of surface water available, ditching, underground services, and ground surface may affect the shallow groundwater flow on a local level.

According to the Bedrock Geology of Ontario map accessed via Google Earth, the Site and Phase One Study Area are underlain by bedrock consisting of limestone, dolostone, shale, arkose and sandstone from the Ottawa Group, Simcoe Group and Shadow Lake Formation. The Ontario Geological Survey Quaternary Geology of Ontario map accessed via Google Earth, shows the Site as being underlain by Peleozoic bedrock. Based on the subsurface conditions encountered during this Phase Two ESA, the bedrock at the Site was confirmed to be limestone and ranged in elevation from approximately 6.4 m bgs to 9.0 m bgs.

2.2 Past Investigation

Two previous environmental reports were provided by the Client to DST for review.

- *Limited Phase II Environmental Site Assessment and Historical Review, 941-971 Gladstone Avenue, Ottawa, Ontario*. Prepared for The Regional Group of Companies Inc., prepared by DST Consulting Engineers Inc., dated June 2009 (hereinafter referred to as the "2009 DST Phase II ESA").
- *Phase I Environmental Site Assessment, 145 Loretta Avenue North, Ottawa, Ontario*. Prepared for The Regional Group of Companies Inc., prepared by Pinchin Environmental Ltd. (Pinchin), dated April 2013 (hereinafter referred to as the "2013 Pinchin Phase I ESA").

2009 DST Phase II ESA

DST completed a limited historical review for the property located at 941 to 971 Gladstone Avenue (referred to in this Phase One ESA report as 951 Gladstone Avenue). The purpose of the limited historical review was to document APECs at the Site caused by current and historical use of the Site or surrounding properties. The limited historical review identified the following pertinent information:

- The east portion of the Site building associated with 951 Gladstone Avenue was constructed in 1924;
- The construction dates of the north and central portions of this building were not listed;
- This portion of the Site was initially constructed for use as a bakery (The Standard Bread Co.);
- The historical records review identified the following potential environmental concerns for this portion of the Site:
    - British American Bank Note printing company (975 Gladstone Avenue) was located to the west of the Site (across Loretta Avenue North). Several groundwater monitoring well were observed at this facility along with an inferred groundwater treatment facility;
    - A Mr. Gas Ltd. Retail Fuel Outlet (RFO) was historically located on the southwest corner of this Site. A brief decommissioning report issued by Mr. Gas Ltd. indicated that two 22,700 L underground storage tanks (USTs) as well as associated piping and pump islands, were removed with 17.5 metric tonnes of impacted soil in 1994. DST noted several concerns with this decommissioning letter and noted that it should not be relied upon to provide an accurate picture of the environmental conditions in this location;
    - A UST was located to the west of the building associated with 145 Loretta Avenue North according to the 1956 Fire Insurance Plan (FIP);
    - Love Printing Services was historically located in the east portion of the building associated with 951 Gladstone Avenue;
    - Printing operations David Berman Typographic Ltd. (950 Gladstone Avenue) were present to the south (across Gladstone Avenue) of the Site;
    - Storage of used cars, drums and miscellaneous debris was located on the southeast portion of the Site;
    - An aboveground storage tank (AST) was potentially historically located within the east portion of the building associated with 951 Gladstone Avenue according to a 1956 FIP;
    - A railway spur line was historically located on the southeast portion of the Site according to a 1956 FIP; and
    - Fuel storage tanks and pumps were located at 175 Loretta Avenue North, to the south (across Gladstone Avenue) of the Site.

A Limited Phase II ESA was competed to investigate the potential environmental concerns associated with the British American Bank Note facility and the former Mr. Gas RFO. The Limited Phase II ESA consisted of drilling three boreholes (BHMW1 to BHMW3) to depths ranging from 8.05 m bgs to 10.54 m bgs, and each borehole was completed with a groundwater monitoring well. The locations of the boreholes/monitoring wells are:

- BHMW1: Northwest exterior corner of the north portion of the Site building associated with 951 Gladstone Avenue;
- BHMW2: Southwest corner of the Site; and
- BHMW3: Southwest corner of the Site.

The generalized soils stratigraphy encountered at the Site consisted of asphalt cover overlying a sand and gravel fill, to an average depth of 1.95 m bgs, underlain by a typically 2.0 m thick clay layer followed by a sandy silt till overlying limestone bedrock. Bedrock was encountered at depths ranging from 5.9 m bgs to 7.3 m bgs.

Groundwater was encountered within two monitoring wells (BHMW2 and BHMW3). BHMW1 was found to be dry. The depth to groundwater ranged from 4.88 m bgs (BHMW3) to 6.39 m bgs (BHMW2).

Ten (10) soil samples and two (2) groundwater samples were collected and submitted for laboratory analysis of petroleum hydrocarbon (PHC) fractions F1 to F4, benzene, toluene, ethylbenzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), metals, and volatile organic compounds (VOCs).

Two (2) groundwater samples were collected and submitted for laboratory analysis of PHC fractions F1 to F4, BTEX, PAHs and metals.

Based on the laboratory analytical test results, concentrations of the analyzed parameters exceeded the current applicable 2011 Ontario Ministry of the Environment and Climate Change (MOECC) Table 3 Full depth generic site condition standards in a non-potable ground water condition (residential/parkland/institutional property use – coarse textured soils) (MOECC Table 3 Standards) as follows:

<u>BHMW1</u>

- Soils
    - Metals: Antimony and lead (0 to 0.6 m bgs).

<u>BHMW2</u>

- Soils
    - BTEX: Benzene, toluene and xylenes (4.9 to 5.5 m bgs);
    - Metals: Lead and zinc (0.6 to 1.2 m bgs); and,
    - PAHs: Naphthalene (4.9 to 5.5 m bgs).
- Groundwater
    - PHCs: F2.

<u>BHMW3</u>

- Soils
    - PHCs: F1 (4.2 to 4.8 m bgs);

  - BTEX: Benzene, toluene, ethylbenzene and xylenes (4.2 to 4.8 m bgs);
  - PAHs: Naphthalene (4.2 to 4.8 m bgs); and,
  - VOCs: 1,1,2-Trichloroethane (4.2 to 4.8 m bgs). Additionally, the laboratory reportable detection limits (RDLs) were above the current applicable standards for most the analyzed parameters.

- Groundwater
  - PHCs: F2;
  - BTEX: Benzene, ethylbenzene, and xylenes.

Based on the results of the Limited Phase II ESA, DST recommended that a Phase One ESA be completed in accordance with O. Reg. 153/04. Furthermore, DST recommended that a Supplemental Phase Two ESA be completed in accordance with O. Reg. 153/04 to delineate the above-noted impacts and to investigate the remaining APECs. Additionally, DST recommended the remediation of the impacted fill materials, soils, and groundwater at the Site.

2013 Pinchin Phase I ESA

Pinchin completed a Phase I ESA and groundwater sampling program on the property associated with 145 Loretta Avenue North in 2013. The 2013 Pinchin Phase I ESA report contained the following pertinent information:

- The building associated with 145 Loretta Avenue North was constructed in approximately 1952;
- Terra Pro Corporation (landscaping company) occupied the first floor of the building, Digital Pre-Press Integration Inc. (IT outsourcing company) occupied the second floor of the building, and a portion of the basement was utilized for automotive repair and servicing;
- A 990 L steel single-walled AST containing waste oil was located in the basement of this Site building. Evidence of spills was observed near this AST, and a floor drain connected to a sump pit was observed near these stains. An oil sheen was observed on the surface of the water within this sump pit. It was reported to Pinchin that this sump did not drain into the municipal sanitary sewer system;
- A closed-loop parts washer containing Varsol was located in the basement of the Site building;
- A 2,470 L steel double-walled AST containing gasoline was located on the east-central portion of the Site;
- A 1,345 L steel double-walled AST containing diesel was located on the east-central portion of the Site;
- Two ASTs containing gasoline and diesel were located on the east-central portion of the Site;

- A levelometer (indicative of a UST) was observed in the basement boiler room on the north interior wall of the Site building. It was reported to Pinchin that this Site building was formerly heated with furnace oil from a UST located along the north exterior elevation of the Site building;
- Five groundwater monitoring wells were observed within the asphalt paved area to the north of the Site building;
- A railway line was located to the east of the Site;
- According to a 1956 FIP, this portion of the Site was occupied by Bell Telephone Co., and that a UST was located along the west elevation of this Site building;
- British American Bank Note Co. Limited, a printing facility, was located approximately 15 m west of the Site according to a 1956 FIP;
- A gasoline UST was located approximately 10 m north of the Site; and
- A Phase I ESA and a Phase II ESA were completed for this property by AGRA Earth & Environmental Limited (AGRA) in May 2000 and November 2000, respectively. It should be noted that the above-noted reports were not available for DST to review.

According to Pinchin's summary of the AGRA Phase II ESA report, AGRA completed a Phase II ESA to investigate the historical RFO on the property associated with 951 Gladstone Avenue. This Phase II ESA reportedly consisted of drilling three boreholes with each borehole completed with a groundwater monitoring well. Soil samples were collected and submitted for laboratory analysis of total petroleum hydrocarbons (gasoline/diesel and heavy oils) (TPH) and VOCs. Groundwater samples were collected and submitted for laboratory analysis of TPH, VOCs, and alcohols.

The criteria used to compare the soil and groundwater laboratory analytical test results were the Ontario Ministry of the Environment (MOE) generic coarse-grained Table B soils criteria for industrial land us for a non-potable groundwater condition (Table B criteria).

According to Pinchin's summary, all the soil and groundwater samples met the then applicable Table B criteria for all the analyzed parameters, except for one groundwater sample collected near the east elevation of the Site building, which exceeded the criteria for 1, 2-dichloroethane.

Pinchin completed a groundwater monitoring program as part of this Phase I ESA. This groundwater monitoring program consisted of the collection of four groundwater samples from four on-Site monitoring wells to the north of the Site building. The groundwater samples were submitted for laboratory analysis for PHC fractions F1 to F4 and VOCs. Based on the laboratory analytical test results, the submitted groundwater samples were below the current applicable MOECC Table 3 standards for all the analyzed chemical parameters. Pinchin concluded that based on these results, the on-Site USTs, neighbouring printing facility and previously identified 1,2-dichloroethane exceedance "nothing was identified that is likely to result in potential subsurface impacts at this Site." And it was Pinchin's opinion that no further work at the Site was required at that time.

3. SCOPE OF THE INVESTIGATION

3.1 Overview of Site Investigation

The objective of a Phase Two ESA is to conduct intrusive investigation with sample collection and analyses to confirm the presence or absence of potential contaminants of concern in specific media, as identified during a Phase I ESA. The soil and groundwater investigation was conducted in accordance with the requirements of O. Reg. 153/04, as amended.

The scope of work of the investigation included the following activities:

1. Obtaining underground utility clearances and locates;
2. The advancement of fourteen (14) boreholes (BH2017-01 through BH2017-13 and BH2017-5A) to depths of ranging from approximately 1.8 m bgs to 16.6 m bgs. It should be noted that BH2017-12 was advanced for geotechnical purposes only;
3. Groundwater monitoring wells were installed in ten (10) boreholes (BH2017-02 through BH2017-11);
4. The collection of soil samples, including field duplicate samples, from thirteen (13) advanced boreholes (excluding BH2017-12), for laboratory analysis of contaminants of potential concern (COPCs):
    a. Twenty-five (25) soil samples, including one (2) field duplicate samples, were analysed for petroleum hydrocarbons (PHC) fractions F1 – F4 (PHCs F1-F4) and benzene, toluene, ethylbenzene, and xylenes (BTEX);
    b. Thirteen (13) soil samples, including one (1) field duplicate samples, were analysed for metals;
    c. Ten (10) soil samples were analysed for volatile organic compounds (VOCs), metals, and polycyclic aromatic hydrocarbons (PAHs);
    d. Five (5) soil samples were analysed for polycyclic aromatic hydrocarbons (PAHs); and
    e. One (1) soil sample was analysed for pH and four (4) soils samples were analysed for grain size.
5. The collection of groundwater samples, including field duplicate samples, from seven (7) newly installed monitoring wells and one (1) existing monitoring well (hereinafter referred to as 'Unknown 1"), for laboratory analysis of COPCs:
    a. Eleven (11) ground water samples, including one field duplicate sample for each parameter, were analysed for each of PHCs F1-F4, BTEX, VOCs and metals & inorganics.
6. The submission of one (1) field blank water sample for laboratory analysis of PHCs F1 – F4, BTEX and VOCs, and one (1) trip blank water sample for laboratory analysis of volatile compounds (PHC F1, BTEX and VOCs);

7. The completion of boreholes/monitoring wells locates using a handheld global positioning system (GPS) unit;
8. The completion of the relative elevation survey of monitoring wells at the Site to establish the local groundwater flow direction; and,
9. The preparation of a Phase Two ESA report documenting field observations and measurements, sampling locations, analytical sample results and subsequent compliance evaluation with environmental guidelines, as well as recommendations regarding further work, as required.

The APECs identified by DST's Phase One ESA see Section 3.3 were investigated through the above-noted sampling locations as follows:

APEC	Location of APEC on Site	Borehole	Monitoring Well
APEC 1 Fill Materials	Entire Site	BH2017-01 through BH2017-11, and BH2017-13	-BH2017-02 -BH2017-04 -BH2017-05 -BH2017-06 -BH2017-07 -BH2017-09 -Unknown 1
APEC 2 On-Site AST	Northeast portion of the Site	-BH2017-10 -BH2017-11 -BH2017-13	-BH2017-11
APEC 3 Former On-Site RFO	Southwest portion of the Site	-BH2017-01 -BH2017-02	-BH2017-02
APEC 4 Former On-Site UST	West-central portion of the Site	-BH2017-06 -BH2017-08	-BH2017-06
APEC 5 Former On-Site AST	Southeast portion of the Site	-BH2017-04	-BH2017-04

APEC	Location of APEC on Site	Borehole	Monitoring Well
APEC 6 Former Automobile Service Garage	Central Portion of Site	-BH2017-05 -BH2017-05A -BH2017-08 -BH2017-09	-BH2017-05 -BH2017-09
APEC 7 Former Printing Facility	Southeast Portion of Site	-BH2017-03 -BH2017-04 -BH2017-05 -BH2017-05A	-BH2017-04 -BH2017-05
APEC 8 Former Rail Spur	Southeast Portion of Site	-BH2017-04 -BH2017-05 -BH2017-05A	-BH2017-04 -BH2017-05
APEC 9 Adjacent UST	North Portion of the Site	-BH2017-11	-BH2017-11
APEC 10 Rail Tracks	East Portion of Site	-BH2017-03 -BH2017-04 -BH2017-05 -BH2017-05A -BH2017-09 -BH2017-12 -BH2017-13	-BH2017-04 -BH2017-5 -BH2017-09
APEC 11 Ordnance Depot	East Portion of Site	-BH2017-03 -BH2017-04 -BH2017-05 -BH2017-05A -BH2017-09 -BH2017-12 -BH2017-13	-BH2017-04 -BH2017-5 -BH2017-09

APEC	Location of APEC on Site	Borehole	Monitoring Well
APEC 12 Private Fuel Outlet	Southeast Portion of Site	-BH2017-03 -BH2017-04	-BH2017-04
APEC 13 Printing Facility	West Portion of Site	-BH2017-01 -BH2017-02 -BH2017-06 -BH2017-07 -BH2017-08 -BH2017-10 -BH2017-11	-BH2017-02 -BH2017-06 -BH2017-07 -BH2017-11 -Unknown 1

The locations of the APECs are shown on Figure 2.

3.2 Media Investigated

Groundwater sampling and analysis was included within this field investigation. The reasons for the inclusion of groundwater is as follows:

- Based on the identified APECs within the DST Phase One ESA report, it is possible for COPCs associated with these APECs to migrate from the sub-surface soils to the groundwater, which would cause contaminant impacts to the groundwater.

Sediment sampling and analysis was not included within this field investigation because no surface water bodies were present on the Site and therefore no sediment was present.

3.3 Phase One Conceptual Site Model

The PCAs identified within the Phase One Study Area are provided in the table below:

PCA Number	Location of PCA	PCA	Description of PCA	Contributes to Area of Potential Environmental Concern?
1	On-Site - Entire Site	30 – Importation of Fill Material of Unknown Quality	According to the 2009 DST Phase II ESA report, a layer of sand and gravel fill materials underlies the Site to an average depth of approximately 1.95 m.	Yes (On-Site)
2	On-Site Northeast portion of the Site	28 – Gasoline and Associated Products Storage in Fixed Tank	A gasoline AST was located on the northeast portion of the Site	Yes (On-Site)

PCA Number	Location of PCA	PCA	Description of PCA	Contributes to Area of Potential Environmental Concern?
3	On-Site Southwest corner of the Site	28 – Gasoline and Associated Products Storage in Fixed Tank	A Mr. Gas Retail Fuel Outlet was historically located on the southwest portion of the Site. Soil and groundwater impacts have been identified in this area by the 2009 DST Phase II ESA report.	Yes (On-Site)
4	On-Site West-central portion of the Site	28 – Gasoline and Associated Products Storage in Fixed Tank	A UST was located on the west exterior side of the building associated with 145 Loretta Avenue North according to a 1956 FIP.	Yes (On-Site)
5	On-Site Southeast portion of the Site	28 – Gasoline and Associated Products Storage in Fixed Tank	An AST was potentially historically located within the east portion of the building associated with 951 Gladstone Avenue according to a 1956 FIP.	Yes (On-Site)
6	On-Site Central portion of the Site	27 – Garages and Maintenance and Repairs of Railcars, Marine Vehicles and Aviation Equipment	The basement of the building associated with 145 Loretta Avenue North was historically utilized as an automobile service garage.	Yes (On-Site)
7	On-Site Southeast portion of the Site	31 - Ink Manufacturing, Processing and Bulk Storage	The east portion of the building associated with 951 Gladstone Avenue was historically occupied by a printing facility (Love Printing Services).	Yes (On-Site)
8	On-Site Southeast portion of the Site	46 – Rail Yards, Tracks and Spurs	A rail spur was historically located on the southeast portion of the Site according to a 1956 FIP	Yes (On-Site)
9	Off-Site Adjacent property to the north of the Site	28 – Gasoline and Associated Products Storage in Fixed Tanks	A UST was located on the south portion of the adjacent property to the north (131 Loretta Avenue North) of the Site according to a 1956 FIP	Yes (Close Proximity)
10	Off-Site Adjacent to the east of the Site	46 – Rail Yards, Tracks and Spurs	A rail track was located to the east of the Site.	Yes (Close Proximity)

PCA Number	Location of PCA	PCA	Description of PCA	Contributes to Area of Potential Environmental Concern?
11	Off-Site Neighbouring property to the northeast of the Site	38 – Ordnance Use	An ordnance depot was historically located to the northeast (across a rail track) of the Site.	Yes (Close Proximity)
12	Off-Site Neighbouring property to the south of the Site	28 – Gasoline and Associated Products Storage in Fixed Tanks	A private fuel outlet was located on the neighbouring property to the south (175 Loretta Avenue North) of the Site	Yes (Close Proximity)
13	Off-Site Neighbouring property to the west of the Site	31 – Ink Manufacturing, Processing and Bulk Storage	A bank note printing facility (British American Bank Note) was located on the neighbouring property to the west (975 Gladstone Avenue) of the Site.	Yes (Close Proximity)

The following APECs were identified on the Site:

APEC	Location of APEC on Site	Potentially Contaminating Activity (PCA)	Location of PCA (on-Site or off-Site)	Contaminants of Potential Environmental Concern	Media Potentially Impacted
APEC 1 Fill Materials	Entire Site	30 – Importation of Fill Material of Unknown Quality	On-Site	- Metals	Soil, Groundwater
APEC 2 On-Site AST	Northeast portion of the Site	28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	- PHCs - BTEX	Soil, Groundwater
APEC 3 Former On-Site RFO	Southwest portion of the Site	28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	- PHCs - BTEX - Metal	Soil, Groundwater
APEC 4 Former On-Site UST	West-central portion of the Site	28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	- PHCs - BTEX	Soil, Groundwater
APEC 5 Former On-Site AST	Southeast portion of the Site	28 – Gasoline and Associated Products Storage in Fixed Tanks	On-Site	- PHCs - BTEX	Soil, Groundwater

APEC	Location of APEC on Site	Potentially Contaminating Activity (PCA)	Location of PCA (on-Site or off-Site)	Contaminants of Potential Environmental Concern	Media Potentially Impacted
APEC 6 Former Automobile Service Garage	Central Portion of Site	27 – Garage and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	On-Site	- PHCs - VOCs - BTEX	Soil, Groundwater
APEC 7 Former Printing Facility	Southeast Portion of Site	31 – Ink Manufacturing, Processing and Bulk Storage	On-Site	- PHCs - VOCs - BTEX - PAHs - Metals	Soil, Groundwater
APEC 8 Former Rail Spur	Southeast Portion of Site	46 – Rail Yards, Track and Spurs	On-Site	- PHCs - BTEX - PAHs - Metals	Soil, Groundwater
APEC 9 Adjacent UST	North Portion of the Site	28 - Gasoline and Associated Products Storage in Fixed Tanks	Off-Site	- PHCs - BTEX	Soil, Groundwater
APEC 10 Rail Tracks	East Portion of Site	46 – Rail Yards, Track and Spurs	Off-Site	- PHCs - BTEX - PAHs - Metals	Soil, Groundwater
APEC 11 Ordnance Depot	East Portion of Site	38 – Ordnance Use	Off-Site	- PHCs - VOCs - BTEX - PAHs - Metals	Soil, Groundwater
APEC 12 Private Fuel Outlet	Southeast Portion of Site	28 - Gasoline and Associated Products Storage in Fixed Tanks	Off-Site	- PHCs - BTEX - Metals	Soil, Groundwater

APEC	Location of APEC on Site	Potentially Contaminating Activity (PCA)	Location of PCA (on-Site or off-Site)	Contaminants of Potential Environmental Concern	Media Potentially Impacted
APEC 13 Printing Facility	West Portion of Site	31 – Ink Manufacturing, Processing and Bulk Storage	Off-Site	- PHCs - VOCs - BTEX - PAHs - Metals	Soil, Groundwater

The APECs are shown on Figure 2. No water bodies, areas of natural significance, or drinking water wells were identified within the Phase One Study Area.

The topography of the Site was analyzed using maps and information provided by the Ontario Base Maps series. The Ontario Base Map shows the ground surface elevation for the Site at approximately 64 metres above m.a.s.l. The regional topography appears to slope downwards towards the northwest. Based on visual observations during the Site visit, the Site and surrounding areas are generally flat with a gentle slope towards the railway corridor east.

There are no surface water bodies in the Phase One Study Area. The closest major surface water body to the Site is the Ottawa River, located approximately 1.0 km to the northwest of the Site. Based on the topography. Based on the regional topography and location of the nearest surface water body, the inferred direction of the regional shallow horizontal groundwater flow is to the northwest. Depending on climate conditions and the amount of surface water available, ditching, underground services, and ground surface may affect the shallow groundwater flow on a local level.

According to the Bedrock Geology of Ontario map accessed via Google Earth, the Site and Phase One Study Area are underlain by bedrock consisting of limestone, dolostone, shale, arkose and sandstone from the Ottawa Group, Simcoe Group and Shadow Lake Formation. According to the 2009 DST Phase II ESA, groundwater at the Site ranged from 4.88 m bgs to 6.39 m bgs during that investigation.

The expected shallow groundwater flow direction near the Site is to the north towards the Ottawa River.

The Ontario Geological Survey Quaternary Geology of Ontario map accessed via Google Earth, shows the Phase One Study Area as being underlain by Peleozoic bedrock.

Underground utilities at the Site generally consisted of storm drains within paved areas, catch basins within the service garage and car wash, underground hydro, communication lines, and water and sanitary connections. Based on the reported groundwater depth (at least 4.88 m bgs), it is not anticipated that underground utilities are present near the shallow groundwater table, and therefore it is unlikely that underground utilities will affect contaminant distribution and transport.

Issues relating to uncertainty or absence of information were not significantly encountered during the completion of the Phase One ESA, and therefore it is not anticipated that uncertainty or absence of information will significantly affect the validity of this Phase One CSM.

3.4 Deviations from Sampling and Analysis Plan

No significant deviations from the sampling and analysis plan were made during this Phase Two ESA.

3.5 Impediments

The presence of the Site Buildings represented a physical impediment during this investigation, which limited the location in which the APECs could be investigated. Further subsurface investigations will be required in these areas after the demolition of these building to fully investigate the environmental quality of the soils and groundwater at the Site. No denial of access was encountered during this investigation.

4. INVESTIGATION METHOD

4.1 General

Four boreholes instrumented with groundwater monitoring wells were completed to investigate and identify the potential sources of contamination on-Site. Soil and groundwater samples were collected from the boreholes / monitoring wells and submitted for laboratory analysis of COPCs, including PHC F1 – F4, BTEX, metals, and PAHs. One soil sample was also collected for pH and grain size analysis. Soil sample selection for laboratory analysis was based on field observations and screening.

4.2 Borehole Drilling

The drilling program took place from June 27, 2017 to July 10, 2017, and consisted of the advancement of fourteen boreholes, seven of which were instrumented with groundwater monitoring wells. The boreholes were advanced by CCC Geotechnical & Environmental Drilling Ltd. (CCC) using a CME 750 drill rig on rubber tires. The boreholes were advanced to depths ranging from approximately 1.8 m bgs to 9.0 m bgs. Bedrock was encountered at boreholes BH2017-03, BH2017-04, BH2017-07 and BH2017-10 at depths ranging from 6.6 m bgs to 9.0 m bgs, and bedrock coring was then completed down to borehole termination depths ranging from 13.5 m bgs to 16.6 m bgs.

Refer to Figure 2 in Appendix A for a Site Plan showing the locations of the boreholes / monitoring wells. Photographs of the drilling activities are provided in Appendix B.

4.3 Soil Sampling

The drilling equipment used during the drilling program was equipped with a split spoon sampling device, which allowed for continuous soil sampling. Representative soil samples were collected in intervals of approximately 0.6 m where possible. Soil samples were placed directly into laboratory-supplied sample jars and vials. The sample jars were filled completely with soil to reduce the amount of headspace vapour within the jars. Samples to be submitted for laboratory analysis of non-volatile components (PHC F2 – F4, metals and PAHs) were placed in unpreserved 120 mL clear glass jars with Teflon lids, while samples to be submitted to the laboratory for analysis of volatile compounds (PHC F1 and VOCs) were collected using disposable soil plug sample collectors supplied by the laboratory. The soil plugs were placed in laboratory-supplied vials charged with measured volumes of methanol for sample preservation.

Soil samples were logged in the field for texture, odour, moisture and visual appearance (staining). The borehole logs are provided in Appendix C.

4.4 Field Screening Measurements

A portion of each collected soil sample was placed in a polyethylene bag and allowed to equilibrate for approximately 15 minutes prior to being tested for combustible vapour concentrations (CVCs). Combustible vapour concentrations of soil samples were measured using an RKI Eagle 2™ portable vapour meter. The RKI Eagle 2™ was equipped with a catalytic combustible gas detector (CCGD), with a detection limit of 5 parts per million (ppm).

The CCGDs were operated in methane elimination mode, and the vapour metres were all calibrated by DST field personnel prior to use.

Based on visual and olfactory observations, CVC measurements, and the position of the collected soil samples with respect to the inferred groundwater table, soil samples were selected from each borehole, and submitted for laboratory analysis of COPCs.

A total of 49 soil samples and four field duplicate samples (DUPs) were collected from boreholes / monitoring wells and submitted for laboratory analysis of PHC F1 – F4, BTEX, metal and PAHs. Additionally, one soil sample was collected for analysis of pH and four soil samples were analyzed for grain size via sieve analysis.

Combustible vapour concentrations of the collected soil samples, as measured by the vapour meter, are provided in the borehole logs in Appendix C. Soil sample locations and analysis are presented in Table 5-1.

Table 4-1: Soil Sample Locations and Analyses

Sampling Date (d/m/y)	Sample ID/Location	Sample Depth (m bgs)	Analyses Performed
05/07/2017	BH2017-01-SS7	3.6 – 4.2	PHC F1 – F4, BTEX, metals
05/07/2017	DUP of BH2017-01-SS7	3.6 – 4.2	PHC F1 – F4, BTEX
05/07/2017	BH2017-01-SS12	6.6 – 7.2	PHC F1-F4, BTEX, VOCs
06/07/2017	BH2017-02-SS6	3.0 – 3.6	PHC F1 – F4, BTEX
06/07/2017	BH2017-02-SS9	4.8 – 5.4	PHC F1 – F4, BTEX, VOCs, metals
06/07/2017	BH2017-03-SS2	1.2 – 1.8	PHC F1 – F4, BTEX, metals
06/07/2017	BH2017-03-SS11	6.0 – 6.4	PHC F1 – F4, BTEX
06/07/2017	BH2017-04-SS4	1.8 – 2.4	PHC F1 – F4, BTEX
06/07/2017	BH2017-04-SS5	2.4 – 3.0	PHC F1 – F4, BTEX, PAHs, VOCs, metals
07/07/2017	BH2017-05-SS4	1.8 – 2.4	Grain Size
07/07/2017	BH2017-05-SS7	3.6 – 4.2	PHC F1 – F4, BTEX, VOCs, metals
07/07/2017	BH2017-05-SS12	6.6 – 7.2	PHC F1 – F4, BTEX
07/07/2017	BH2017-05A-SS3	1.2 – 1.8	PHC F1 – F4, BTEX, VOCs
07/07/2017	BH2017-06-SS12	6.6 – 7.2	PHC F1 – F4, BTEX, VOCs, metals
27/06/2017	BH2017-07-SS5	2.4 – 3.0	metals
27/06/2017	BH2017-07-SS8	4.2 – 4.8	PHC F1 – F4, BTEX, PAHs
27/06/2017	BH2017-07-SS14	7.8 – 8.0	PHC F1 – F4, BTEX
10/07/2017	BH2017-08-SS5	2.4 – 3.0	PHC F1 – F4, BTEX, metals
10/07/2017	BH2017-08-SS12	6.6 – 7.2	PHC F1 – F4, BTEX, VOCs

Sampling Date (d/m/y)	Sample ID/Location	Sample Depth (m bgs)	Analyses Performed
06/07/2017	BH2017-09-SS2	0.6 – 1.2	Grain Size
06/07/2017	BH2017-09-SS4	1.8 – 2.4	PHC F1 – F4, BTEX, PAHs, VOCs, metals
06/07/2017	BH2017-09-SS8	4.2 – 4.5	PHC F1 – F4, BTEX
27/06/2017	BH2017-10-SS4	1.8 – 2.4	Grain Size
27/06/2017	BH2017-10-SS10	5.4 – 6.0	PHC F1 – F4, BTEX, VOCs, pH
27/06/2017	BH2017-10-SS11	6.0 – 6.6	PHC F1 – F4, BTEX
27/06/2017	BH2017-10-SS13	7.2 – 7.8	Metals
04/07/2017	BH2017-11-SS3	1.2 – 1.8	PAHs, metals
04/07/2017	BH2017-11-SS6	3.0 – 3.6	Grain Size
04/07/2017	BH2017-11-SS11	6.0 – 6.6	PHC F1 – F4, BTEX
04/07/2017	BH2017-11-SS13	7.2 – 7.8	PHC F1 – F4, BTEX
28/06/2017	BH2017-13-SS3	1.2 – 1.8	PHC F1 – F4, BTEX, PAHs, VOCs, metals
28/06/2017	DUP of BH2017-13-SS3	1.2 – 1.8	PHC F1 – F4, BTEX, metals

4.5 Groundwater: Monitoring Well Installation

Monitoring wells were installed by CCC within the ten (10) of the advanced boreholes from June 27, 2017 to July 10, 2017, using the same drilling equipment described in Section 4.2. The wells were constructed of a 51-mm diameter polyvinyl chloride (PVC) pipe and a #10 slotted PVC well screen, approximately 3 m in length, placed to intercept the inferred groundwater table. A sand-pack consisting of clean silica sand was placed within the annulus space surrounding the screened section of the wells, and a bentonite slurry was injected from the top of the sand layer to within 0.3 m of the surface to minimize the potential for cross-contamination between aquifers. A locking J-Plug cap was placed at the top of each well pipe and a protective flush-mount steel casing was cemented at surface to protect the well in the developed northern areas of the Site. New disposable nitrile gloves were donned prior to the handling of the well materials for each monitoring well. The monitoring wells were installed and registered in accordance with O. Reg. 903 – Wells, made under the Ontario Water Resources Act.

Following monitoring well installation activities, the wells were equipped with dedicated Waterra™ tubing (approximately 1.25 cm in diameter) and inertial lift foot valves for well development purposes. The monitoring wells were developed to remove and groundwater impacted by drilling activities and to reduce the amount of sediment within the wells.

Refer to Figure 2 in Appendix A for the borehole / monitoring well locations, and Appendix C for the well installation details.

4.6 Groundwater Level Measurements

DST field personnel collected groundwater level measurements from the installed monitoring wells prior to groundwater sampling activities. The water levels were measured using a Solinst Canada Ltd. Model 122 oil/water interface meter which is also used to confirm the presence/absence and thickness of free (petroleum) product that may potentially be residing on the surface of the groundwater table. The electronic interface probe was decontaminated (washed with phosphorous-free soap and rinsed with distilled water) prior to the collection of each water level measurement.

4.7 Groundwater Sampling

Groundwater samples were collected from monitoring wells BH2017-02, BH2017-04, BH2017-05, BH2017-06, BH2017-07, BH2017-09, BH2017-11 and Unknown 1 utilizing low-flow purging methodology with a peristaltic pump on July 18, 25 and 26, 2017. The low-flow purging methodology was used to ensure the collection of a representative sample of the groundwater. To confirm that a representative groundwater sample was collected, field measurements of several physical and chemical parameters were conducted during the purging. Parameters measured on a continuous basis included: temperature, conductivity, pH, dissolved oxygen, turbidity, total dissolved solids (TDS) and oxidation-reduction potential (ORP). Once the field parameters were confirmed to have stabilized for a minimum of three readying, a groundwater sample was collected directly into laboratory-supplied containers. Groundwater samples collected for dissolved metals were field filtered using dedicated Waterra^{TM} 0.45 micron filters.

Table 4-2, below, summarizes the groundwater samples collected at the Site by DST on July 18, 25 and 26, 2017, as well as the analyses performed for each sample.

Table 4-2: Groundwater Sample Locations and Analyses

Sampling Date	Sample ID/Location	Analyses Performed
18/07/2017	BH2017-02	PHC F1 – F4, BTEX, VOCs, metals
18/07/2017	BH2017-04	PHC F1 – F4, BTEX, VOCs, metals
18/07/2017	BH2017-05	PHC F1 – F4, BTEX, VOCs, metals
18/07/2017	BHMW-D (DUP of BH2017-05)	PHC F1 – F4, BTEX, VOCs, metals
26/07/2017	BH2017-06	PHC F1 – F4, BTEX, VOCs, metals
26/07/2017	BH2017-14 (DUP of BH2017-06)	PHC F1 – F4, BTEX, VOCs, metals
18/07/2017	BH2017-07	PHC F1 – F4, BTEX, VOCs, metals
18/07/2017	BH2017-09	PHC F1 – F4, BTEX, VOCs, metals
18/07/2017	BH2017-11	PHC F1 – F4, BTEX, VOCs

Sampling Date	Sample ID/Location	Analyses Performed
25/07/2017	Unknown 1	PHC F1 – F4, BTEX, VOCs, metals

4.8 Analytical Testing

Soil and groundwater samples were submitted to Maxxam Analytics Inc. (Maxxam) for chemical analyses. Maxxam is a Canadian Association for Laboratory Accreditation Inc. (CALA) and Standards Council of Canada (SCC) certified laboratory.

4.9 Residue Maintenance

All soil cuttings resulting from drilling activities, purge water resulting from well development and purging activities, and fluids resulting from equipment decontamination were appropriately contained in drums and secured on Site.

4.10 Elevation Surveying

A monitoring well elevation survey was completed at the Site by DST field personnel on July 17, 2017. The survey included the fourteen newly drilled boreholes (BH2017-01 through BH2017-13 and BH2017-05A) used during this investigation to establish regional groundwater flow direction. The results of the survey are provided in Appendix D.

4.11 Quality Assurance and Quality Control Measures

DST maintains a standard Quality Assurance / Quality Control (QA/QC) program for environmental assessments. The field sampling and QA/QC program was completed in accordance with the applicable Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario (MOECC, 1996). All project documentation was maintained and controlled by the appointed field supervisor. All borehole advancement and soil and groundwater sampling was completed in accordance with industry standards, and applicable provincial standards/guidelines. DST operates under a Certificate of Authorization issued by the Professional Engineers of Ontario (PEO) and the Association of Professional Geoscientists of Ontario (APGO), and the work was carried out in accordance with PEO and APGO Standards for professional practice.

Soil and groundwater samples were placed in laboratory-supplied containers and maintained at below 10°C in ice-packed coolers, under a Chain of Custody protocol, prior to being submitted for chemical analysis to a CALA/SCC certified laboratory (Maxxam).

The potential for cross-contamination between samples was minimized by, where applicable, washing sampling tools with phosphorous-free soap and water followed by rinsing with distilled water, and by wearing new disposable nitrile gloves prior to the handling of each sample.

As part of the field program, three (3) field duplicate soil samples (DUP), one (1) field duplicate groundwater sample (DUP), one (1) groundwater field blank (Field Blank) and one (1) groundwater trip blank (Trip Blank) were collected to evaluate the sampling methodology and potential influence of analytical methods and Site conditions on the sample results.

5. RESULTS AND EVALUATION

5.1 Stratigraphy

Based on the soil data collected, the general stratigraphy at the Site consisted of the following:

- Asphalt: A layer of asphalt ranging in thickness from 25 mm to 85 mm was present at some of the boreholes;
- Fill Materials: Sand and gravel fill materials were present within all the boreholes and extended to depths ranging from 0.7 m bgs to 4.3 m bgs;
- Clay: A layer of clay and silty clay with trace to some sand and gravel was present from a minimum depth of 0.7 m bgs to a maximum depth of 8.3 m bgs;
- Probable Till: A layer of probable till consisting of sand and gravel was present in some of the boreholes at depths ranging from 7.3 m bgs to 9.0 m bgs; and
- Bedrock: Bedrock was encounter within some of the boreholes at depths ranging from 6.4 m bgs to 9.0 m bgs.

A detailed description of the soil stratigraphy in each borehole is provided in the borehole logs in Appendix C.

5.2 Groundwater Elevations and Flow Direction

Static groundwater level measurements were collected on July 17 and 20, 2017, using a Solinst Canada Ltd. Model 122 oil/water interface meter which is also used to confirm the presence/absence and thickness of free (petroleum) product that may potentially be residing on the surface of the groundwater table. As previously mentioned, no groundwater was detected within BHMW2, BHMW3 and BHMW4.

The static groundwater table elevations within the surveyed overburden monitoring wells ranged from 98.0 m within BH2017-09 to 99.8 m within BH2017-02. The static groundwater table elevations within the surveyed bedrock monitoring wells ranged from 98.2 m bgs within BH2017-05 to 99.4 within BH2017-03. The groundwater elevations were calculated by subtracting the static water level depth from the elevation of the ground surface adjacent to the well. The local groundwater flow direction at the Site appeared to flow towards the northwest (refer to Figure 3). Monitoring well and groundwater elevation data is presented in Tables 5-2.

Table 5-2: Monitoring Well Elevations and Groundwater Levels

Borehole/Well ID	Ground Surface Elevation (m)	Measured Date	Groundwater Depth (m)	Groundwater Elevation (m)
Overburden Wells				
BH2017-02	104.2	July 17, 2017	4.4	99.8
BH2017-04	100.7	July 17, 2017	2.2	98.5
BH2017-06	104.3	July 17, 2017	6.0	98.3

Borehole/Well ID	Ground Surface Elevation (m)	Measured Date	Groundwater Depth (m)	Groundwater Elevation (m)
BH2017-07	102.4	July 17, 2017	4.1	98..3
BH2017-09	99.6	July 17, 2017	1.7	98.0
BH2017-11	102.1	July 17, 2017	3.9	98.2
Bedrock				
BH2017-03	103.4	July 20, 2017	5.0	98.4
BH2017-05	102.7	July 20, 2017	3.3	99.4
BH2017-08	103.9	July 20, 2017	5.6	98.3
BH2017-10	102.3	July 20, 2017	4.1	98.2

5.3 Field Observations

Visual or olfactory evidence of petroleum impacts in the collected samples or soils was noted as follows:

- Petroleum odours were noted from soil samples from BH2017-01 from approximately 3.7 m bgs to approximately 7.6 m bgs;
- Petroleum odours were noted from SS10 from BH2017-02;
- Petroleum odours were noted from SS11 from BH2017-02;
- Petroleum odours were noted from BH2017-05A; and
- Petroleum odours and bubbling were noted during groundwater monitoring activities for BH2017-09.

There was no other visual or olfactory evidence of petroleum impacts observed in any of the collected samples or soils observed during the investigation. A suspect waste oil tank was encountered within BH2017-05A. No waste materials, sheen, or free phase liquid petroleum hydrocarbons were noted during the drilling or sampling activities.

5.4 Soil Texture

Grain size analyses were completed by the DST Waterloo Aggregates Laboratory which is accredited by the Canadian Council of Independent Laboratories (CCIL) for soil samples BH2017-05 SS4, BH2017-09 SS2, BH2017-10 SS4 and BH2017-11 SS6. The sieve analysis results indicated that the fill materials at the Site were coarse textured, while the native soil was medium/fine-textured.

The grain size analysis results are presented in Appendix F.

5.5 Soil Sample Field Screening

Combustible vapour concentrations, as measured by the CCGD, of the collected soil samples are provided in the boreholes logs in Appendix C. Refer to Section 4.4 for the field screening methods implemented by DST field personnel during the investigation.

5.6 Soil Quality

As detailed in Section 2, analytical results of the soil samples submitted for laboratory analyses were compared against the applicable MOECC Table 3: Full Depth Background Site Condition Standards for Residential/Parkland/Institutional Property Use and coarse textured soils.

Based on the laboratory soil analytical results, DST noted the following:

PHC F1 – F4 & BTEX:

- Concentrations of PHC F1 exceeded the current applicable MOECC Table 3 SCSs (55 µg/g) as follows:
  - BH2017-01 from 3.6 m bgs to 4.2 m bgs (200 µg/g) and 6.6 m bgs to 7.2 m bgs (520 µg/g); and,
  - BH2017-05 from 3.6 m bgs to 4.2 m bgs (60 µg/g).

- Concentrations of PHC F2 exceeded the current applicable MOECC Table 3 SCSs (98 µg/g) as follows:
  - BH2017-01 from 6.6 m bgs to 7.2 m bgs (470 µg/g);
  - BH2017-05 from 3.6 m bgs to 4.2 m bgs (160 µg/g);
  - BH2017-05A from 1.2 m bgs to 1.8 m bgs (260 µg/g); and,
  - BH2017-07 from 4.2 m bgs to 4.8 m bgs (310 µg/g).

- Concentrations of PHC F3 exceeded the current applicable MOECC Table 3 SCSs (300 µg/g) as follows:
  - BH2017-05 from 3.6 m bgs to 4.2 m bgs (340 µg/g);
  - BH2017-05A from 1.2 m bgs to 1.8 m bgs (2300 µg/g); and,
  - BH2017-07 from 4.2 m bgs to 4.8 m bgs (340 µg/g).

- Concentrations of benzene, ethylbenzene and toluene exceeded the current applicable MOECC Table 3 SCSs in BH2017-01 from 6.6 m bgs to 7.2 m bgs as follows:
  - Benzene: 0.93 µg/g (0.21 µg/g standard);
  - Ethylbenzene: 8.1 µg/g (2 µg/g standard); and,
  - Toluene: 11 µg/g (2.3 µg/g standard).

- Concentrations of total xylenes exceeded the applicable MOECC Table 3 SCSs (3.1 µg/g) as follows:
  - BH2017-01 from 3.6 m bgs to 4.2 m bgs (4.9 µg/g); and
  - BH2017-01 from 6.6 m bgs to 7.2 m bgs (41 µg/g).

- No other exceedances above the applicable MOECC Table 3 standards were reported in the submitted soil samples for PHC F1-F4 or BTEX.

PAHs

- Concentrations of PAHs exceeded the current applicable MOECC Tables 3 SCSs within BH2017-11 from 1.2 m bgs to 1.8 m bgs as follows:
  - Acenaphthylene: 0.84 µg/g (0.15 µg/g standard);
  - Anthracene: 0.73 µg/g (0.67 µg/g standard);
  - Benzo(a)anthracene: 3.5 µg/g (0.5 µg/g standard);
  - Benzo(a)pyrene: 3.2 µg/g (0.3 µg/g standard);
  - Benzo(b/j)fluorathene: 3.9. µg/g (0.78 µg/g standard);
  - Benzo(k)fluoranthene: 1.4 µg/g (0.78 µg/g standard);
  - Dibenz(a,h)anthracene: 0.51 µg/g (0.1 µg/g standard); and,
  - Fluorene: 2.5 µg/g (0.38 µg/g standard).

- No other exceedances above the applicable MOECC Table 3 standards were reported in the submitted soil samples for PAHs.

VOCs (excluding PHC F1 and BTEX)

- Concentrations of VOCs exceeded the current applicable MOECC Table 3 SCSs as follows:
  - Hexane: 11 µg/g (2.8 µg/g standard) in BH2017-01 from 6.6 m bgs to 7.2 m bgs; and,
  - 1,2-Dichloroethane: 0.2 µg/g (0.05 µg/g standard) in BH2017-05A from 1.2 m bgs to 1.8 m bgs.

- No other exceedances above the applicable MOECC Table 3 standards were reported in the submitted soil samples for VOCs (excluding PHC F1 and BTEX).

Metals and Inorganics

- Concentrations of arsenic exceeded the current applicable MOECC Table 3 SCSs (18 µg/g) as follows:
  - BH2017-11 from 1.2 m bgs to 1.8 m bgs (33 µg/g).

- Concentrations of cobalt exceeded the current applicable MOECC Table 3 SCSs (22 µg/g) as follows:
  - BH2017-13 from 1.2 m bgs to 1.8 m bgs (23 µg/g).

- Concentrations of lead exceeded the current applicable MOECC Table 3 SCSs (120 µg/g) as follows:
  - BH2017-11 from 1.2 m bgs to 1.8 m bgs (410 µg/g).

- Concentrations of vanadium exceeded the current applicable MOECC Table 3 SCSs (86 µg/g) as follows:
  - BH2017-05 from 3.6 m bgs to 4.2 m bgs (92 µg/g);
  - BH2017-08 from 2.4 m bgs to 3.0 m bgs (90 µg/g); and,
  - BH2017-13 from 1.2 m bgs to 1.8 m bgs (100 µg/g).

- Soil pH was measured at 7.83 in sample BH201-10 from 5.5 m bgs to 6.0 m bgs.

- No other exceedances above the applicable MOECC Table 3 standards were reported in the submitted soil samples for metals.

The results of the soil sample analyses and their respective evaluation criteria are presented in Tables E-1 through E-4 (refer to Appendix E) and Figure 4. Laboratory Certificates of Analysis are included in Appendix F.

Composite soil samples were collected and submitted to Paracel Laboratories Ltd. for analysis of Toxicity Characteristic Leaching Parameters (TCLP) including inorganics and benzo(a)pyrene to assess whether the impacted soils should be managed as hazardous soils. Based on the laboratory analytical test results, the submitted samples were below the applicable O.Reg. 558/00 leachate criteria for all of the analyzed chemical parameters, and therefore the soils would be considered non-hazardous for disposal purposes.

5.7 Groundwater Quality

As detailed in Section 2, analytical results of the groundwater samples submitted for laboratory analyses were compared against the applicable MOECC Table 3 standards for All Types of Property Use (MOECC, 2011).

Based on the laboratory groundwater analytical results, DST noted the following:

PHC F1 – F4 & BTEX:

- Concentrations of PHCs and BTEX exceeded the current applicable MOECC Table 3 SCSs at BH2017-02 as follows:
  - PHC F1: 21,000 µg/L (750 µg/L standard);
  - PHC F1 – BTEX: 12,000 µg/L (750 µg/L standard);
  - PHC F2: 12,000 µg/L (150 µg/L standard); and
  - Total Xylenes: 6,600 µg/L (4,200 µg/L standard).

- No other exceedances above the applicable MOECC Table 3 standards were reported in the submitted soil samples for PHC F1-F4 or BTEX.

VOCs (excluding PHC F1 and BTEX)

- Concentrations of 1,2-dichloroethane exceeded the MOECC Table 3 SCSs (1.6 µg/L) as follows:
  - BH2017-05 (6.6 µg/L); and
  - BH2017-09 (20 µg/L).

- Concentrations of hexane exceeded the MOECC Table 3 SCSs (51 µg/L) as follows:
  - BH2017-02 (280 µg/L).

- Concentrations of methyl t-butyl ether (MTBE) exceeded the MOECC Table 3 SCSs (190 µg/L) as follows:

- BH2017-05 (240 µg/L).

- No other exceedances above the applicable MOECC Table 3 standards were reported in the submitted soil samples for VOCs (excluding PHC F1 and BTEX).

Metals & Inorganics

Concentrations of the analyzed metal and inorganic parameters were below the applicable MOECC Table 3 SCSs for all the submitted groundwater samples.

The results of the groundwater sample analyses and their respective evaluation criteria are presented in Tables E-5 to E-8 (refer to Appendix E). Laboratory Certificates of Analysis are included in Appendix F.

5.8 Quality Assurance and Quality Control Results

As noted in Section 5.11, the field program included the submission of three (3) QA/QC samples for laboratory analysis:

- DUP, four field duplicates of soil samples:
  - DUP of BH2017-01 SS7 for PHCs and BTEX; and,
  - DUP of BH2017-13 SS3 for PCHs and BTEX, and metals.
- DUP, two field duplicates of groundwater samples BH2017-05 and BH2017-06;
- Field Blank, groundwater field blank; and,
- Trip Blank, groundwater trip blank.

The analytical results of an original (parent) sample and its corresponding field duplicate are generally quantitatively comparable. Relative percent differences (RPDs) between analytical results from field duplicate samples are calculated using the following formula:

$$RPD = \frac{(\text{Sample Result} - \text{Duplicate Result}) \times 100}{(\text{Sample Result} + \text{Duplicate Result}) / 2}$$

Relative percent differences are only calculated for a parameter when both sample concentrations (the original and the duplicate) are greater than five (5) times the reportable detection limit (RDL).

All calculable RPDs were below the respective alert limits listed in the Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario (MOECC, 1996) for soil field duplicates and for groundwater field duplicates analyzed for Metals, PAHs, PHC F1 – F4 and VOCs.

The analytical results of the groundwater field and trip blanks were below laboratory reportable detection limits (RDLs), indicating that Site conditions and analytical procedures did not have any impact on the results of the samples collected during the investigation.

No quality control issues that would affect the conclusions of this report were identified. Therefore, based on this information, the analytical results are considered reproducible.

Laboratory quality control data is included with the laboratory certificates of analysis in Appendix F.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

DST, on behalf of Trinity Development Group Inc., conducted a Phase Two ESA for the properties located at 951 Gladstone Avenue and 145 Loretta Avenue North in Ottawa, Ontario (Site). DST has performed this Phase Two ESA in accordance with the Ontario Regulation 153/04 Records of Site Condition, as amended.

The Site is an irregular parcel of land approximately 1.1 ha (2.6 acres) in size located in Ottawa, Ontario. The property is bordered by: a commercial property (131 Loretta Avenue North) to the north, a railway corridor to the east, Gladstone Avenue to the south, and Loretta Avenue North followed by an industrial property (975 Gladstone Avenue – former British American Bank Note) to the west. The Site is currently zoned as General Industrial IG (1).

DST understands that the Client intends to redevelop the Site with a multi-tenant residential and commercial development, including mid and high rise residential buildings, commercial/retail spaces, ground surface parking lot, two levels of below ground parking, sewers and water pipes installation. The proposed new buildings include one 18-storey tower, on 20-storey tower, one building with a 20-storey tower and a 5-storey podium, and one 5-storey building. It should be noted that DST completed a geotechnical investigation for this proposed development concurrently with this Phase Two ESA, and the results of this investigation will be submitted under a separate cover.

The objective of the Phase Two ESA was to conduct intrusive investigation of the APECs identified during the Phase One ESA conducted by DST in July 2017. The Phase Two ESA field program consisted of:

- The advancement of fourteen (14) boreholes (BH2017-01 through BH2017-13 and BH2017-5A) to depths of ranging from approximately 1.8 m bgs to 16.6 m bgs. It should be noted that BH2017-12 was advanced for geotechnical purposes only;
- Groundwater monitoring wells were installed in ten (10) boreholes (BH2017-02 through BH2017-11);
- The collection of soil samples, including field duplicate samples, from thirteen of the advanced boreholes, for laboratory analysis of contaminants of potential concern (COPCs);
    - Twenty-five (25) soil samples, including one (2) field duplicate samples, were analysed for petroleum hydrocarbons (PHC) fractions F1 – F4 (PHCs F1-F4) and benzene, toluene, ethylbenzene, and xylenes (BTEX);
    - Thirteen (13) soil samples, including one (1) field duplicate samples, were analysed for metals;
    - Ten (10) soil samples were analysed for volatile organic compounds (VOCs), metals, and polycyclic aromatic hydrocarbons (PAHs);

- Five (5) soil samples were analysed for polycyclic aromatic hydrocarbons (PAHs); and,
- One (1) soil sample was analysed for pH and four (4) soils samples were analysed for grain size.

- The collection of groundwater samples, including field duplicate samples, from seven (7) newly installed monitoring wells and one existing monitoring well (Unknown 1), for laboratory analysis of COPCs;
  - Eleven (11) ground water samples, including one field duplicate sample for each parameter, were analysed for each of PHCs F1-F4, BTEX, VOCs and metals & inorganics.
- The submission of one (1) field blank water sample for laboratory analysis of petroleum hydrocarbon (PHC) fractions F1 – F4, benzene, toluene, ethylbenzene and xylenes (BTEX) and volatile organic compounds (VOCs), and one (1) trip blank water sample for laboratory analysis of volatile compounds (PHC F1, BTEX and VOCs).

Based on the field observations and laboratory analytical results, DST noted the following:

- The general stratigraphy at the Site consisted of the following:
  - Asphalt: A layer of asphalt ranging in thickness from 25 mm to 85 mm was present at some of the boreholes;
  - Fill Materials: Sand and gravel fill materials were present within all the boreholes and extended to depths ranging from 0.7 m bgs to 4.3 m bgs;
  - Clay: A layer of clay and silty clay with trace to some sand and gravel was present from a minimum depth of 0.7 m bgs to a maximum depth of 8.3 m bgs;
  - Probable Till: A layer of probable till consisting of sand and gravel was present in some of the boreholes at depths ranging from 7.3 m bgs to 9.0 m bgs; and
  - Bedrock: Bedrock was encounter within some of the boreholes at depths ranging from 6.4 m bgs to 9.0 m bgs.

- Soil impacts (concentrations of contaminants above the Ontario Ministry of the Environment and Climate Change (MOECC) Table 3 standards for residential/parkland/ institutional property use, coarse textured soils) were identified at the Site as follows:
  - Southwest portion of the Site, near the former on-Site retail fuel outlet (RFO). Based on the results of this Phase Two ESA and historical data, the native soils in this area were found to be impacted with PHC F1-F2, BTEX, naphthalene, 1,1,2-trichloroethane and hexane; while fill materials in this area were found to be impacted with lead and zinc;
  - A suspected waste oil tank was encountered within BH2017-05A, which was located to the northeast of the building associated with 951 Gladstone Avenue. Soils near this area were found to be impacted by PHC F1-F3, 1,2-dichloroethane, and vanadium;

- Northwest portion of the Site, near BH2017-07. The soils were found to be impacted with PHC F2-F3; and,
- Fill materials at the Site, ranging in maximum depths of 1.4 m bgs to 4.3 m bgs. These fill materials were found to be impacted with 1,2-dichloroethane, vanadium, various PAHs, arsenic, lead, cobalt, and zinc, at varying locations across the Site.

- Groundwater impacts were identified at the Site as follows:
  - Southwest portion of the Site, near the former on-Site retail fuel outlet. The groundwater in this area was found to be impacted with PHC F1-F2, benzene, xylenes, hexane and lead;
  - Northeast of the Site building associated with 951 Gladstone Avenue. Groundwater in this area was found to be impacted 1,2-dichloroethane and methylene t-butyl ether (MTBE); and,
  - East of the Site building associated with 145 Loretta Avenue North. Groundwater in this area was found to the impacted with 1,2-dichloroethane.

- Soil and groundwater samples from the remaining locations met the current applicable Table 3 SCSs for all the analyzed chemical parameters.

- Composite soil samples were submitted for TCLP analysis to assess if the impacted soils are considered hazardous for disposal purposes. Based on the laboratory analytical test results, the submitted samples were below the applicable O.Reg. 558/00 leachate criteria for all of the analyzed chemical parameters, and therefore the soils would be considered non-hazardous for disposal purposes.

6.2 Recommendations

Based on the results of this Phase Two ESA and the historical data available for the Site, to proceed with the proposed redevelopment of the Site, the following will be required:

1) A Record of Site Condition (RSC) will need to be filed with the MOECC. To file this RSC, the extents of the identified soil and groundwater contamination at the Site will need to be delineated laterally and vertically. Additionally, all of the identified areas of soil or groundwater contamination would be required to be remediated to at or below the applicable site condition standards, and/or a risk assessment be completed for areas where contamination is present above the applicable site condition standards.

2) Contaminated media will be required to be managed at the Site during redevelopment activities as follows:

Location	Estimated Quantity of Impacted Material	Recommended Action
Soils		
Southwest portion of the Site.	6,350 m^3	Excavate and dispose in a MOECC approved landfill.
East-central portion of the Site	200 m^3	

Location	Estimated Quantity of Impacted Material	Recommended Action
West-central portion of the Site	700 m^3	
Fill Materials over the entire Site (Non-Hazardous Estimate)	8,100 m^3	
Fill Materials over the entire Site (potentially Hazardous Estimate)	100 m^3	
Total	**15,450 m^3**	
Groundwater		
Entire Site	5,100,000 L	Manage during construction dewatering via pumping, on-Site treatment, and disposal; or via pumping, and off-Site disposal at a treatment facility.

Further discussion regarding the above mentioned recommended remedial options and estimated quantities will be provided in a remedial options Letter report, which will be submitted under a separate cover.

7. CLOSURE

We trust that the above meets your present requirements; should you have any questions or concerns regarding this report, please feel free to contact the undersigned at your convenience.

DST confirms that the completion of the Soil and Groundwater Investigation has been supervised and approved by Sam Voore, P. Eng., a Qualified Person as defined by O.Reg. 153/04 (as amended), and further confirms the findings and conclusions of this report.

We appreciate this opportunity to provide environmental consulting services to you. If you have any questions or comments, please contact the undersigned.

For **DST CONSULTING ENGINEERS INC.**

Kevin Bailey, M.A.Sc, EIT
Intermediate Engineer-In-Training

Reviewed By:

Ali Williams, B.Sc., P.Eng.
Senior Project Manager

Approved By:

Sam Voore, M.Eng., P.Eng.
Regional Manager, Technical Services Group

8. REFERENCES

1. City of Ottawa's Official Plan, Amendment #150, as approved April 24, 2014.

2. DST Consulting Engineers Inc., July 2017. Phase One Environmental Site Assessment, 951 Gladstone Avenue & 145 Loretta Avenue North, Ottawa, Ontario.

3. DST Consulting Engineers Inc., June 2009. Limited Phase II Environmental Site Assessment and Historical Review, 941-971 Gladstone Avenue, Ottawa, Ontario.

4. Maxxam Analytics Inc., May 2012. "National QA/QC Interpretation Guide – Environmental Services".

5. Ontario Ministry of the Environment and Climate Change, December 1996. "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario".

6. Ontario Ministry of the Environment, 2011. *Soil, Ground Water and Sediment Standards for Use Under Part XV.I of the Environmental Protection Act*.

7. Ontario Ministry of Natural Resources and Forestry, 2014. *Oak Ridges Moraine Atlas*. Queen's Printer for Ontario.

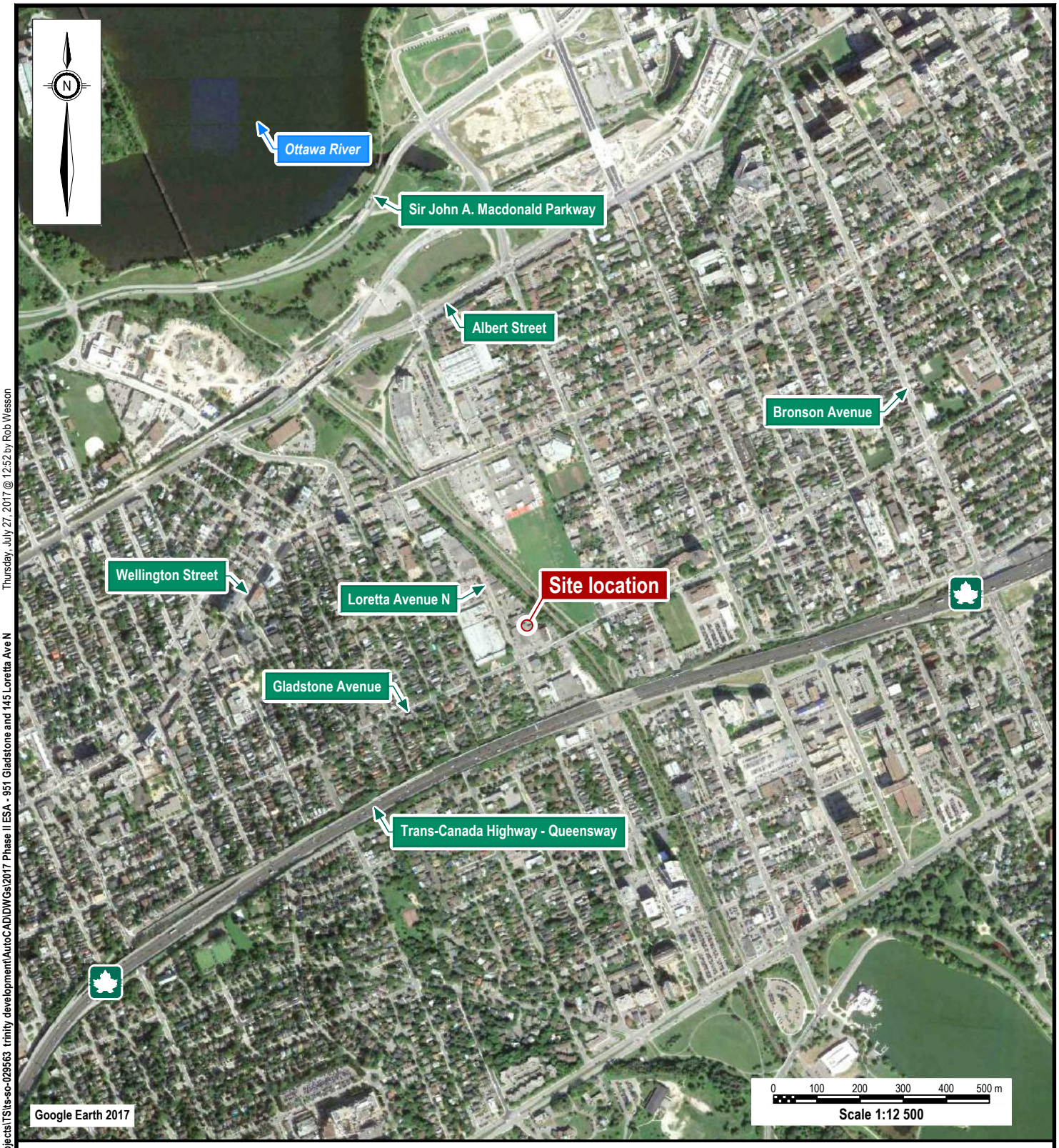
8. Ontario Ministry of the Environment and Climate Change, as amended January 2014. *Ontario Resources Act R.R.O. 1990, Regulation 903 – Wells.*

9. Ontario Ministry of Natural Resources and Forestry, 2014. *Biodiversity Explorer*. Updated 2014. Queen's Printer for Ontario. Available from: http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html [Accessed July 2017].

10. Pinchin Environmental Ltd., April 2013. Phase I Environmental Site Assessment, 145 Loretta Avenue North, Ottawa, Ontario.

11. Ontario Ministry of the Environment and Climate Change, Map: Well Records, updated March 2017.

APPENDIX A
FIGURES



Note

1. This drawing shall be read in conjunction with the associated technical report.

Revision	Date	Issue	Approval
A	27.07.17	Preliminary	S.V.

Client: Trinity Development Group Inc.

Site: 951 Gladstone Ave. & 145 Loreta Ave., Ottawa, ON

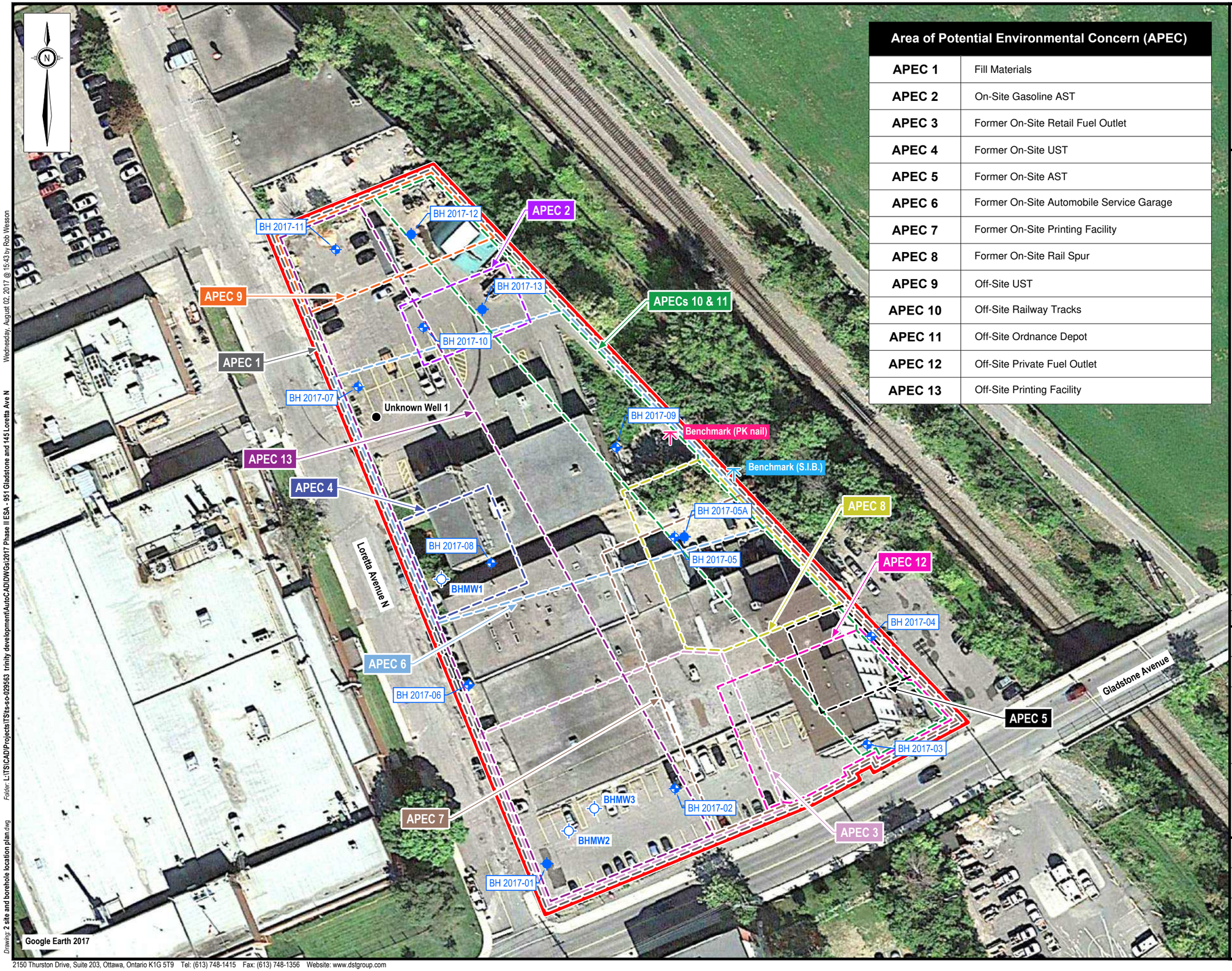
DST consulting engineers

Report Title: Phase Two Environmental Site Assessment

Drawing Title: Site location Map

Designed By: S.V.	Date: July 2017
Drawn By: R.W.	Project No.: TS-SO-029563
Approved By: S.V.	Figure No.: 1
Scale: As shown	

2150 Thurston Drive, Suite 203, Ottawa, Ontario K1G 5T9 Tel: (613) 748-1415 Fax: (613) 748-1356 Website: www.dstgroup.com



Area of Potential Environmental Concern (APEC)	
APEC 1	Fill Materials
APEC 2	On-Site Gasoline AST
APEC 3	Former On-Site Retail Fuel Outlet
APEC 4	Former On-Site UST
APEC 5	Former On-Site AST
APEC 6	Former On-Site Automobile Service Garage
APEC 7	Former On-Site Printing Facility
APEC 8	Former On-Site Rail Spur
APEC 9	Off-Site UST
APEC 10	Off-Site Railway Tracks
APEC 11	Off-Site Ordnance Depot
APEC 12	Off-Site Private Fuel Outlet
APEC 13	Off-Site Printing Facility

consulting engineers

Notes

1. This drawing shall be read in conjunction with the associated technical report.
2. Do not scale drawing.

Legend

- Property boundary
- Borehole location
- Monitoring well location
- Approximate monitoring well location (DST, 2007)
- Benchmark

0 5 10 20 30 m

Scale 1:750

Revision	Date	Issue	Approval
A	27.07.17	Preliminary	S.V.

Client: Trinity Development Group Inc.

Site: 951 Gladstone Ave. & 145 Loreta Ave., Ottawa, ON

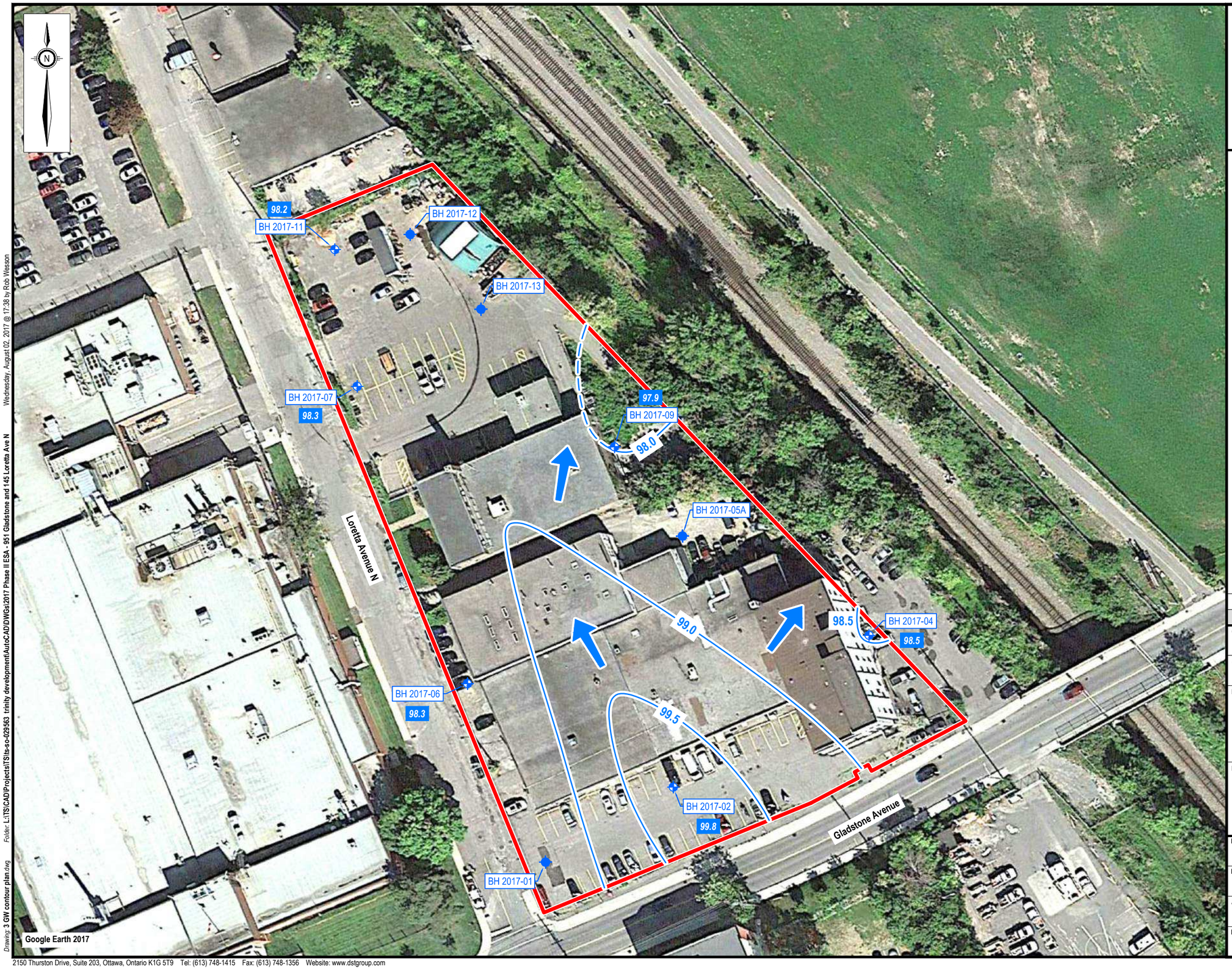
Report Title: Phase Two Environmental Site Assessment

Drawing Title: Site Plan

Designed By: S.V.	Scale: As shown
Drawn By: R.W.	Date: July 2017
Approved By: S.V.	Project No.: TS-SO-029563
Figure No.: 2	

Folder: L:\TS\CAD\Projects\TS\ts-so-029563 trinity development\AutoCAD\DWG\ti2017 Phase II ESA - 951 Gladstone and 145 Loretta Ave N
Drawing: 2 site and borehole location plan.dwg
Wednesday, August 02, 2017 @ 15:43 by Rob Wesson

2150 Thurston Drive, Suite 203, Ottawa, Ontario K1G 5T9 Tel: (613) 748-1415 Fax: (613) 748-1356 Website: www.dstgroup.com



DST consulting engineers

Notes

1. This drawing shall be read in conjunction with the associated technical report.
2. Do not scale drawing.

Legend

- Property boundary
- Borehole location
- Monitoring well location
- 99.8 — Groundwater contour (m)
- 97.9 — Groundwater elevation (m)
- Direction of groundwater flow

0 5 10 20 30 m

Scale 1:750

Revision	Date	Issue	Approval
A	27.07.17	Preliminary	S.V.

Client: Trinity Development Group Inc.

Site: 951 Gladstone Ave. & 145 Loreta Ave., Ottawa, ON

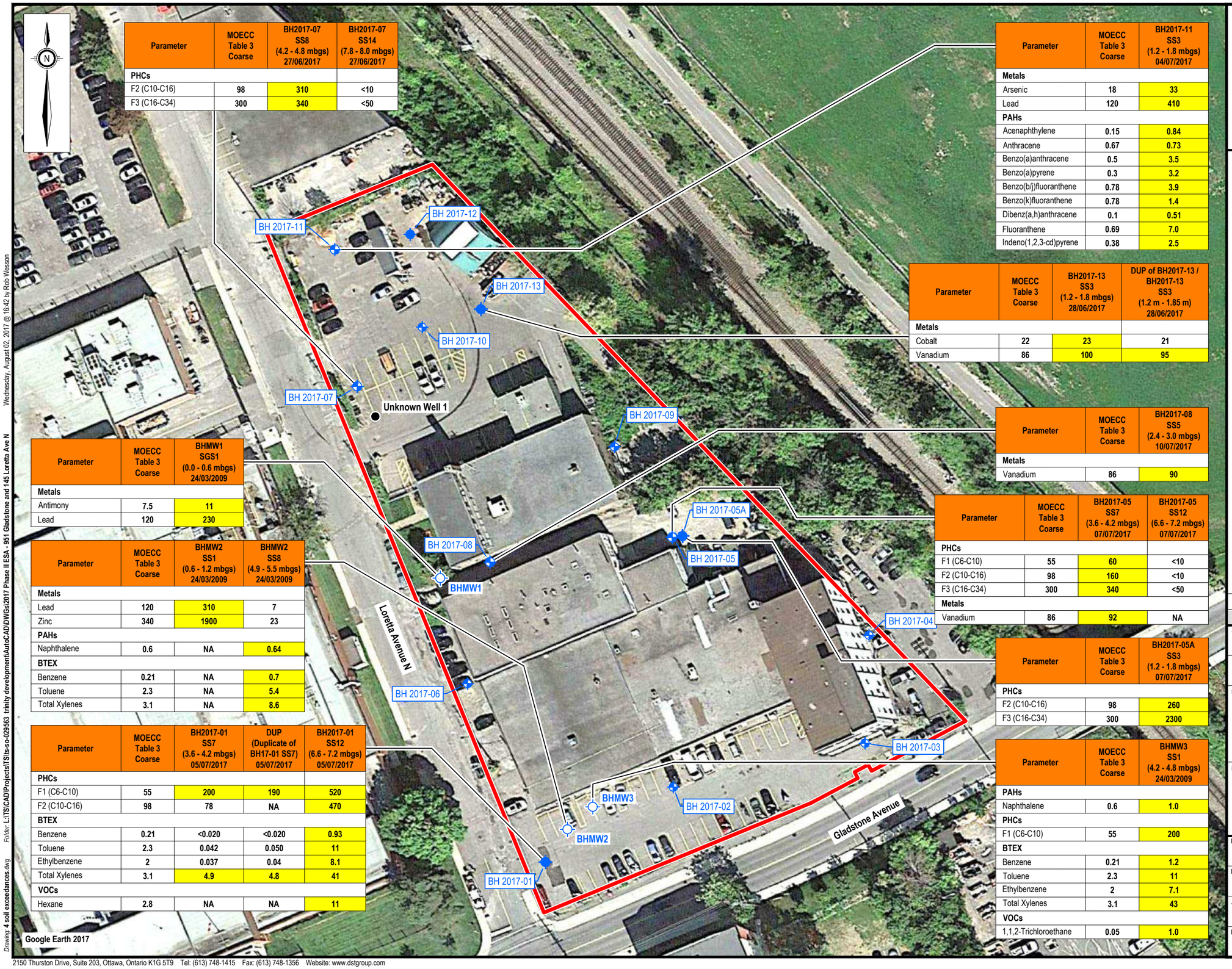
Report Title: Phase Two Environmental Site Assessment

Drawing Title: Overburden Groundwater Contour Map

Designed By: S.V.	Scale: As shown
Drawn By: R.W.	Date: July 2017
Approved By: S.V.	Project No.: TS-SO-029563
Figure No.: 3	

Drawing: 3 GW contour plan.dwg Folder: L:\TS\CAD\Projects\TS\ts-so-029563 trinity development\AutoCAD\DWGs\2017 Phase II ESA - 951 Gladstone and 145 Loretta Ave N Wednesday, August 02, 2017 @ 17:38 by Rob Wesson

2150 Thurston Drive, Suite 203, Ottawa, Ontario K1G 5T9 Tel: (613) 748-1415 Fax: (613) 748-1356 Website: www.dstgroup.com



Parameter	MOECC Table 3 Coarse	BH2017-07 SS8 (4.2 - 4.8 mbgs) 27/06/2017	BH2017-07 SS14 (7.8 - 8.0 mbgs) 27/06/2017
PHCs			
F2 (C10-C16)	98	310	<10
F3 (C16-C34)	300	340	<50

Parameter	MOECC Table 3 Coarse	BH2017-11 SS3 (1.2 - 1.8 mbgs) 04/07/2017
Metals		
Arsenic	18	33
Lead	120	410
PAHs		
Acenaphthylene	0.15	0.84
Anthracene	0.67	0.73
Benzo(a)anthracene	0.5	3.5
Benzo(a)pyrene	0.3	3.2
Benzo(b/j)fluoranthene	0.78	3.9
Benzo(k)fluoranthene	0.78	1.4
Dibenz(a,h)anthracene	0.1	0.51
Fluoranthene	0.69	7.0
Indeno(1,2,3-cd)pyrene	0.38	2.5

Parameter	MOECC Table 3 Coarse	BH2017-13 SS3 (1.2 - 1.8 mbgs) 28/06/2017	DUP of BH2017-13 / BH2017-13 SS3 (1.2 m - 1.85 m) 28/06/2017
Metals			
Cobalt	22	23	21
Vanadium	86	100	95

Parameter	MOECC Table 3 Coarse	BHMW1 SGS1 (0.0 - 0.6 mbgs) 24/03/2009
Metals		
Antimony	7.5	11
Lead	120	230

Parameter	MOECC Table 3 Coarse	BH2017-08 SS5 (2.4 - 3.0 mbgs) 10/07/2017
Metals		
Vanadium	86	90

Parameter	MOECC Table 3 Coarse	BHMW2 SS1 (0.6 - 1.2 mbgs) 24/03/2009	BHMW2 SS8 (4.9 - 5.5 mbgs) 24/03/2009
Metals			
Lead	120	310	7
Zinc	340	1900	23
PAHs			
Naphthalene	0.6	NA	0.64
BTEX			
Benzene	0.21	NA	0.7
Toluene	2.3	NA	5.4
Total Xylenes	3.1	NA	8.6

Parameter	MOECC Table 3 Coarse	BH2017-05 SS7 (3.6 - 4.2 mbgs) 07/07/2017	BH2017-05 SS12 (6.6 - 7.2 mbgs) 07/07/2017
PHCs			
F1 (C6-C10)	55	60	<10
F2 (C10-C16)	98	160	<10
F3 (C16-C34)	300	340	<50
Metals			
Vanadium	86	92	NA

Parameter	MOECC Table 3 Coarse	BH2017-05A SS3 (1.2 - 1.8 mbgs) 07/07/2017
PHCs		
F2 (C10-C16)	98	260
F3 (C16-C34)	300	2300

Parameter	MOECC Table 3 Coarse	BH2017-01 SS7 (3.6 - 4.2 mbgs) 05/07/2017	DUP (Duplicate of BH17-01 SS7) 05/07/2017	BH2017-01 SS12 (6.6 - 7.2 mbgs) 05/07/2017
PHCs				
F1 (C6-C10)	55	200	190	520
F2 (C10-C16)	98	78	NA	470
BTEX				
Benzene	0.21	<0.020	<0.020	0.93
Toluene	2.3	0.042	0.050	11
Ethylbenzene	2	0.037	0.04	8.1
Total Xylenes	3.1	4.9	4.8	41
VOCs				
Hexane	2.8	NA	NA	11

Parameter	MOECC Table 3 Coarse	BHMW3 SS1 (4.2 - 4.8 mbgs) 24/03/2009
PAHs		
Naphthalene	0.6	1.0
PHCs		
F1 (C6-C10)	55	200
BTEX		
Benzene	0.21	1.2
Toluene	2.3	11
Ethylbenzene	2	7.1
Total Xylenes	3.1	43
VOCs		
1,1,2-Trichloroethane	0.05	1.0

DST consulting engineers

Notes

1. This drawing shall be read in conjunction with the associated technical report.
2. Do not scale drawing.

Legend

- Property boundary
- Borehole location
- Monitoring well location
- Approximate monitoring well location (DST, 2007)

0 5 10 20 30 m

Scale 1:750

Revision	Date	Issue	Approval
A	27.07.17	Preliminary	S.V.

Client: Trinity Development Group Inc.

Site: 951 Gladstone Ave. & 145 Loreta Ave., Ottawa, ON

Report Title: Phase Two Environmental Site Assessment

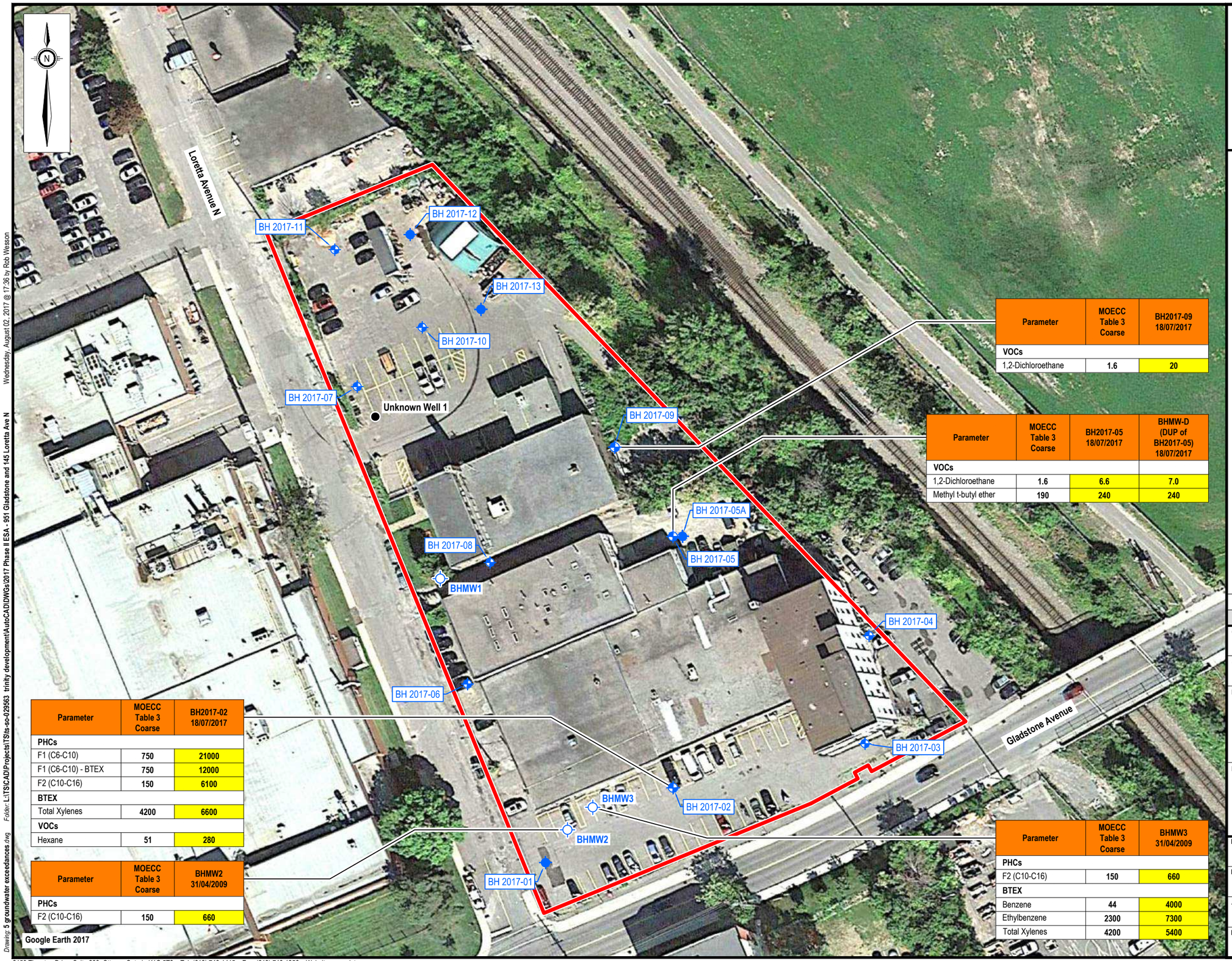
Drawing Title: Soil Exceedances

Designed By	Scale
S.V.	As shown
Drawn By	**Date**
R.W.	July 2017
Approved By	**Project No.**
S.V.	TS-SO-029563

Figure No. 4

Drawing: 4 soil exceedances.dwg Folder: L:\TS\CAD\Projects\TS\ts-so-029563 trinity development\AutoCAD\DWGs\2017 Phase II ESA - 951 Gladstone and 145 Loretta Ave N Wednesday, August 02, 2017 @ 16:42 by Rob Wesson

2150 Thurston Drive, Suite 203, Ottawa, Ontario K1G 5T9 Tel: (613) 748-1415 Fax: (613) 748-1356 Website: www.dstgroup.com



Parameter	MOECC Table 3 Coarse	BH2017-09 18/07/2017
VOCs		
1,2-Dichloroethane	1.6	20

Parameter	MOECC Table 3 Coarse	BH2017-05 18/07/2017	BHMW-D (DUP of BH2017-05) 18/07/2017
VOCs			
1,2-Dichloroethane	1.6	6.6	7.0
Methyl t-butyl ether	190	240	240

Parameter	MOECC Table 3 Coarse	BH2017-02 18/07/2017
PHCs		
F1 (C6-C10)	750	21000
F1 (C6-C10) - BTEX	750	12000
F2 (C10-C16)	150	6100
BTEX		
Total Xylenes	4200	6600
VOCs		
Hexane	51	280

Parameter	MOECC Table 3 Coarse	BHMW2 31/04/2009
PHCs		
F2 (C10-C16)	150	660

Parameter	MOECC Table 3 Coarse	BHMW3 31/04/2009
PHCs		
F2 (C10-C16)	150	660
BTEX		
Benzene	44	4000
Ethylbenzene	2300	7300
Total Xylenes	4200	5400

DST consulting engineers

Notes

1. This drawing shall be read in conjunction with the associated technical report.
2. Do not scale drawing.

Legend

- Property boundary
- Borehole location
- Monitoring well location
- Approximate monitoring well location (DST, 2007)

0 5 10 20 30 m

Scale 1:750

Revision	Date	Issue	Approval
A	27.07.17	Preliminary	S.V.

Client: **Trinity Development Group Inc.**

Site: **951 Gladstone Ave. & 145 Loreta Ave., Ottawa, ON**

Report Title: **Phase Two Environmental Site Assessment**

Drawing Title: **Groundwater Exceedances**

Designed By: S.V.	Scale: As shown
Drawn By: R.W.	Date: July 2017
Approved By: S.V.	Project No.: TS-SO-029563

Figure No. 5

Drawing: 5 groundwater exceedances.dwg Folder: L:\TS\CAD\Projects\TS\ts-so-029563 trinity development\AutoCAD\DWGs\2017 Phase II ESA - 951 Gladstone and 145 Loretta Ave N Wednesday, August 02, 2017 @ 17:36 by Rob Wesson

2150 Thurston Drive, Suite 203, Ottawa, Ontario K1G 5T9 Tel: (613) 748-1415 Fax: (613) 748-1356 Website: www.dstgroup.com

APPENDIX B
SITE PHOTOGRAPHS

DST - Photo Log - Trinity - TSSO-029563

1.1 BH2017-1 Location looking direction North.

1.2 BH2017-1 Location looking direction South

1.3 BH2017-1 SS7 (submitted)

1.4 BH2017-1 SS12 (submitted)

DST - Photo Log - Trinity - TSSO-029563

2.1 BH2017 – 2 Location, looking East.

2.2 BH2017 – 2 location, looking North.

2.3 BH2017 – 2 SS9 (submitted)

DST - Photo Log - Trinity - TSSO-029563

3.1 BH2017-3 Location looking North East.

3.2 BH2017-3 Location Looking East

3.3 BH2017-3 SS10 showing transition in the soil color, from brown to grey.

DST - Photo Log - Trinity - TSSO-029563

4.1 BH2017-4 Location, looking West. Actual location moved two meters West to side of staircase and closer to the wall because of overhead hazard.

4.2 BH2017-4 SS5 (submitted)

DST - Photo Log - Trinity - TSSO-029563

5.1 BH2017-5 Location moved three meters West

5.2 BH2017-5 SS7 (submitted)

5.3 BH2017-5 SS12 (submitted)

DST - Photo Log - Trinity - TSSO-029563

6.1 BH2017-6 Location changed further East du to overhead hazard.

6.2 BH2017-6 SS9 showing transition in the soil.

DST - Photo Log - Trinity - TSSO-029563

7.1 BH2017-7 location

7.2 BH2017-7 SS8 (Submitted)

8.1 BH2017-8 Location

8.2 BH2017-8 SS12 (Submitted)

DST - Photo Log - Trinity - TSSO-029563

9.1 BH2017-9 Location

9.2 BH2017-9 SS7

10.1 BH2017-10 Location

10.2 BH2017-10 SS13 (Submitted)

DST - Photo Log - Trinity - TSSO-029563

11.1 BH2017-11 Location

11.2 BH2017-11 SS11 (Submitted)

12.1 BH2017-12 Location

12.2 BH2017-12 SS7 Geotechnical BH Only

DST - Photo Log - Trinity - TSSO-029563

13.1 BH2017-13 Location moved 2 meters West to avoid underground cables.

13.2 BH2017-13 SS3 and duplicate sample BH2017-31 SS3 (Submitted)

APPENDIX C
BOREHOLE LOGS

LOG OF BOREHOLE BH2017-01

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 104.89 metres (Assumed Benchmark)	DATE:

CVC * (■ IBL 20 40 60 80; ○ HEX 80 160 240 320)	CVC Conc. IBL/ HEX	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	79 200	SS1		17		ASPHALT (75 mm) FILL - SAND and GRAVEL to trace Gravel, Brown, Loose to Compact				
	16 5	SS2		5			1	104		
	17 15	SS3		16						
	12 0	SS4		14			2	103		
	35 30	SS5		9		CLAY, Brown to Grey, Firm to Very Stiff				
	27 0	SS6		6			3	102		
>> ■ >> ○	**392** 2400	SS7		23			4	101		Sample submitted for analysis of BTEX, PHCs & Metals Odour in samples from 3.7 m to 7.6 m
	75 240	SS8		3		SANDY, trace Gravel				
>> ■ >> ○	**197** 1650	SS9		6			5	100		
>> ■ >> ○	**280** 1550	SS10		6						
>> ■ >> ○	**375** 1400	SS11		7			6	99		
>> ■ >> ○	**448** 3150	SS12		5			7	98		Sample submitted for analysis of BTEX, PHCs & VOCs
>> ■ >> ○	**273** 1050	SS13		100+		SAND and GRAVEL, Grey, Very Dense				
						End of Borehole at 7.6 m due to Auger Refusal.	8	97		
								96		

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 1

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-02

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 104.21 metres (Assumed Benchmark)	DATE:

CVC * (■ IBL 20 40 60 80; ○ HEX 80 160 240 320)	CVC Conc. IBL/ HEX	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		19		ASPHALT (75 mm) FILL - SAND and GRAVEL, Brown, Compact to Dense		104		
		SS2		29			1	103		
		SS3		30						
		SS4		25		CLAY, Brown to Grey, Firm to Very Stiff	2	102		
		SS5		12			3	101		
		SS6		10						
		SS7		14			4	100		
		SS8		2		SANDY, some Rock Fragment				Water level at 4.36 m bgs (July 17, 2017) > 200 kPa
		SS9		8			5	99		
		SS10		10						Odour in sample # SS10
		SS11		100+		Rock Fragment	6	98		
						End of Borehole at 6.5 m due to Auger Refusal.	7	97		
							8	96		

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 2

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-03

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 103.36 metres (Assumed Benchmark)	DATE:

CVC * (■ IBL 20 40 60 80; ○ HEX 80 160 240 320)	CVC Conc. IBL/ HEX	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		1		ASPHALT (85 mm) FILL - SAND and GRAVEL, Brown, Very Loose to Compact		103		
		SS2		4			1			
		SS3		21				102		
		SS4		28			2			
						CLAY, trace Sand, trace Gravel, Brown to Grey, Firm to Very Stiff		101		
		SS5		14			3			
		SS6		13				100		
		SS7		18			4			
						SANDY, trace Rock Fragment		99		
		SS8		5						> 200 kPa
		SS9		13			5			Water level at 4.9 m bgs (July 20, 2017)
		SS10		4				98		
		SS11		100+			6			Odour in sample # SS11
						BEDROCK Limestone, Grey		97		
		RC1					7			TCR = 100% SCR = 79% RQD = 58%
								96		
							8			
		RC2						95		TCR = 100% SCR = 92% RQD = 90%

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 3

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-03

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 103.36 metres (Assumed Benchmark)	DATE:

CVC *		SAMPLES			SUBSURFACE PROFILE					REMARKS
■ IBL 20 40 60 80 ○ HEX 80 160 240 320	CVC Conc. IBL/ HEX	No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	
						SURFACE				
		RC3					10	94		TCR = 93% SCR = 93% RQD = 92%
							11	93		
		RC4					12	92		TCR = 100% SCR = 100% RQD = 92%
		RC5					13	91		TCR = 100% SCR = 100% RQD = 95%
						End of Borehole at 13.5 m	14	90		
							15	89		
							16	88		
							17	87		
								86		

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 4

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-04

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 100.75 metres (Assumed Benchmark)	DATE:

CVC * (■ IBL 20 40 60 80; ○ HEX 80 160 240 320)	CVC Conc. IBL/ HEX	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		12		ASPHALT (25 mm) FILL - SAND and GRAVEL, Brown, Compact to Loose				
		SS2		100+			1	100		
		SS3		5				99		
		SS4		4		CLAY, some Sand, some Gravel, Brown to Grey, Firm to Very Stiff	2			
		SS5		6		Rock Fragment		98		
		SS6		4			3			
		SS7		16		SILTY, with Sand and Gravel	4	97		
		SS8		100+						
						End of Borehole at 4.6 m due to Auger Refusal.	5	96		Water level at 4.58 m bgs (July 17, 2017)
							6	95		
								94		
							7			
								93		
							8			
								92		

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 5

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-05

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 102.67 metres (Assumed Benchmark)	DATE:

CVC * (■ IBL 20 40 60 80; ○ HEX 80 160 240 320)	CVC Conc. IBL/ HEX	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0	SS1		24		FILL - SAND and GRAVEL, Brown, Loose to Compact		102		
	0	SS2		11			1			
	0	SS3		9				101		
	0	SS4		15			2			
	0	SS5		27				100		
	0	SS6		12		CLAY, trace Sand, trace Gravel, Brown to Grey, Firm to Very Stiff	3			Water level at 3.25 m bgs (July 17, 2017)
	280	SS7		19			4	99		
	0	SS8		4				98		> 200 kPa
	0	SS9		7			5			> 200 kPa
	0	SS10		1		SANDY	6	97		
	0	SS11		7						
	50	SS12		100+				96		
		RC1				BEDROCK Limestone, Grey	7			TCR = 100% SCR = 100% RQD = 100%
								95		
		RC2					8			TCR = 100% SCR = 98% RQD = 96%
								94		

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 6

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-05

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 102.67 metres (Assumed Benchmark)	DATE:

CVC *		SAMPLES			SUBSURFACE PROFILE					REMARKS
■ IBL 20 40 60 80 ○ HEX 80 160 240 320	CVC Conc. IBL/ HEX	No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	
						SURFACE				
		RC3					10	93		TCR = 100% SCR = 100% RQD = 100%
								92		
		RC4					11			TCR = 100% SCR = 100% RQD = 96%
							12	91		
		RC5						90		TCR = 100% SCR = 100% RQD = 100%
							13			
						End of Borehole at 13.5 m		89		
							14			
								88		
							15			
								87		
							16			
								86		
							17			
								85		

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 7

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-05A

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 102.66 metres (Assumed Benchmark)	DATE:

CVC * ■ IBL 20 40 60 80 ○ HEX 80 160 240 320	CVC Conc. IBL/ HEX	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0	SS1		11		FILL - SAND and GRAVEL, Brown, Loose to Compact				
	0	SS2		12			1	102		
	5	SS3		4						Sample submitted for analysis of BTEX, PHCs & VOCs
						End of Borehole at 1.8 m due to Auger Refusal.	2	101		Hit possibly old engine tank; smells like engine oil
							3	100		
							4	99		
							5	98		
							6	97		
							7	96		
							8	95		
								94		

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 8

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-06

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 104.32 metres (Assumed Benchmark)	DATE:

CVC * (■ IBL 20 40 60 80; ○ HEX 80 160 240 320)	CVC Conc. IBL/ HEX	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0	SS1		14		FILL - SAND and GRAVEL, Brown, Compact		104		
	0	SS2		11			1			
	0	SS3		9		CLAY, trace Sand, trace Gravel, Brown to Grey, Firm to Very Stiff		103		
	0	SS4		15			2			
	0	SS5		10				102		
	0	SS6		9			3			> 200 kPa
	0	SS7		12				101		> 200 kPa
	0	SS8		15		SANDY	4			
	0	SS9		9				100		> 200 kPa
	0	SS10		4			5			
	0	SS11		4				99		Water level at 5.96 m bgs (July 20, 2017)
	5	SS12		7			6			
	0	SS13		100+				98		
						End of Borehole at 7.8 m due to Auger Refusal.	7			
								97		
							8			
								96		

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 9

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-07

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 102.42 metres (Assumed Benchmark)	DATE:

CVC * (■ IBL 20 40 60 80 ○ HEX 80 160 240 320)	CVC Conc. IBL/ HEX	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	1 0	SS1		11		ASPHALT (75 mm) FILL - SAND and GRAVEL, trace Silt, Brown, Compact to Very Dense		102		
	1 5	SS2		13			1			
	1 5	SS3		35				101		
	1 0	SS4		11			2			
	1 15	SS5		53				100		
	1 10	SS6		32			3			
	0 10	SS7		13				99		
	20 0	SS8		5		SILTY CLAY, Brown to Grey, Soft to Very Stiff	4			
	0 0	SS9		6				98		
	0 0	SS10		2		SANDY, trace Gravel	5			
	0 0	SS11		12				97		
	0 20	SS12		18			6			
	1 0	SS13		24		SAND and GRAVEL, Dark Grey, Compact		96		
	2 0	SS14		100+			7			
						End of Borehole at 8.0 m due to Auger Refusal.		95		Water level at 7.58 m bgs (July 17, 2017)
							8			
								94		

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 10

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-08

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 103.89 metres (Assumed Benchmark)	DATE:

CVC *		SAMPLES			SUBSURFACE PROFILE					REMARKS
■ IBL 20 40 60 80 ○ HEX 80 160 240 320	CVC Conc. IBL/ HEX	No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	
						SURFACE				
						ASPHALT (25 mm)				
	0	SS1		20		FILL - SAND and GRAVEL, Brown, Loose to Compact				
	0	SS2		8			1	103		
	0	SS3		8						
	0	SS4		11			2	102		
	0	SS5		8		CLAY, some Sand, some Gravel, Brown to Grey, Soft to Very Stiff	3	101		
	0	SS6		10						
	0	SS7		9			4	100		> 200 kPa
	0	SS8		6						> 200 kPa
	0	SS9		13			5	99		> 200 kPa
	0	SS10		3		SANDY, trace Rock Fragment	6	98		Water level at 5.64 m bgs (July 20 ,2017)
	10	SS11		10						
	35	SS12		100+			7	97		
		RC1				BEDROCK Limestone, Grey				TCR = 100% SCR = 96% RQD = 93%
							8	96		
		RC2								TCR = 85% SCR = 78% RQD = 75%
								95		

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 11

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-08

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 103.89 metres (Assumed Benchmark)	DATE:

CVC *		SAMPLES			SUBSURFACE PROFILE					REMARKS
■ IBL 20 40 60 80 ○ HEX 80 160 240 320	CVC Conc. IBL/ HEX	No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	
						SURFACE				
		RC3					10	94		TCR = 100% SCR = 100% RQD = 98%
							11	93		
		RC4					12	92		TCR = 98% SCR = 98% RQD = 90%
		RC5					13	91		TCR = 100% SCR = 100% RQD = 100%
						End of Borehole at 13.6 m.	14	90		
							15	89		
							16	88		
							17	87		
								86		

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 12

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-09

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 99.62 metres (Assumed Benchmark)	DATE:

CVC * (■ IBL 20 40 60 80 ○ HEX 80 160 240 320)	CVC Conc. IBL/ HEX	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
						ASPHALT (125 mm)				
		SS1		17		FILL - SAND and GRAVEL, Brown, Compact				
								99		
		SS2		11		CLAY, trace Sand, trace Gravel, Brown to Grey, Soft to Very Stiff	1			
		SS3		7				98		
							2			
		SS4		17						> 200 kPa
						SANDY, some Gravel		97		
		SS5		4						> 200 kPa
							3			
		SS6		26				96		
		SS7		11		some Gravel	4			
		SS8		100+						
						End of Borehole at 4.5 m due to Auger Refusal.		95		Water level at 4.43 m bgs (July 17, 2017)
							5			
								94		
							6			
								93		
							7			
								92		
							8			
								91		

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 13

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-10

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 102.32 metres (Assumed Benchmark)	DATE:

CVC * (■ IBL 20 40 60 80; ○ HEX 80 160 240 320)	CVC Conc. IBL/ HEX	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		36		ASPHALT (75 mm) FILL - SAND and GRAVEL, Brown, Very Loose to Dense		102		
		SS2		35			1			
		SS3		17				101		
		SS4		13			2			
		SS5		3				100		
		SS6		5		FILL - CLAY	3			
		SS7		11				99		
		SS8		8		CLAY, Brown to Grey, Soft to Stiff	4			Water level at 4.08 m bgs (July 20, 2017)
		SS9		7				98		
		SS10		3			5			
		SS11		1		SANDY, trace Gravel		97		
		SS12		9			6			
		SS13		8		Rock Fragment		96		
		SS14		29			7			
		SS15		100+		SAND and GRAVEL, Grey		95		
							8			
								94		

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 14

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-10

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 102.32 metres (Assumed Benchmark)	DATE:

CVC * (■ IBL 20 40 60 80 ○ HEX 80 160 240 320)	CVC Conc. IBL/ HEX	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		RC1				BEDROCK Limestone, Grey	10	93		TCR = 98% SCR = 92% RQD = 85%
							11	92		
		RC2					12	91		TCR = 100% SCR = 100% RQD = 100%
		RC3					13	90		TCR = 98% SCR = 98% RQD = 98%
		RC4					14	89		TCR = 100% SCR = 100% RQD = 100%
		RC5					15	88		TCR = 100% SCR = 100% RQD = 100%
							16	87		
						End of Borehole at 16.6 m.	17	86		
								85		

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 15

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-11

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 102.09 metres (Assumed Benchmark)	DATE:

CVC * (■ IBL 20 40 60 80; ○ HEX 80 160 240 320)	CVC Conc. IBL/ HEX	SAMPLES No.	Type	SPT N-Value	SYMBL	SUBSURFACE PROFILE MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
	0 0	SS1		10		ASPHALT FILL - SAND and GRAVEL, Brown, Loose to Compact		102		
	0 0	SS2		8			1	101		
	1 5	SS3		11						Sample submitted for analysis of PAH & metals
	0 0	SS4		16			2	100		
	0 0	SS5		14						
	0 0	SS6		9		CLAYEY	3	99		
	1 5	SS7		19		CLAY, Brown to Grey, Soft to Very Stiff	4	98		Water level at 3.95 m bgs (July 17, 2017)
	1 0	SS8		8						
	0 0	SS9		9			5	97		
	0 0	SS10		3						
	0 0	SS11		2			6	96		Sample submitted for analysis of BTEX & PHCs
	0 0	SS12		13			7	95		
	0 5	SS13		17		SAND and GRAVEL, Grey, Compact to Very Dense				Sample submitted for analysis of BTEX & PHCs
	0 0	SS14		100+			8	94		
						End of Borehole at 8.4 m due to Auger Refusal.				

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 16

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-12

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 102.05 metres (Assumed Benchmark)	DATE:

CVC *		SAMPLES			SUBSURFACE PROFILE					REMARKS
■ IBL 20 40 60 80 ○ HEX 80 160 240 320	CVC Conc. IBL/ HEX	No.	Type	SPT N-Value	SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	
						SURFACE				
		SS1		11		ASPHALT (75 mm) FILL - SAND and GRAVEL, Black, Loose to Dense		102		Paved over
		SS2		6			1	101		
		SS3		45						
		SS4		11			2	100		
		SS5		4						
		SS6		9		CLAY, Brown to Grey, Soft to Very Stiff	3	99		
		SS7		22			4	98		
		SS8		6						
		SS9		5			5	97		
		SS10		1						
		SS11		2			6	96		
		SS12		3			7	95		
		SS13		5						
		SS14		100+		SANDY CLAY, some Gravel, Grey, Loose	8	94		
						End of Borehole at 8.5 m due to Auger Refusal.				

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 17

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

LOG OF BOREHOLE BH2017-13

REF. No.: TS-SO-29563	**DST CONSULTING ENGINEERS INC.**
CLIENT: Trinity Development Group Inc.	
PROJECT: Geotechnical Drilling for the Proposed Development	
LOCATION: 951 Gladstone Avenue, Ottawa, ON	METHOD: Hollow Stem Auger
SURFACE ELEVATION: 102.20 metres (Assumed Benchmark)	DATE:

CVC * ■ IBL 20 40 60 80 ○ HEX 80 160 240 320	CVC Conc. IBL/ HEX	SAMPLES No.	Type	SPT N-Value	SUBSURFACE PROFILE SYMBL	MATERIAL DESCRIPTION	DPTH m	ELEV m	WATER DATA	REMARKS
						SURFACE				
		SS1		15		ASPHALT (75 mm) FILL - SAND and GRAVEL, Brown		102		
		SS2		14			1	101		
		SS3		9		CLAY, trace Gravel, Brown, Stiff				
						End of Borehole at 1.8 m due to Auger Refusal.	2	100		
							3	99		
							4	98		
							5	97		
							6	96		
							7	95		
							8	94		

DST consulting engineers

Auger Sample
Split Spoon

* - Combustible Vapour Concentration
NR - No Sample Recovery
ND - Not Detectable

Bentonite & Riser
Sand Pack & Screen

ENCLOSURE 18

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

APPENDIX D
ELEVATION SURVEY DATA

Elevation Survey Data

951 Gladstone Avenue & 145 Loretta Avenue North, Ottawa

Borehole	Easting	Northing	Elevation
BH 2017-01	443991	5028029	104.892
BH 2017-02	444017.3	5028045	104.212
BH 2017-03	444056.8	5028054	103.358
BH 2017-04	444057.7	5028076	100.746
BH 2017-05	444017.3	5028096	102.672
BH 2017-05A	444019.2	5028096	102.663
BH 2017-06	443975	5028066	104.322
BH 2017-07	443952.3	5028127	102.416
BH 2017-08	443979.6	5028091	103.889
BH 2017-09	444005.2	5028115	99.617
BH 2017-10	443965.7	5028139	102.316
BH 2017-11	443947.7	5028155	102.088
BH 2017-12	443963.2	5028159	102.054
BH 2017-13	443977.7	5028143	102.195

APPENDIX E
LABORATORY ANALYTICAL RESULTS

TABLE E-1: SOIL ANALYTICAL RESULTS - PETROLEUM HYDROCARBONS & BTEX

Parameters	Standards							
	MOECC Table 3 Coarse	BH2017-1 SS7 (3.6 - 4.2 mbgs) 05/07/2017	DUP (Duplicate of BH17-1 SS7) 05/07/2017	BH2017-1 SS12 (6.6 - 7.2 mbgs) 05/07/2017	BH2017-2 SS6 (3.0 - 3.6 mbgs) 06/07/2017	BH2017-2 SS9 (4.8 - 5.4 mbgs) 06/07/2017	BH2017-3 SS2 (0.6 - 1.2 mbgs) 05/07/2017	BH2017-3 SS11 (6.0 - 6.4 mbgs) 05/07/2017
% Moisture	NG	12	NA	11	30	15	13	11
PHCs								
F1 (C6-C10)	55	200	190	520	<10	<10	<10	<10
F2 (C10-C16)	98	78	NA	470	<10	<10	23	16
F3 (C16-C34)	300	<50	NA	<50	<50	<50	170	<50
F4 (C34-C50)	2,800	<50	NA	<50	<50	<50	630	<50
F4 Gravimetric	2,800	NA	NA	NA	NA	NA	2400	NA
BTEX								
Benzene	0.21	<0.020	<0.020	0.93	<0.020	<0.020	<0.020	<0.020
Toluene	2.3	0.042	0.050	11	<0.020	<0.050	<0.020	0.030
Ethylbenzene	2	0.037	0.04	8.1	<0.020	0.33	<0.020	<0.020
o-Xylene	NG	1.1	1.1	11	<0.020	0.039	<0.020	0.091
p+m-Xylene	NG	3.8	3.7	31	<0.040	0.55	<0.040	0.038
Total Xylenes	3.1	4.9	4.8	41	<0.040	0.59	<0.040	0.13

Notes:

- All units are expressed in micrograms per gram (µg/g).

MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use). Coarse textured soils.

mbgs - Metres below ground surface

< - Less than laboratory reportable detection limit (value indicated)

NA - Parameter not analyzed

NG - No guideline/standard available

( ) - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

NC - Non-calculable RPD.

Value - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-1: SOIL ANALYTICAL RESULTS - PETROLEUM HYDROCARBONS & BTEX

Parameters	Standards							
	MOECC Table 3 Coarse	BH2017-4 SS4 (1.8 - 2.4 mbgs) 06/07/2017	BH2017-4 SS5 (2.4 - 3.0 mbgs) 06/07/2017	BH2017-5 SS7 (3.6 - 4.2 mbgs) 07/07/2017	BH2017-5 SS12 (6.6 - 7.2 mbgs) 07/07/2017	BH2017-5A SS3 (1.2 - 1.8 mbgs) 07/07/2017	BH2017-6 SS12 (6.6 - 7.2 mbgs) 07/07/2017	BH2017-7 SS8 (4.2 - 4.8 mbgs) 27/06/2017
% Moisture	NG	26	15	27	16	4.8	12	30
PHCs								
F1 (C6-C10)	55	33	30	60	<10	<10	<10	<10
F2 (C10-C16)	98	55	<10	160	<10	260	<10	310
F3 (C16-C34)	300	<50	<50	340	<50	2300	<50	340
F4 (C34-C50)	2800	<50	<50	79	<50	490	<50	<50
F4 Gravimetric	2800	NA	NA	NA	NA	NA	NA	NA
BTEX								
Benzene	0.21	<0.020	<0.020	<0.020	0.11	0.039	<0.020	<0.020
Toluene	2.3	<0.020	<0.020	<0.020	<0.020	0.32	<0.050	<0.020
Ethylbenzene	2	<0.020	0.13	<0.020	<0.020	0.056	<0.020	<0.020
o-Xylene	NG	<0.020	<0.020	<0.020	<0.020	0.091	<0.020	<0.020
p+m-Xylene	NG	<0.040	<0.020	<0.020	<0.040	0.35	<0.020	<0.040
Total Xylenes	3.1	<0.040	<0.020	<0.020	<0.040	0.44	<0.020	<0.040

Notes:
- All units are expressed in micrograms per gram (µg/g).

MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property

mbgs - Metres below ground surface

< - Less than laboratory reportable detection limit (value indicated)

NA - Parameter not analyzed

NG - No guideline/standard available

( ) - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

NC - Non-calculable RPD.

Value - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-1: SOIL ANALYTICAL RESULTS - PETROLEUM HYDROCARBONS & BTEX

Parameters	Standards							
	MOECC Table 3 Coarse	BH2017-7 SS14 (7.8 - 8.0 mbgs) 27/06/2017	BH2017-8 SS5 (2.4 - 3.0 mbgs) 10/07/2017	BH2017-8 SS12 (6.6 - 7.2 mbgs) 10/07/2017	BH2017-9 SS4 (1.8 - 2.4 mbgs) 06/07/2017	BH2017-9 SS8 (4.2 - 4.5 mbgs) 06/07/2017	BH2017-10 SS10 (5.4 - 6.0 mbgs) 27/06/2017	BH2017-10 SS11 (6.0 - 6.6 mbgs) 27/06/2017
% Moisture	NG	13	27	15	24	15	12	14
PHCs								
F1 (C6-C10)	55	<10	<10	<10	<10	15	<10	<10
F2 (C10-C16)	98	<10	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	<50	<50	<50	170	<50	<50	<50
F4 (C34-C50)	2800	<50	<50	<50	380	<50	<50	<50
F4 Gravimetric	2800	NA	NA	NA	NA	NA	NA	NA
BTEX								
Benzene	0.21	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Toluene	2.3	<0.020	<0.020	<0.020	<0.020	0.059	<0.020	<0.020
Ethylbenzene	2	<0.020	<0.020	<0.020	<0.020	0.19	<0.020	<0.020
o-Xylene	NG	0.023	<0.020	<0.020	<0.020	0.16	<0.020	<0.020
p+m-Xylene	NG	0.081	<0.040	0.029	<0.020	0.71	<0.020	<0.040
Total Xylenes	3.1	0.10	<0.040	0.029	<0.020	0.87	<0.020	<0.040

Notes:
- All units are expressed in micrograms per gram (µg/g).

MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property

mbgs - Metres below ground surface

< - Less than laboratory reportable detection limit (value indicated)

NA - Parameter not

NG - No guideline/standard available

( ) - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

NC - Non-calculable RPD.

Value - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-1: SOIL ANALYTICAL RESULTS - PETROLEUM HYDROCARBONS & BTEX

Parameters	Standards	Analytical Results (Sample ID / Depth / Sampling Date d/m/y)			
	MOECC Table 3 Coarse	BH2017-11 SS11 (6.0 - 6.6 mbgs) 04/07/2017	BH2017-11 SS13 (7.2 - 7.8 mbgs) 04/07/2017	BH2017-13 SS3 (1.2 - 1.8 mbgs) 28/06/2017	BH2017-31 SS3 (Duplicate of BH17-13 SS3) 28/06/2017
% Moisture	NG	NA	NA	NA	NA
PHCs					
F1 (C6-C10)	55	<10	<10	<10	<10
F2 (C10-C16)	98	<10	<10	<10	<10
F3 (C16-C34)	300	<50	<50	170	66
F4 (C34-C50)	2800	<50	<50	370	180
F4 Gravimetric	2800	--	--	--	--
BTEX					
Benzene	0.21	<0.020	<0.020	<0.020	<0.020
Toluene	2.3	<0.020	<0.020	<0.020	0.027
Ethylbenzene	2	<0.020	<0.020	<0.020	<0.020
o-Xylene	NG	<0.040	<0.040	<0.040	<0.020
p+m-Xylene	NG	<0.020	<0.020	<0.020	0.031
Total Xylenes	3.1	<0.040	<0.040	<0.040	0.031

Notes:
- All units are expressed in micrograms per gram (µg/g).

MOECC Table 3	- Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use). Coarse textured soils.
mbgs	- Metres below ground surface
<	- Less than laboratory reportable detection limit (value indicated)
NA	- Parameter not analyzed
NG	- No guideline/standard available
( )	- Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.
NC	- Non-calculable RPD.
Value	- Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-2: SOIL ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

Parameters	Standards	Analytical Results (Sample ID / Depth / Sampling Date d/m/y)				
	MOECC Table 3 Coarse	BH2017-4 SS5 (2.4 - 3.0mbgs) 06/07/2017	BH2017-7 SS8 (4.2 - 4.8 mbgs) 27/06/2017	BH2017-9 SS4 (1.8 - 2.4mbgs) 06/07/2017	BH2017-11 SS3 (1.2 - 1.8 mbgs) 04/07/2017	BH2017-31 SS3 (Duplicate of BH2017-13-SS3)
Acenaphthene	7.9	<0.0050	<0.010 (1)	<0.050	0.26	0.82
Acenaphthylene	0.15	<0.0050	<0.0050	<0.050	0.84	0.072
Anthracene	0.67	0.014	<0.0050	<0.050	0.73	0.13
Benzo(a)anthracene	0.5	<0.0050	<0.0050	<0.050	3.5	0.23
Benzo(a)pyrene	0.3	<0.0050	<0.0050	<0.050	3.2	0.19
Benzo(b/j)fluoranthene	0.78	<0.0050	<0.0050	<0.050	3.9	0.24
Benzo(g,h,i)perylene	6.6	<0.0050	<0.0050	<0.050	2.1	0.11
Benzo(k)fluoranthene	0.78	<0.0050	<0.0050	<0.050	1.4	0.085
Chrysene	7	0.005	<0.0050	<0.050	2.9	0.19
Dibenz(a,h)anthracene	0.1	<0.0050	<0.0050	<0.050	0.51	<0.050
Fluoranthene	0.69	0.019	0.012	0.067	7.0	0.52
Fluorene	62	1.1	1.1	<0.050	0.46	0.15
Indeno(1,2,3-cd)pyrene	0.38	3.8	3.7	<0.050	2.5	0.11
1-Methylnaphthalene	0.99	0.0073	<0.0050	<0.050	0.24	0.11
2-Methylnaphthalene		<0.0050	<0.0050	<0.050	0.38	0.19
Naphthalene	0.6	<0.0050	<0.0050	<0.050	0.40	0.18
Phenanthrene	6.2	0.022	<0.0050	0.074	2.2	0.49
Pyrene	78	0.014	0.048	0.055	5.7	0.38

Notes:

- All units are expressed in micrograms per gram (µg/g).

MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use). Coarse textured soils.

mbgs - Metres below ground surface

< - Less than laboratory reportable detection limit (value indicated)

( ) - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

NG - No guideline/standard available

NC - Non-calculable RPD

Value - Sample result exceeds applicable MOECC standards Coarse soils.

(1) -Detection Limit raised due to matrix interference

TABLE E-3: SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS (VOCs)

Parameters	Standards	Analytical Results (Sample ID / Depth / Sampling Date d/m/y)					
	MOECC Table 3 Coarse	BH2017-1 SS12 (6.6 - 7.2 mbgs) 05/07/2017	BH2017-2 SS9 (4.8 - 5.4mbgs) 06/07/2017	BH2017-4 SS5 (2.4 - 3.0mbgs) 06/07/2017	BH2017-5 SS7 (3.6 - 4.2 mbgs) 07/07/2017	BH2017-5A SS3 (1.2 - 1.8 mbgs) 07/07/2017	BH2017-6 SS12 (6.6 - 7.2 mbgs) 07/07/2017
Acetone (2-Propanone)	16	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	0.21	0.93	<0.020	<0.020	<0.020	0.039	<0.020
Bromodichloromethane	13	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	0.26	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromomethane	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Carbon Tetrachloride	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	2.4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	9.4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	3.4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	4.8	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	0.083	1.1	1.1	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane (FREON 12)	16	3.8	3.7	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	3.5	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	0.05	<0.050	<0.050	<0.050	<0.050	0.2	<0.050
1,1-Dichloroethylene	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
cis-1,2-Dichloroethylene	3.4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
trans-1,2-Dichloroethylene	0.084	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
cis-1,3-Dichloropropene	0.05	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
trans-1,3-Dichloropropene	NG	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Ethylbenzene	2	8.1	0.33	0.13	<0.020	0.056	<0.020
Ethylene Dibromide	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Hexane	2.8	11	0.17	0.41	<0.050	<0.050	<0.050
Methylene Chloride(Dichloromethane)	0.1	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone (2-Butanone)	16	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	1.7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl t-butyl ether (MTBE)	0.75	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	0.7	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1,2-Tetrachloroethane	0.058	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	0.28	<0.050	<0.020	<0.020	<0.050	0.32	<0.020
Toluene	2.3	11	<0.050	<0.050	<0.020	<0.050	<0.050
1,1,1-Trichloroethane	0.38	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	0.061	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichlorofluoromethane (FREON 11)	4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl Chloride	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
p+m-Xylene	NG	31	0.55	<0.020	<0.020	0.35	<0.020
o-Xylene	NG	11	0.039	<0.020	<0.020	0.091	<0.020
Total Xylenes	3.1	41	0.59	<0.020	<0.020	0.44	<0.020

Notes:

- All units are expressed in micrograms per gram (µg/g).

MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use). Coarse textured soils.

mbgs - Metres below ground surface

< - Less than laboratory reportable detection limit (value indicated)

( ) - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

NG - No guideline/standard available

NC - Non-calculable RPD

Value - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-3: SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS (VOCs)

Parameters	Standards	Analytical Results (Sample ID / Depth / Sampling Date d/m/y)			
	MOECC Table 3 Coarse	BH2017-8 SS12 (6.6 - 7.2 mbgs) 10/07/2017	BH2017-9 SS4 (1.8 - 2.4mbgs) 06/07/2017	BH2017-10 SS10 (5.5 - 6.1 mbgs) 27/06/2017	BH2017-31 SS3 (DUP of BH2017-13-SS3)
Acetone (2-Propanone)	16	<0.50	<0.50	<0.50	<0.50
Benzene	0.21	<0.020	<0.020	<0.020	<0.020
Bromodichloromethane	13	<0.050	<0.050	<0.050	<0.050
Bromoform	0.26	<0.050	<0.050	<0.050	<0.050
Bromomethane	0.05	<0.050	<0.050	<0.050	<0.050
Carbon Tetrachloride	0.05	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	2.4	<0.050	<0.050	<0.050	<0.050
Chloroform	0.05	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	9.4	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	3.4	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	4.8	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	0.083	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane (FREON 12)	16	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	3.5	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	0.05	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	0.05	<0.050	<0.050	<0.050	<0.050
cis-1,2-Dichloroethylene	3.4	<0.050	<0.050	<0.050	<0.050
trans-1,2-Dichloroethylene	0.084	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	0.05	<0.050	<0.050	<0.050	<0.050
cis-1,3-Dichloropropene	0.05	<0.030	<0.030	<0.030	<0.030
trans-1,3-Dichloropropene	NG	<0.040	<0.040	<0.040	<0.040
Ethylbenzene	2	<0.020	<0.020	<0.020	<0.020
Ethylene Dibromide	0.05	<0.050	<0.050	<0.050	<0.050
Hexane	2.8	0.25	<0.050	<0.050	0.084
Methylene Chloride(Dichloromethane)	0.1	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone (2-Butanone)	16	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	1.7	<0.50	<0.50	<0.50	<0.50
Methyl t-butyl ether (MTBE)	0.75	<0.050	<0.050	<0.050	<0.050
Styrene	0.7	<0.050	<0.050	<0.050	<0.050
1,1,1,2-Tetrachloroethane	0.058	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	0.05	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	0.28	<0.020	<0.020	<0.050	<0.050
Toluene	2.3	<0.050	<0.050	<0.020	0.027
1,1,1-Trichloroethane	0.38	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	0.05	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	0.061	<0.050	<0.050	<0.050	<0.050
Trichlorofluoromethane (FREON 11)	4	<0.050	<0.050	<0.050	<0.050
Vinyl Chloride	0.02	<0.020	<0.020	<0.020	<0.020
p+m-Xylene	NG	0.029	<0.020	<0.020	0.031
o-Xylene	NG	<0.020	<0.020	<0.020	<0.020
Total Xylenes	3.1	0.029	<0.020	<0.020	0.031

Notes:

- All units are expressed in micrograms per gram (µg/g).

MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use). Coarse textured soils.

mbgs - Metres below ground surface

< - Less than laboratory reportable detection limit (value indicated)

( ) - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

NG - No guideline/standard available

NC - Non-calculable RPD

Value - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-4: SOIL ANALYTICAL RESULTS - METALS

Parameter Description	Standards	Analytical Results (Sample ID / Depth - mbgs / Sampling Date)							
	MOECC Table 3 Coarse	BH2017-1 SS7 3.2 m - 4.3 m 05/07/2017	BH2017-2 SS9 4.8 m - 5.4 m 05/07/2017	BH2017-3 SS2 0.6 m - 1.2 m 05/07/2017	BH2017-4 SS5 2.4 m - 3.0 m 06/07/2017	BH2017-5 SS7 3.6 m - 4.2 m 07/07/2017	BH2017-6 SS12 6.6 m - 7.2 m 07/07/2017	BH2017-7 SS5 2.4 m - 3.0 m 27/06/2017	BH2017-8 SS5 2.4 m - 3.0 m 10/07/2017
Antimony	7.5	<0.20	<0.20	0.45	<0.20	<0.20	<0.20	<0.20	0.21
Arsenic	18	<0.1	<1.0	3.5	<1.0	1.4	<1.0	1.8	2.0
Barium	390	68	82	160	110	320	56	40	370
Beryllium	4	0.25	0.33	0.56	0.36	0.74	0.26	0.22	0.78
Boron (B)	120	5.1	<5.0	8.1	5.8	8.1	6.4	<5.0	7.7
Cadmium	1.2	<0.10	<0.10	0.22	<0.10	<0.10	<0.10	<0.10	0.10
Chromium	160	14	18	40	21	100	15	14	120
Cobalt	22	6.0	6.7	10	8.0	21	5.4	4.0	22
Copper	1.1	11	14	35	15	48	11	7.9	54
Lead	3.8	5.0	4.7	38	4.8	13	4	7.7	10
Molybdenum	6.9	<0.50	<0.50	0.90	<0.50	0.54	0.55	2.3	0.53
Nickel	100	10	13	26	13	55	9.7	8.5	64
Selenium	2.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Silver	20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium	1	0.10	0.14	0.23	0.13	0.36	0.068	0.087	0.38
Uranium	23	0.42	0.53	0.82	0.57	0.66	0.9	0.46	0.57
Vanadium	86	25	32	56	34	92	23	18	90
Zinc	340	24	27	79	30	110	19	18	110

Notes: - All units are expressed in micrograms per gram (µg/g).

MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use). Coarse textured soils.

mbgs - Metres below ground surface

< - Less than laboratory reportable detection limit (value indicated)

( ) - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

NG - No guideline/standard available

NC - Non-calculable RPD

Value - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-4: SOIL ANALYTICAL RESULTS - METALS

Parameter Description	Standards	Analytical Results (Sample ID / Depth - mbgs / Sampling Date)				
	MOECC Table 3 Coarse	BH2017-9 SS4 1.8 m - 2.4 m 06/07/2017	BH2017-10 SS13 7.2 m - 7.8 m 27/06/2017	BH2017-11 SS3 1.2 m - 1.8 mbgs 04/07/2017	BH2017-13 SS3 1.2 m - 1.8 m 28/06/2017	BH2017-51 SS3 (DIP of BH2017-13-SS3) 1.2 m - 1.85 m
Antimony	7.5	<0.20	1.7	3.9	<0.20	0.34
Arsenic	18	<1.0	4.7	33	2.1	1.7
Barium	390	190	170	300	340	290
Beryllium	4	0.56	0.46	0.44	0.74	0.72
Boron (B)	120	5.8	7.3	11	6.6	6.2
Cadmium	1.2	<0.10	0.24	0.8	0.14	0.17
Chromium	160	42	36	31	110	100
Cobalt	22	12	9.5	7	23	21
Copper	140	24	30	100	55	50
Lead	120	5.9	70	410	18	22
Molybdenum	6.9	<0.50	1.6	6.5	0.54	0.66
Nickel	100	26	25	29	62	59
Selenium	2.4	<0.50	<0.50	1.2	<0.50	<0.50
Silver	20	<0.20	<0.20	0.37	<0.20	<0.20
Thallium	1	0.28	0.2	0.19	0.41	0.36
Uranium	23	0.58	0.65	1.2	0.68	0.7
Vanadium	86	62	40	24	100	95
Zinc	340	63	90	310	120	110

Notes:
- All units are expressed in micrograms per gram (µg/g).

MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use). Coarse textured soils.

mbgs - Metres below ground surface

< - Less than laboratory reportable detection limit (value indicated)

( ) - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

NG - No guideline/standard available

NC - Non-calculable RPD

TABLE E-5: GROUNDWATER ANALYTICAL RESULTS - PETROLEUM HYDROCARBONS & BTEX

Parameters	Standards	Analytical Results (Sample ID / Sampling Date d/m/y)								
	MOECC Table 3 Coarse	BH2017-02 18/07/2017	BH2017-04 18/07/2017	BH2017-05 18/07/2017	BHMW-D (DUP of BH2017-05) 18/07/2017	BH2017-06 26/07/2017	Lab -Dup BH2017-06 26/07/2018	BH2017-14 (DUP of BH2017-06) 26/07/2017	BH2017-07 18/07/2017	BH2017-09 18/07/2017
PHCs										
F1 (C6-C10)	750	21000	<25	<25	<25	<25	<25	<25	<25	28
F1 (C6-C10) - BTEX	750	12000	<25	<25	<25	<25	<25	<25	<25	28
F2 (C10-C16)	150	6100	<100	NA	NA	<100	<100	<100	<100	<100
F3 (C16-C34)	500	<200	<200	NA	NA	<200	<200	<200	<200	<200
F4 (C34-C50)	500	<200	<200	NA	NA	<200	<200	<200	<200	<200
BTEX										
Benzene	44	11	0.23	0.34	0.25	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	18000	41	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.53	<0.20
Ethylbenzene	2300	1500	0.25	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	NV	680	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	NV	5900	0.22	<0.20	<0.20	<0.20	<0.20	<0.20	0.49	0.22
Total Xylenes	4,200	6600	0.22	<0.20	<0.20	<0.20	<0.20	<0.20	0.49	0.22

Notes:
- All units are expressed in micrograms per gram (µg/L).

MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (All Types of Property Use). Coarse textured soils.

mbgs - Metres below ground surface

< - Less than laboratory reportable detection limit (value indicated)

NA - Parameter not analyzed

NG - No guideline/standard available

( ) - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

NC - Non-calculable RPD.

Value - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-5: GROUNDWATER ANALYTICAL RESULTS - PETROLEUM HYDROCARBONS & BTEX

Parameters	Standards		Analytical Results (Sample ID / Sampling Date d/m/y)			
	MOECC Table 3 Fines	MOECC Table 3 Coarse	BH2017-11 18/07/2017	Unknown 1 25/07/2017	FIELD BLANK 18/07/2017	TRIP BLANK 18/07/2017
PHCs						
F1 (C6-C10)	750	750	<25	<0.25	<25	<25
F1 (C6-C10) - BTEX	750	750	<25	<0.25	<25	<25
F2 (C10-C16)	150	150	<100	<100	<100	<100
F3 (C16-C34)	500	500	<200	<200	<200	<200
F4 (C34-C50)	500	500	<200	<200	<200	<200
BTEX						
Benzene	430	44	<0.20	<0.20	<0.20	<0.20
Toluene	18000	18000	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	2300	2300	<0.20	<0.20	<0.20	<0.20
o-Xylene	NV	NV	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	NV	NV	<0.20	<0.20	<0.20	<0.20
Total Xylenes	4,200	4,200	<0.20	<0.20	<0.20	<0.20

Notes:
- All units are expressed in micrograms per gram (µg/L).

MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (All Types of Property Use). Coarse textured soils.

mbgs - Metres below ground surface

< - Less than laboratory reportable detection limit (value indicated)

NA - Parameter not analyzed

NG - No guideline/standard available

( ) - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

NC - Non-calculable RPD.

Value - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-6: GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

Parameters	Standards	Analytical Results (Sample ID / Sampling Date d/m/y)								
	MOECC Table 3 Coarse	BH2017-02 18/07/2017	BH2017-04 18/07/2017	BH2017-05 18/07/2017	BHMW-D (DUP of BH2017-05) 18/07/2017	BH2017-06 26/07/2017	BH2017-14 Field Dup of BH2017-06 26/07/2017	BH2017-14 Lab Dup of BH2017-14 26/07/2017	BH2017-07 18/07/2017	BH2017-09 18/07/2017
Acetone (2-Propanone)	130,000	<500	<10	<10	<10	<10	<10	<10	<10	<10
Benzene	44.00	11	0.23	0.34	0.25	<0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	85000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	380	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	5.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	0.79	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	630	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	2.4	<0.20	<0.20	0.70	0.60	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	82000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	4600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	9600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (FREON 12)	4400	<50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	320	<0.20	<0.20	0.24	0.23	<0.20	<0.20	<0.20	<0.20	0.49
1,2-Dichloroethane	1.6	<0.50	<0.50	6.6	7.0	<0.50	<0.50	<0.50	<0.50	**20**
1,1-Dichloroethylene	1.6	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,2-Dichloroethylene	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethylene	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	16	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	NV	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	NV	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Ethylbenzene	2300	1500	0.25	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylene Dibromide	0.25	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Hexane	51	280	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride(Dichloromethane)	610	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Methyl Ethyl Ketone (2-Butanone)	470000	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methyl Isobutyl Ketone	140000	<250	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl t-butyl ether (MTBE)	190	<0.50	24	240	240	<0.50	<0.50	<0.50	<2.5 (1)	110
Styrene	1300	<2.1 (1)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	3.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	3.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	18000	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	1.6	41	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.53	<0.20
1,1,1-Trichloroethane	640	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	4.7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	1.6	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane (FREON 11)	2500	<25	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	NV	5900	0.22	<0.20	<0.20	<0.20	<0.20	<0.20	0.49	0.22
o-Xylene	NV	680	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Xylenes	4200	**6600**	0.22	<0.20	<0.20	<0.20	<0.20	<0.20	0.49	0.22

Notes:

- All units are expressed in micrograms per gram (µg/L).

MOECC Table 3	- Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (All Types of Property Use). Coarse textured soils.
mbgs	- Metres below ground surface
<	- Less than laboratory reportable detection limit (value indicated)
NA	- Parameter not analyzed
NG	- No guideline/standard available
( )	- Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.
NC	- Non-calculable RPD.
Value	- Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-6: GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

Parameters	Standards	Analytical Results (Sample ID / Sampling Date d/m/y)			
	MOECC Table 3 Coarse	BH2017-11 18/07/2017	Unknown 1 25/07/2017	FIELD BLANK 18/07/2017	TRIP BLANK 18/07/2017
Acetone (2-Propanone)	130,000	<10	<10	<10	<10
Benzene	44.00	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	85000	<0.50	<0.50	<0.50	<0.50
Bromoform	380	<1.0	<1.0	<1.0	<1.0
Bromomethane	5.6	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	0.79	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	630	<0.20	<0.20	<0.20	<0.20
Chloroform	2.4	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	82000	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	4600	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	9600	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	8	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane (FREON 12)	4400	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	320	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	1.6	1.3	<0.50	<0.50	<0.50
1,1-Dichloroethylene	1.6	<0.20	<0.20	<0.20	<0.20
cis-1,2-Dichloroethylene	1.6	<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethylene	1.6	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	16	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	NV	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	NV	<0.40	<0.40	<0.40	<0.40
Ethylbenzene	2300	<0.20	<0.20	<0.20	<0.20
Ethylene Dibromide	0.25	<0.20	<0.20	<0.20	<0.20
Hexane	51	<1.0	<1.0	<1.0	<1.0
Methylene Chloride(Dichloromethane)	610	<2.0	<2.0	<2.0	<2.0
Methyl Ethyl Ketone (2-Butanone)	470000	<10	<10	<10	<10
Methyl Isobutyl Ketone	140000	<5.0	<5.0	<5.0	<5.0
Methyl t-butyl ether (MTBE)	190	16	<0.50	<0.50	<0.50
Styrene	1300	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	3.3	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	3.2	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	18000	<0.20	<0.20	<0.20	<0.20
Toluene	1.6	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	640	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	4.7	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	1.6	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane (FREON 11)	2500	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	0.5	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	NV	<0.20	<0.20	<0.20	<0.20
o-Xylene	NV	<0.20	<0.20	<0.20	<0.20
Total Xylenes	4200	<0.20	<0.20	<0.20	<0.20

Notes:

- All units are expressed in micrograms per gram (µg/L).

MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (All Types of Property Use). Coarse textured soils.

mbgs - Metres below ground surface

< - Less than laboratory reportable detection limit (value indicated)

NA - Parameter not analyzed

NG - No guideline/standard available

( ) - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

NC - Non-calculable RPD.

Value - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-7: GROUNDWATER ANALYTICAL RESULTS - METALS & INORGANICS

Parameters	Standards	Analytical Results (Sample ID / Sampling Date d/m/y)										
	MOECC Table 3 Coarse	BH2017-02 18/07/2017	BH2017-04 18/07/2017	BH2017-05 18/07/2017	BHMW-D (DUP of BH2017-05) 18/07/2017	BH2017-06 26/07/2017	BH2017-14 (DUP of BH2017-06) 18/07/2017	BH2017-06 Lab-Dup 26/07/2017	BH2017-07 18/07/2017	BH2017-09 18/07/2017	Unknown 1 25/07/2017 (Well Adjacent to BH2017-07)	LAB-DUP of Unknown 1 25/07/2017
Antimony	20000	<0.50	<0.50	0.71	0.67	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	1900	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Barium	29000	3800	130	370	370	98	97	99	110	140	120	120
Beryllium	67	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Boron (B)	45000	74.00	69	180	180	67	67	68	76	150	56	58
Cadmium	2.7	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chromium	810	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cobalt	66	6.6	1.4	<0.50	<0.50	2.5	2.6	2.6	0.59	0.78	<0.50	<0.50
Copper	87	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.3	1.4	1.3
Lead	25	13	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.52	<0.50	<0.50
Molybdenum	9200	0.56	1.6	4.5	4.4	1.0	1.0	0.97	9.6	1.1	11	11
Nickel	490	11	4.9	4.4	4.2	6.9	6.9	6.6	3.1	11	1.5	1.6
Sodium	2300000	680000	250000	98000	97000	120000	120000	120000	460000	500000	540000	530000
Selenium	63	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	100
Silver	1.5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Thallium	510	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Uranium	420	1.2	3.9	0.38	0.37	6.9	6.8	7.2	1.5	0.44	1.2	1.2
Vanadium	250	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Zinc	1100	<5.0	<5.0	<5.0	<5.0	<5.0	5.2	<5.0	<5.0	6	6.3	5.6

Notes:

- All units are expressed in micrograms per gram (µg/L).

MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (All Types of Property Use). Coarse textured soils.

mbgs - Metres below ground surface

< - Less than laboratory reportable detection limit (value indicated)

NA - Parameter not analyzed

NG - No guideline/standard available

( ) - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

NC - Non-calculable RPD.

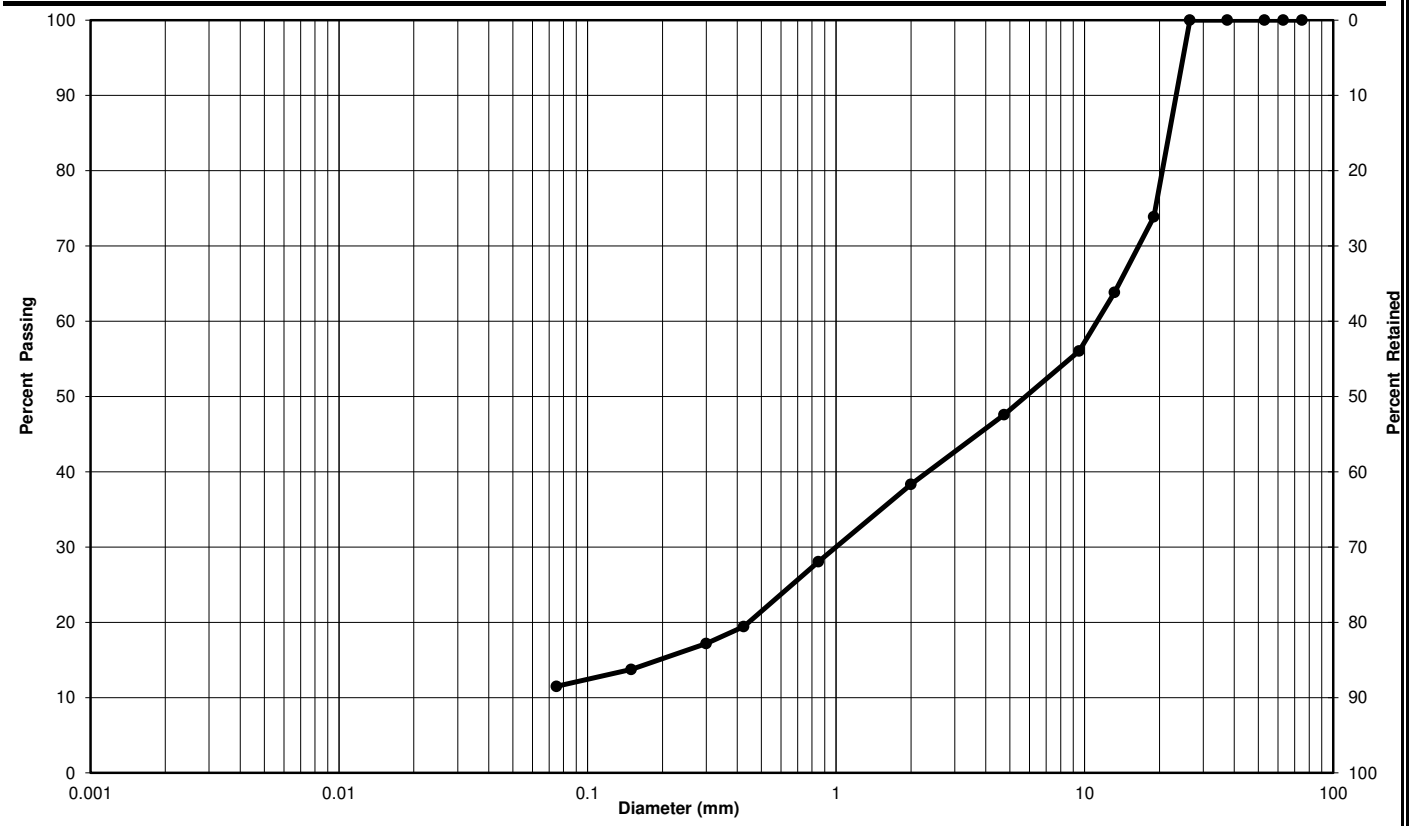
Value - Sample result exceeds applicable MOECC standards Coarse soils.

APPENDIX F
LABORATORY CERTIFICATES OF ANALYSIS

DST CONSULTING ENGINEERS INC.
550 Parkside Drive, Unit C1-B
Waterloo, Ontario, N2L 5V4
Tel: (519) 772-4521
Fax: (519) 725-3789
waterloo@dstgroup.com
www.dstgroup.com

PARTICLE SIZE ANALYSIS OF SOILS

DST Ref. No.:	TS-SO-29563	**Date Sampled:**	January 0, 1900
Project:	Trinity Development Group Geotech Investig	**Sampled By:**	1900-01-00
Client:	Trinity Development Group	**Source:**	BH2017-5, SS-4
Project Location:	Ottawa, ON	**Location:**	0
Sample #:	KWG-016-6	**Description:**	Gravel and Sand, trace Clay/Silt



Clay & Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse
Particle-Size Limits as per USCS (ASTM D-2487)					

Soil Description	Gravel (%)	Sand (%)	Clay & Silt (%)
Gravel and Sand, trace Clay/Silt	52	37	11

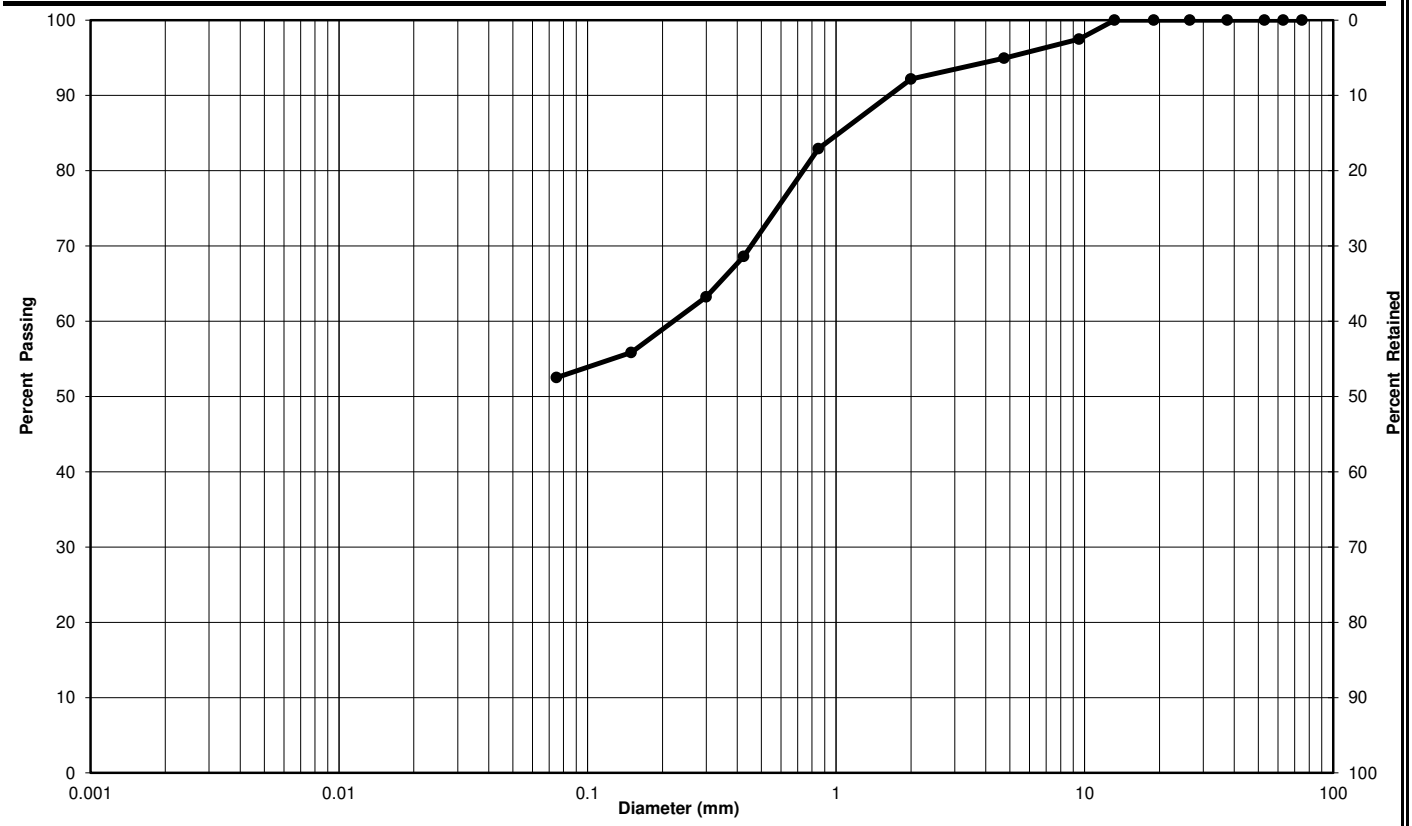
DISTRIBUTION:

CERTIFIED

DST CONSULTING ENGINEERS INC.
550 Parkside Drive, Unit C1-B
Waterloo, Ontario, N2L 5V4
Tel: (519) 772-4521
Fax: (519) 725-3789
waterloo@dstgroup.com
www.dstgroup.com

PARTICLE SIZE ANALYSIS OF SOILS

DST Ref. No.:	TS-SO-29563	**Date Sampled:**	January 0, 1900
Project:	Trinity Development Group Geotech Investig	**Sampled By:**	1900-01-00
Client:	Trinity Development Group	**Source:**	BH2017-9, SS-2
Project Location:	Ottawa, ON	**Location:**	0
Sample #:	KWG-016-9	**Description:**	Sand and Clay/Silt, trace Gravel



Clay & Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse
Particle-Size Limits as per USCS (ASTM D-2487)					

Soil Description	Gravel (%)	Sand (%)	Clay & Silt (%)
Sand and Clay/Silt, trace Gravel	5	42	53

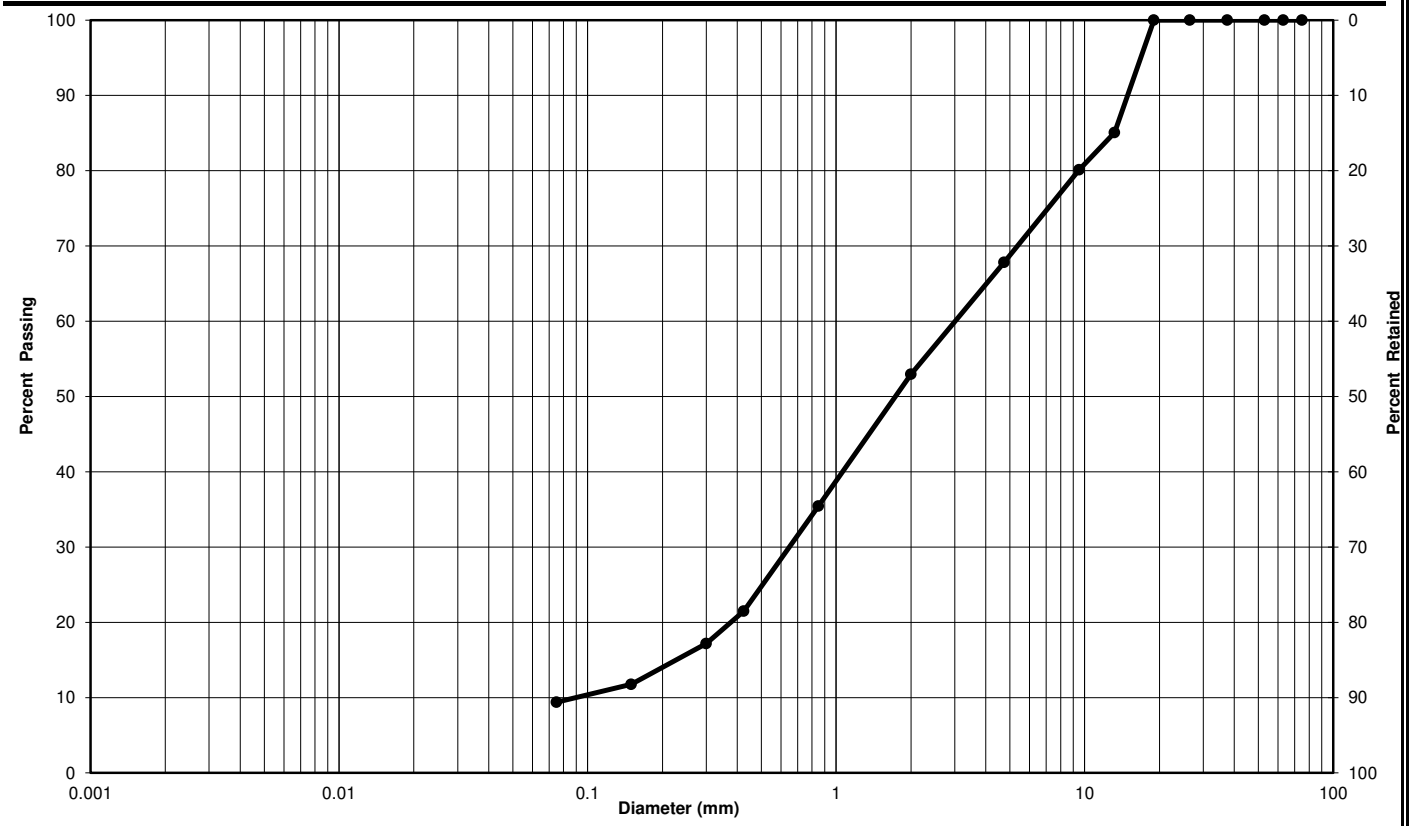
DISTRIBUTION:

CERTIFIED

DST CONSULTING ENGINEERS INC.
550 Parkside Drive, Unit C1-B
Waterloo, Ontario, N2L 5V4
Tel: (519) 772-4521
Fax: (519) 725-3789
waterloo@dstgroup.com
www.dstgroup.com

PARTICLE SIZE ANALYSIS OF SOILS

DST Ref. No.:	TS-SO-29563	**Date Sampled:**	January 0, 1900
Project:	Trinity Development Group Geotech Investig	**Sampled By:**	1900-01-00
Client:	Trinity Development Group	**Source:**	BH2017-10, SS-4
Project Location:	Ottawa, ON	**Location:**	0
Sample #:	KWG-016-10	**Description:**	Gravelley Sand, trace Clay & Silt



Clay & Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse
Particle-Size Limits as per USCS (ASTM D-2487)					

Soil Description	Gravel (%)	Sand (%)	Clay & Silt (%)
Gravelley Sand, trace Clay & Silt	32	59	9

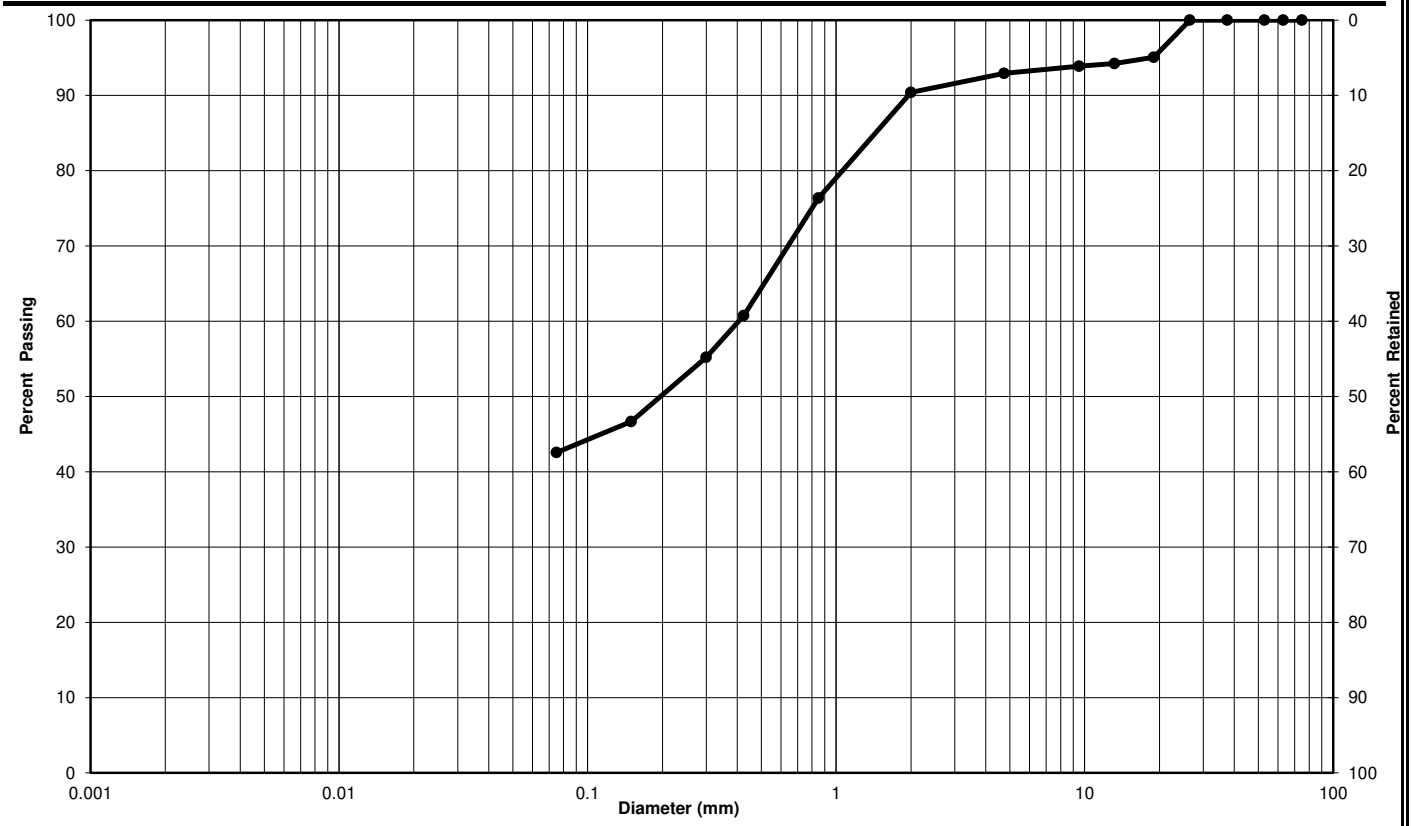
DISTRIBUTION:

CERTIFIED

DST CONSULTING ENGINEERS INC.
550 Parkside Drive, Unit C1-B
Waterloo, Ontario, N2L 5V4
Tel: (519) 772-4521
Fax: (519) 725-3789
waterloo@dstgroup.com
www.dstgroup.com

PARTICLE SIZE ANALYSIS OF SOILS

DST Ref. No.:	TS-SO-29563	**Date Sampled:**	January 0, 1900
Project:	Trinity Development Group Geotech Investig	**Sampled By:**	1900-01-00
Client:	Trinity Development Group	**Source:**	BH2017-11, SS-6
Project Location:	Ottawa, ON	**Location:**	0
Sample #:	KWG-016-12	**Description:**	Clay/Silt and Sand, trace Gravel



Clay & Silt	Sand			Gravel	
	Fine	Medium	Coarse	Fine	Coarse
Particle-Size Limits as per USCS (ASTM D-2487)					

Soil Description	Gravel (%)	Sand (%)	Clay & Silt (%)
Clay/Silt and Sand, trace Gravel	7	50	43

CCIL

DISTRIBUTION:

CERTIFIED

Your Project #: TS-SO-29563
Your C.O.C. #: 617077-02-01

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/06
Report #: R4578859
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7D5076
Received: 2017/06/27, 17:30

Sample Matrix: Soil
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum (1)	1	N/A	2017/07/05		EPA 8260C m
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2)	1	N/A	2017/07/05	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	2	2017/07/04	2017/07/05	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS (1)	1	2017/07/05	2017/07/05	CAM SOP-00447	EPA 6020B m
Moisture (1)	1	N/A	2017/06/30	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture (1)	1	N/A	2017/07/04	CAM SOP-00445	Carter 2nd ed 51.2 m
Volatile Organic Compounds and F1 PHCs (1)	1	N/A	2017/07/04	CAM SOP-00230	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: TS-SO-29563
Your C.O.C. #: 617077-02-01

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/06
Report #: R4578859
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7D5076
Received: 2017/06/27, 17:30

(1) This test was performed by Maxxam Analytics Mississauga
(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alison Cameron, Project Manager
Email: ACameron@maxxam.ca
Phone# (613) 274-0573

==========

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

Maxxam Job #: B7D5076
Report Date: 2017/07/06

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		EQL304		
Sampling Date				
COC Number		617077-02-01		
	UNITS	BH2017-10SS13	RDL	QC Batch
Metals				
Acid Extractable Antimony (Sb)	ug/g	1.7	0.20	5057954
Acid Extractable Arsenic (As)	ug/g	4.7	1.0	5057954
Acid Extractable Barium (Ba)	ug/g	170	0.50	5057954
Acid Extractable Beryllium (Be)	ug/g	0.46	0.20	5057954
Acid Extractable Boron (B)	ug/g	7.3	5.0	5057954
Acid Extractable Cadmium (Cd)	ug/g	0.24	0.10	5057954
Acid Extractable Chromium (Cr)	ug/g	36	1.0	5057954
Acid Extractable Cobalt (Co)	ug/g	9.5	0.10	5057954
Acid Extractable Copper (Cu)	ug/g	30	0.50	5057954
Acid Extractable Lead (Pb)	ug/g	70	1.0	5057954
Acid Extractable Molybdenum (Mo)	ug/g	1.6	0.50	5057954
Acid Extractable Nickel (Ni)	ug/g	25	0.50	5057954
Acid Extractable Selenium (Se)	ug/g	<0.50	0.50	5057954
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	5057954
Acid Extractable Thallium (Tl)	ug/g	0.20	0.050	5057954
Acid Extractable Uranium (U)	ug/g	0.65	0.050	5057954
Acid Extractable Vanadium (V)	ug/g	40	5.0	5057954
Acid Extractable Zinc (Zn)	ug/g	90	5.0	5057954

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		EQL302		
Sampling Date				
COC Number		617077-02-01		
	UNITS	**BH2017-10SS11**	**RDL**	**QC Batch**
Inorganics				
Moisture	%	14	1.0	5054487
BTEX & F1 Hydrocarbons				
Benzene	ug/g	<0.020	0.020	5056992
Toluene	ug/g	<0.020	0.020	5056992
Ethylbenzene	ug/g	<0.020	0.020	5056992
o-Xylene	ug/g	<0.020	0.020	5056992
p+m-Xylene	ug/g	<0.040	0.040	5056992
Total Xylenes	ug/g	<0.040	0.040	5056992
F1 (C6-C10)	ug/g	<10	10	5056992
F1 (C6-C10) - BTEX	ug/g	<10	10	5056992
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	5057039
F3 (C16-C34 Hydrocarbons)	ug/g	<50	50	5057039
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	5057039
Reached Baseline at C50	ug/g	Yes		5057039
Surrogate Recovery (%)				
1,4-Difluorobenzene	%	99		5056992
4-Bromofluorobenzene	%	94		5056992
D10-Ethylbenzene	%	108		5056992
D4-1,2-Dichloroethane	%	104		5056992
o-Terphenyl	%	87		5057039

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Maxxam ID		EQX158		
Sampling Date				
COC Number		617077-02-01		
	UNITS	**BH2017-10SS10**	**RDL**	**QC Batch**
Inorganics				
Moisture	%	12	1.0	5057421
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	0.050	5053409
Volatile Organics				
Acetone (2-Propanone)	ug/g	<0.50	0.50	5052442
Benzene	ug/g	<0.020	0.020	5052442
Bromodichloromethane	ug/g	<0.050	0.050	5052442
Bromoform	ug/g	<0.050	0.050	5052442
Bromomethane	ug/g	<0.050	0.050	5052442
Carbon Tetrachloride	ug/g	<0.050	0.050	5052442
Chlorobenzene	ug/g	<0.050	0.050	5052442
Chloroform	ug/g	<0.050	0.050	5052442
Dibromochloromethane	ug/g	<0.050	0.050	5052442
1,2-Dichlorobenzene	ug/g	<0.050	0.050	5052442
1,3-Dichlorobenzene	ug/g	<0.050	0.050	5052442
1,4-Dichlorobenzene	ug/g	<0.050	0.050	5052442
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	0.050	5052442
1,1-Dichloroethane	ug/g	<0.050	0.050	5052442
1,2-Dichloroethane	ug/g	<0.050	0.050	5052442
1,1-Dichloroethylene	ug/g	<0.050	0.050	5052442
cis-1,2-Dichloroethylene	ug/g	<0.050	0.050	5052442
trans-1,2-Dichloroethylene	ug/g	<0.050	0.050	5052442
1,2-Dichloropropane	ug/g	<0.050	0.050	5052442
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	5052442
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	5052442
Ethylbenzene	ug/g	<0.020	0.020	5052442
Ethylene Dibromide	ug/g	<0.050	0.050	5052442
Hexane	ug/g	<0.050	0.050	5052442
Methylene Chloride(Dichloromethane)	ug/g	<0.050	0.050	5052442
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	0.50	5052442
Methyl Isobutyl Ketone	ug/g	<0.50	0.50	5052442
Methyl t-butyl ether (MTBE)	ug/g	<0.050	0.050	5052442
Styrene	ug/g	<0.050	0.050	5052442
1,1,1,2-Tetrachloroethane	ug/g	<0.050	0.050	5052442
1,1,2,2-Tetrachloroethane	ug/g	<0.050	0.050	5052442
Tetrachloroethylene	ug/g	<0.050	0.050	5052442

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Maxxam ID		EQX158		
Sampling Date				
COC Number		617077-02-01		
	UNITS	BH2017-10SS10	RDL	QC Batch
Toluene	ug/g	<0.020	0.020	5052442
1,1,1-Trichloroethane	ug/g	<0.050	0.050	5052442
1,1,2-Trichloroethane	ug/g	<0.050	0.050	5052442
Trichloroethylene	ug/g	<0.050	0.050	5052442
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	0.050	5052442
Vinyl Chloride	ug/g	<0.020	0.020	5052442
p+m-Xylene	ug/g	<0.020	0.020	5052442
o-Xylene	ug/g	<0.020	0.020	5052442
Total Xylenes	ug/g	<0.020	0.020	5052442
F1 (C6-C10)	ug/g	<10	10	5052442
F1 (C6-C10) - BTEX	ug/g	<10	10	5052442
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	5057241
F3 (C16-C34 Hydrocarbons)	ug/g	<50	50	5057241
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	5057241
Reached Baseline at C50	ug/g	Yes		5057241
Surrogate Recovery (%)				
o-Terphenyl	%	94		5057241
4-Bromofluorobenzene	%	95		5052442
D10-o-Xylene	%	107		5052442
D4-1,2-Dichloroethane	%	103		5052442
D8-Toluene	%	98		5052442

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D5076
Report Date: 2017/07/06

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

TEST SUMMARY

Maxxam ID: EQL302
Sample ID: BH2017-10SS11
Matrix: Soil

Collected:
Shipped:
Received: 2017/06/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5056992	N/A	2017/07/05	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5057039	2017/07/04	2017/07/05	Atoosa Keshavarz
Moisture	BAL	5054487	N/A	2017/06/30	Min Yang

Maxxam ID: EQL304
Sample ID: BH2017-10SS13
Matrix: Soil

Collected:
Shipped:
Received: 2017/06/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	5057954	2017/07/05	2017/07/05	Viviana Canzonieri

Maxxam ID: EQX158
Sample ID: BH2017-10SS10
Matrix: Soil

Collected:
Shipped:
Received: 2017/06/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5053409	N/A	2017/07/05	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5057241	2017/07/04	2017/07/05	Atoosa Keshavarz
Moisture	BAL	5057421	N/A	2017/07/04	Valentina Kaftani
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5052442	N/A	2017/07/04	Karen Hughes

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

GENERAL COMMENTS

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

Package 1	11.0°C

Sample EQL302 [BH2017-10SS11] : F1/BTEX Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample EQX158 [BH2017-10SS10] : VOC Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D5076
Report Date: 2017/07/06

QUALITY ASSURANCE REPORT

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5052442	4-Bromofluorobenzene	2017/07/03	101	60 - 140	101	60 - 140	96	%		
5052442	D10-o-Xylene	2017/07/03	98	60 - 130	93	60 - 130	85	%		
5052442	D4-1,2-Dichloroethane	2017/07/03	102	60 - 140	101	60 - 140	106	%		
5052442	D8-Toluene	2017/07/03	99	60 - 140	99	60 - 140	97	%		
5056992	1,4-Difluorobenzene	2017/07/04	97	60 - 140	99	60 - 140	98	%		
5056992	4-Bromofluorobenzene	2017/07/04	99	60 - 140	99	60 - 140	95	%		
5056992	D10-Ethylbenzene	2017/07/04	94	60 - 140	107	60 - 140	99	%		
5056992	D4-1,2-Dichloroethane	2017/07/04	100	60 - 140	101	60 - 140	105	%		
5057039	o-Terphenyl	2017/07/04	103	60 - 130	91	60 - 130	85	%		
5057241	o-Terphenyl	2017/07/04	98	60 - 130	102	60 - 130	96	%		
5052442	1,1,1,2-Tetrachloroethane	2017/07/03	101	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5052442	1,1,1-Trichloroethane	2017/07/03	97	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
5052442	1,1,2,2-Tetrachloroethane	2017/07/03	95	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5052442	1,1,2-Trichloroethane	2017/07/03	94	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5052442	1,1-Dichloroethane	2017/07/03	97	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
5052442	1,1-Dichloroethylene	2017/07/03	100	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
5052442	1,2-Dichlorobenzene	2017/07/03	91	60 - 140	91	60 - 130	<0.050	ug/g	NC	50
5052442	1,2-Dichloroethane	2017/07/03	94	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
5052442	1,2-Dichloropropane	2017/07/03	91	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
5052442	1,3-Dichlorobenzene	2017/07/03	93	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5052442	1,4-Dichlorobenzene	2017/07/03	93	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5052442	Acetone (2-Propanone)	2017/07/03	81	60 - 140	85	60 - 140	<0.50	ug/g	NC	50
5052442	Benzene	2017/07/03	97	60 - 140	97	60 - 130	<0.020	ug/g	NC	50
5052442	Bromodichloromethane	2017/07/03	93	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5052442	Bromoform	2017/07/03	100	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5052442	Bromomethane	2017/07/03	92	60 - 140	92	60 - 140	<0.050	ug/g	NC	50
5052442	Carbon Tetrachloride	2017/07/03	97	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
5052442	Chlorobenzene	2017/07/03	92	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
5052442	Chloroform	2017/07/03	94	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
5052442	cis-1,2-Dichloroethylene	2017/07/03	95	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5052442	cis-1,3-Dichloropropene	2017/07/03	87	60 - 140	84	60 - 130	<0.030	ug/g	NC	50
5052442	Dibromochloromethane	2017/07/03	98	60 - 140	99	60 - 130	<0.050	ug/g	NC	50

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5052442	Dichlorodifluoromethane (FREON 12)	2017/07/03	99	60 - 140	97	60 - 140	<0.050	ug/g	NC	50
5052442	Ethylbenzene	2017/07/03	91	60 - 140	91	60 - 130	<0.020	ug/g	NC	50
5052442	Ethylene Dibromide	2017/07/03	100	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5052442	F1 (C6-C10) - BTEX	2017/07/03					<10	ug/g	NC	30
5052442	F1 (C6-C10)	2017/07/03	112	60 - 140	101	80 - 120	<10	ug/g	NC	30
5052442	Hexane	2017/07/03	99	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
5052442	Methyl Ethyl Ketone (2-Butanone)	2017/07/03	84	60 - 140	87	60 - 140	<0.50	ug/g	NC	50
5052442	Methyl Isobutyl Ketone	2017/07/03	82	60 - 140	83	60 - 130	<0.50	ug/g	NC	50
5052442	Methyl t-butyl ether (MTBE)	2017/07/03	93	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
5052442	Methylene Chloride(Dichloromethane)	2017/07/03	97	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
5052442	o-Xylene	2017/07/03	90	60 - 140	90	60 - 130	<0.020	ug/g	NC	50
5052442	p+m-Xylene	2017/07/03	91	60 - 140	92	60 - 130	<0.020	ug/g	NC	50
5052442	Styrene	2017/07/03	88	60 - 140	89	60 - 130	<0.050	ug/g	NC	50
5052442	Tetrachloroethylene	2017/07/03	90	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
5052442	Toluene	2017/07/03	98	60 - 140	98	60 - 130	<0.020	ug/g	NC	50
5052442	Total Xylenes	2017/07/03					<0.020	ug/g	NC	50
5052442	trans-1,2-Dichloroethylene	2017/07/03	91	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5052442	trans-1,3-Dichloropropene	2017/07/03	85	60 - 140	83	60 - 130	<0.040	ug/g	NC	50
5052442	Trichloroethylene	2017/07/03	94	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5052442	Trichlorofluoromethane (FREON 11)	2017/07/03	99	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
5052442	Vinyl Chloride	2017/07/03	84	60 - 140	84	60 - 130	<0.020	ug/g	NC	50
5054487	Moisture	2017/06/30							3.5	20
5056992	Benzene	2017/07/04	92	60 - 140	112	60 - 140	<0.020	ug/g	NC	50
5056992	Ethylbenzene	2017/07/04	96	60 - 140	117	60 - 140	<0.020	ug/g	NC	50
5056992	F1 (C6-C10) - BTEX	2017/07/04					<10	ug/g	NC	30
5056992	F1 (C6-C10)	2017/07/04	81	60 - 140	98	80 - 120	<10	ug/g	NC	30
5056992	o-Xylene	2017/07/04	98	60 - 140	123	60 - 140	<0.020	ug/g	NC	50
5056992	p+m-Xylene	2017/07/04	95	60 - 140	118	60 - 140	<0.040	ug/g	NC	50
5056992	Toluene	2017/07/04	90	60 - 140	111	60 - 140	<0.020	ug/g	NC	50
5056992	Total Xylenes	2017/07/04					<0.040	ug/g	NC	50
5057039	F2 (C10-C16 Hydrocarbons)	2017/07/05	117	50 - 130	99	80 - 120	<10	ug/g	10	30
5057039	F3 (C16-C34 Hydrocarbons)	2017/07/05	108	50 - 130	99	80 - 120	<50	ug/g	5.9	30

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5057039	F4 (C34-C50 Hydrocarbons)	2017/07/05	109	50 - 130	103	80 - 120	<50	ug/g	NC	30
5057241	F2 (C10-C16 Hydrocarbons)	2017/07/05	103	50 - 130	105	80 - 120	<10	ug/g	NC	30
5057241	F3 (C16-C34 Hydrocarbons)	2017/07/05	93	50 - 130	104	80 - 120	<50	ug/g	NC (1)	30
5057241	F4 (C34-C50 Hydrocarbons)	2017/07/05	71	50 - 130	99	80 - 120	<50	ug/g	158 (1)	30
5057421	Moisture	2017/07/04							0	20
5057954	Acid Extractable Antimony (Sb)	2017/07/05	94	75 - 125	99	80 - 120	<0.20	ug/g	NC	30
5057954	Acid Extractable Arsenic (As)	2017/07/05	100	75 - 125	100	80 - 120	<1.0	ug/g	8.5	30
5057954	Acid Extractable Barium (Ba)	2017/07/05	100	75 - 125	99	80 - 120	<0.50	ug/g	6.5	30
5057954	Acid Extractable Beryllium (Be)	2017/07/05	99	75 - 125	99	80 - 120	<0.20	ug/g	5.2	30
5057954	Acid Extractable Boron (B)	2017/07/05	103	75 - 125	102	80 - 120	<5.0	ug/g	7.4	30
5057954	Acid Extractable Cadmium (Cd)	2017/07/05	96	75 - 125	97	80 - 120	<0.10	ug/g	NC	30
5057954	Acid Extractable Chromium (Cr)	2017/07/05	105	75 - 125	100	80 - 120	<1.0	ug/g	2.0	30
5057954	Acid Extractable Cobalt (Co)	2017/07/05	100	75 - 125	101	80 - 120	<0.10	ug/g	0.52	30
5057954	Acid Extractable Copper (Cu)	2017/07/05	96	75 - 125	102	80 - 120	<0.50	ug/g	26	30
5057954	Acid Extractable Lead (Pb)	2017/07/05	95	75 - 125	101	80 - 120	<1.0	ug/g	7.4	30
5057954	Acid Extractable Molybdenum (Mo)	2017/07/05	99	75 - 125	96	80 - 120	<0.50	ug/g	NC	30
5057954	Acid Extractable Nickel (Ni)	2017/07/05	100	75 - 125	100	80 - 120	<0.50	ug/g	3.4	30
5057954	Acid Extractable Selenium (Se)	2017/07/05	98	75 - 125	104	80 - 120	<0.50	ug/g	NC	30
5057954	Acid Extractable Silver (Ag)	2017/07/05	100	75 - 125	101	80 - 120	<0.20	ug/g	NC	30
5057954	Acid Extractable Thallium (Tl)	2017/07/05	92	75 - 125	98	80 - 120	<0.050	ug/g	27	30
5057954	Acid Extractable Uranium (U)	2017/07/05	95	75 - 125	98	80 - 120	<0.050	ug/g	0.63	30
5057954	Acid Extractable Vanadium (V)	2017/07/05	101	75 - 125	98	80 - 120	<5.0	ug/g	NC	30
5057954	Acid Extractable Zinc (Zn)	2017/07/05	96	75 - 125	96	80 - 120	<5.0	ug/g	2.5	30

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

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

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

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

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

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

(1) Duplicate results exceeded RPD acceptance criteria for flagged analytes. This is likely due to sample heterogeneity.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D5076
Report Date: 2017/07/06

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Services

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam
A Bureau Veritas Group Company

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

27-Jun-17 17:30
Alison Cameron
B7D5076
MAF ENV-900

Page 1 of 1

Bottle Order #: 617077

Project Manager: Alison Cameron

C#617077-02-01

INVOICE TO:

Company Name: #3824 - DST Consulting Engineers Inc.
IMMEDIATE TEST
Attention: Accounts Payable
Address: 2150 Thurston Dr Unit 203
Ottawa ON K1G 5T9
Tel: (613) 748-1415 x Fax: (613) 748-1356 x
Email: ap@dstgroup.com

REPORT TO:

Company Name:
Attention: Eve Sabourin
Address:
Tel: Fax:
Email: esabourin@dstgroup.com

PROJECT INFORMATION:

Quotation #: B61802
P.O. #:
Project: TS-SO-29563
Project Name:
Site #:
Sampled By:

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
- [ ] Table 1 [ ] Res/Park [ ] Medium/Fine
- [ ] Table 2 [ ] Ind/Comm [ ] Coarse
- [ ] Table 3 [ ] Agri/Other [ ] For RSC
- [ ] Table ___

Other Regulations
- [ ] CCME [ ] Sanitary Sewer Bylaw
- [ ] Reg 558. [ ] Storm Sewer Bylaw
- [ ] MISA Municipality ___
- [ ] PWQO
- [ ] Other ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

Field Filtered (please circle): Metals / Hg / Cr VI

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	O.Reg 153 VOCs by HS & F1-F4 (Soil)	O.Reg 153 PAHs (Soil)	O.Reg 153 ICPMS Metals (Soil)	# of Bottles	Comments
1		BH2017-1SS11	27/06/17			X				no VOC
2		BH2017-1SS14	27/06/17			X				VOC as well
3		BH2017-1SS13	27/06/17					X		
4		~~BH2017-2-SS1~~								
5		~~BH2017-2-SS2~~								
6		~~BH2017-2-SS3~~								
7		~~BH2017-2-SS4~~								RECEIVED IN OTTAWA
8		~~BH2017-2-SS5~~								
9		~~BH2017-2-SS6~~								
10		~~BH2017-2-SS7~~								ON ICE

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
	17/06/27	5:30		2017/06/27	17:30	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
	12, 10, 11	Present		
		Intact		X

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxa Yellow: Client

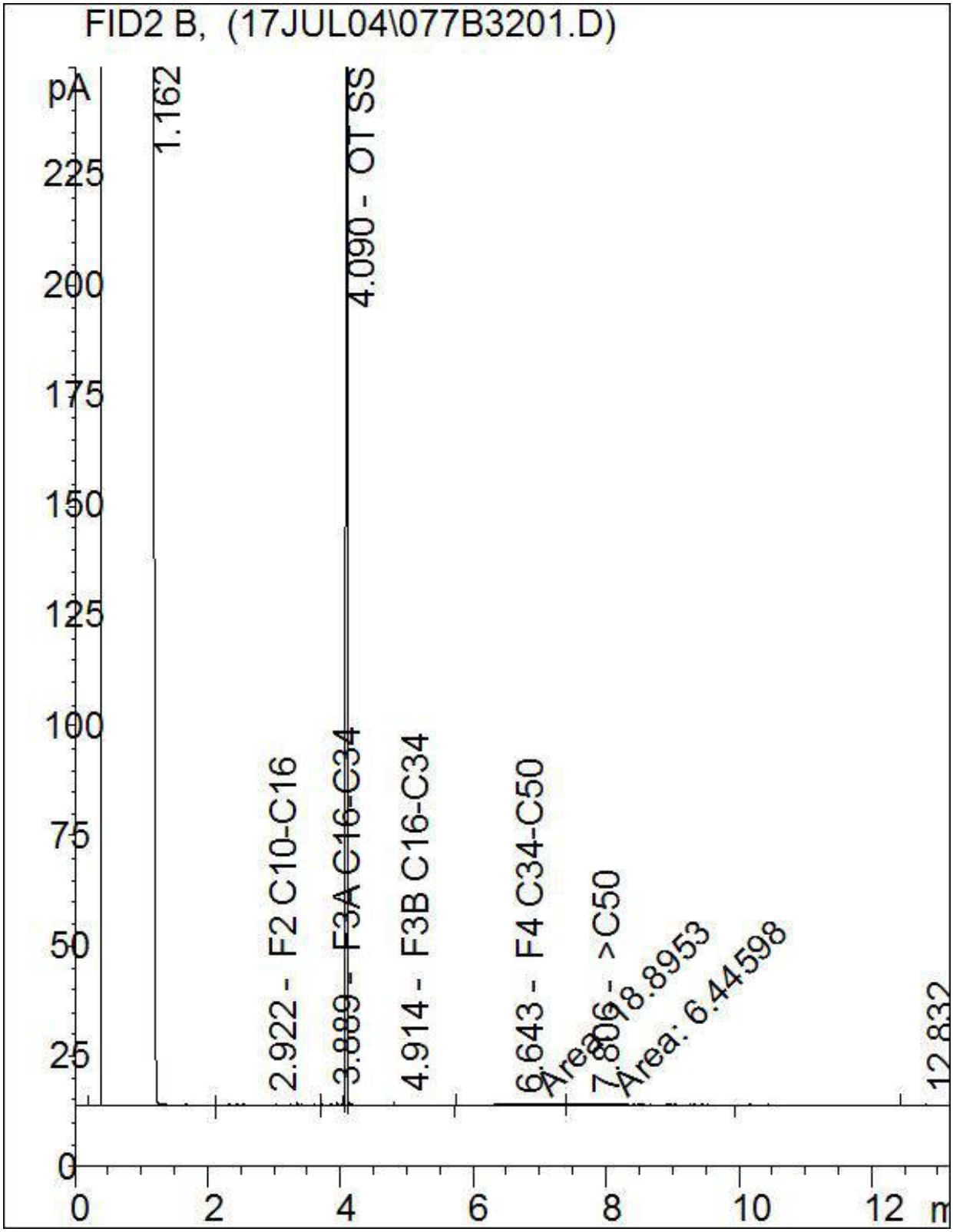
2017/06/27 22:30

9/9/8

Maxxam Job #: B7D5076
Report Date: 2017/07/06
Maxxam Sample: EQL302

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-10SS11

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

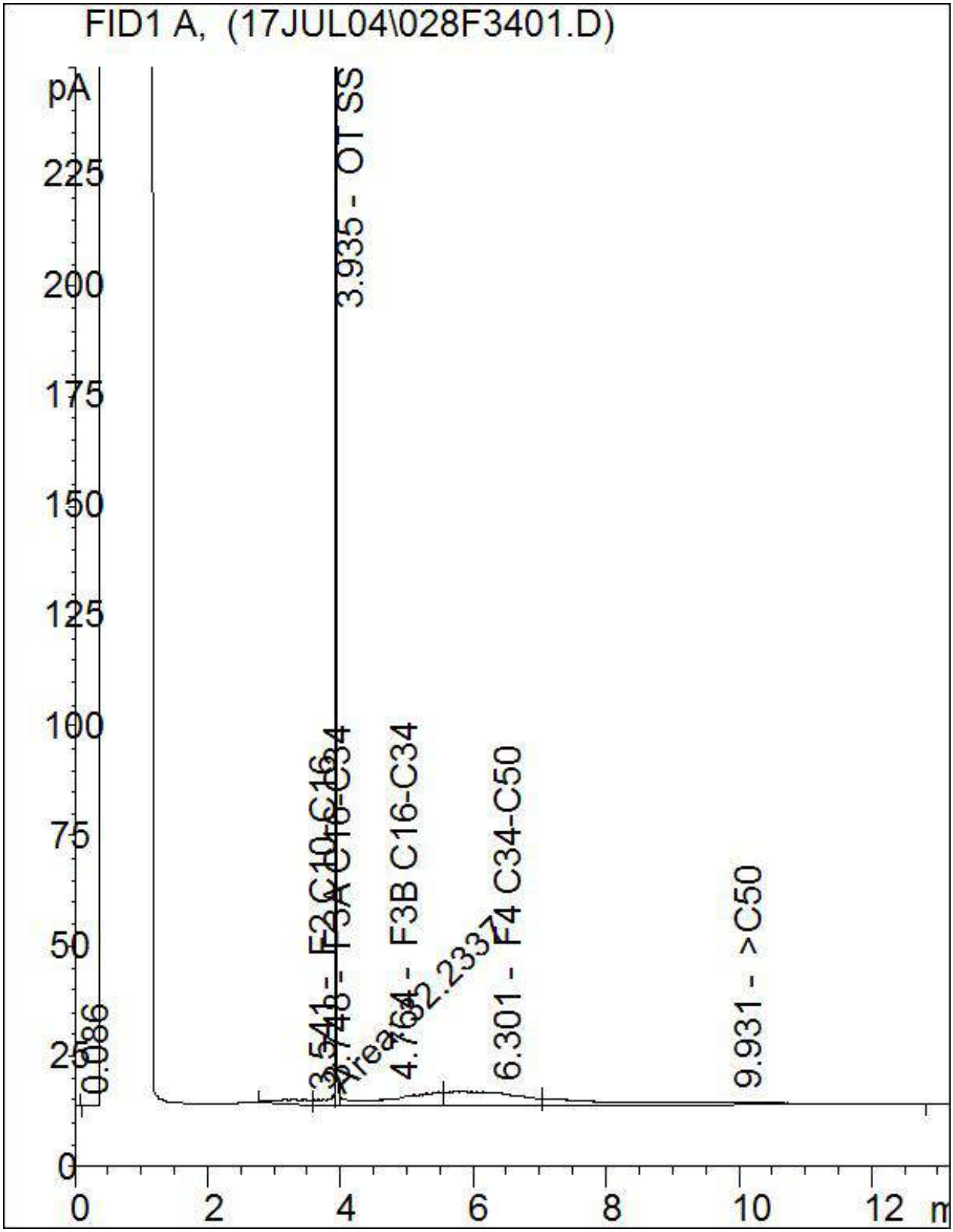


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7D5076
Report Date: 2017/07/06
Maxxam Sample: EQX158

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-10SS10

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: TS-SO-29563
Your C.O.C. #: 617077-13-01

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/18
Report #: R4602719
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7D5083
Received: 2017/06/27, 17:30

Sample Matrix: Soil
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum (1)	1	N/A	2017/07/18	CAM SOP-00301	EPA 8270D m
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2)	2	N/A	2017/07/05	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	2	2017/07/02	2017/07/04	CAM SOP-00316	CCME CWS m
Temporary Hold - 1 Day Fridge (1)	1	N/A	2017/07/05		
Strong Acid Leachable Metals by ICPMS (1)	1	2017/06/30	2017/07/04	CAM SOP-00447	EPA 6020B m
Moisture (1)	2	N/A	2017/06/30	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM) (1)	1	2017/07/14	2017/07/17	CAM SOP-00318	EPA 8270D m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Your Project #: TS-SO-29563
Your C.O.C. #: 617077-13-01

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/18
Report #: R4602719
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7D5083
Received: 2017/06/27, 17:30

(1) This test was performed by Maxxam Analytics Mississauga
(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alison Cameron, Project Manager
Email: ACameron@maxxam.ca
Phone# (613) 274-0573

==========

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

Maxxam Job #: B7D5083
Report Date: 2017/07/18

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		EQL314		
Sampling Date		2017/06/27		
COC Number		617077-13-01		
	UNITS	BH2017-7 SS5	RDL	QC Batch
Metals				
Acid Extractable Antimony (Sb)	ug/g	<0.20	0.20	5053798
Acid Extractable Arsenic (As)	ug/g	1.8	1.0	5053798
Acid Extractable Barium (Ba)	ug/g	40	0.50	5053798
Acid Extractable Beryllium (Be)	ug/g	0.22	0.20	5053798
Acid Extractable Boron (B)	ug/g	<5.0	5.0	5053798
Acid Extractable Cadmium (Cd)	ug/g	<0.10	0.10	5053798
Acid Extractable Chromium (Cr)	ug/g	14	1.0	5053798
Acid Extractable Cobalt (Co)	ug/g	4.0	0.10	5053798
Acid Extractable Copper (Cu)	ug/g	7.9	0.50	5053798
Acid Extractable Lead (Pb)	ug/g	7.7	1.0	5053798
Acid Extractable Molybdenum (Mo)	ug/g	2.3	0.50	5053798
Acid Extractable Nickel (Ni)	ug/g	8.5	0.50	5053798
Acid Extractable Selenium (Se)	ug/g	<0.50	0.50	5053798
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	5053798
Acid Extractable Thallium (Tl)	ug/g	0.087	0.050	5053798
Acid Extractable Uranium (U)	ug/g	0.46	0.050	5053798
Acid Extractable Vanadium (V)	ug/g	18	5.0	5053798
Acid Extractable Zinc (Zn)	ug/g	18	5.0	5053798

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

O.REG 153 PAHS (SOIL)

Maxxam ID		EQL315		
Sampling Date		2017/06/27		
COC Number		617077-13-01		
	UNITS	BH2017-7 SS8	RDL	QC Batch
Calculated Parameters				
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	0.0071	5066838
Polyaromatic Hydrocarbons				
Acenaphthene	ug/g	<0.010 (1)	0.010	5074320
Acenaphthylene	ug/g	<0.0050	0.0050	5074320
Anthracene	ug/g	<0.0050	0.0050	5074320
Benzo(a)anthracene	ug/g	<0.0050	0.0050	5074320
Benzo(a)pyrene	ug/g	<0.0050	0.0050	5074320
Benzo(b/j)fluoranthene	ug/g	<0.0050	0.0050	5074320
Benzo(g,h,i)perylene	ug/g	<0.0050	0.0050	5074320
Benzo(k)fluoranthene	ug/g	<0.0050	0.0050	5074320
Chrysene	ug/g	<0.0050	0.0050	5074320
Dibenz(a,h)anthracene	ug/g	<0.0050	0.0050	5074320
Fluoranthene	ug/g	0.012	0.0050	5074320
Fluorene	ug/g	<0.0050	0.0050	5074320
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	0.0050	5074320
1-Methylnaphthalene	ug/g	<0.0050	0.0050	5074320
2-Methylnaphthalene	ug/g	<0.0050	0.0050	5074320
Naphthalene	ug/g	<0.0050	0.0050	5074320
Phenanthrene	ug/g	<0.0050	0.0050	5074320
Pyrene	ug/g	0.048	0.0050	5074320
Surrogate Recovery (%)				
D10-Anthracene	%	92		5074320
D14-Terphenyl (FS)	%	91		5074320
D8-Acenaphthylene	%	85		5074320

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) DL was raised due to matrix interference.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D5083
Report Date: 2017/07/18

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		EQL313	EQL315		
Sampling Date		2017/06/27	2017/06/27		
COC Number		617077-13-01	617077-13-01		
	UNITS	BH2017-7 SS14	BH2017-7 SS8	RDL	QC Batch
Inorganics					
Moisture	%	13	30	1.0	5053923
BTEX & F1 Hydrocarbons					
Benzene	ug/g	<0.020	<0.020	0.020	5057671
Toluene	ug/g	<0.020	<0.020	0.020	5057671
Ethylbenzene	ug/g	<0.020	<0.020	0.020	5057671
o-Xylene	ug/g	0.023	<0.020	0.020	5057671
p+m-Xylene	ug/g	0.081	<0.040	0.040	5057671
Total Xylenes	ug/g	0.10	<0.040	0.040	5057671
F1 (C6-C10)	ug/g	<10	<10	10	5057671
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	5057671
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	<10	310	10	5055587
F3 (C16-C34 Hydrocarbons)	ug/g	<50	340	50	5055587
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	50	5055587
Reached Baseline at C50	ug/g	Yes	Yes		5055587
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	104	100		5057671
4-Bromofluorobenzene	%	106	107		5057671
D10-Ethylbenzene	%	89	87		5057671
D4-1,2-Dichloroethane	%	105	99		5057671
o-Terphenyl	%	87	89		5055587

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D5083
Report Date: 2017/07/18

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

TEST SUMMARY

Maxxam ID: EQL313
Sample ID: BH2017-7 SS14
Matrix: Soil

Collected: 2017/06/27
Shipped:
Received: 2017/06/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5057671	N/A	2017/07/05	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5055587	2017/07/02	2017/07/04	Margaret Kulczyk-Stanko
Temporary Hold - 1 Day Fridge		0			Ramanjot Kaur
Moisture	BAL	5053923	N/A	2017/06/30	Min Yang

Maxxam ID: EQL314
Sample ID: BH2017-7 SS5
Matrix: Soil

Collected: 2017/06/27
Shipped:
Received: 2017/06/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	5053798	2017/06/30	2017/07/04	Kevin Comerford

Maxxam ID: EQL315
Sample ID: BH2017-7 SS8
Matrix: Soil

Collected: 2017/06/27
Shipped:
Received: 2017/06/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5066838	N/A	2017/07/18	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5057671	N/A	2017/07/05	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5055587	2017/07/02	2017/07/04	Margaret Kulczyk-Stanko
Moisture	BAL	5053923	N/A	2017/06/30	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5074320	2017/07/14	2017/07/17	Jett Wu

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

GENERAL COMMENTS

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

Package 1	11.0°C

Sample EQL313 [BH2017-7 SS14] : F1/BTEX Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D5083
Report Date: 2017/07/18

QUALITY ASSURANCE REPORT

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5055587	o-Terphenyl	2017/07/04	87	60 - 130	90	60 - 130	89	%		
5057671	1,4-Difluorobenzene	2017/07/05	105	60 - 140	103	60 - 140	107	%		
5057671	4-Bromofluorobenzene	2017/07/05	111	60 - 140	103	60 - 140	94	%		
5057671	D10-Ethylbenzene	2017/07/05	86	60 - 140	98	60 - 140	96	%		
5057671	D4-1,2-Dichloroethane	2017/07/05	106	60 - 140	105	60 - 140	106	%		
5074320	D10-Anthracene	2017/07/15	92	50 - 130	93	50 - 130	100	%		
5074320	D14-Terphenyl (FS)	2017/07/15	92	50 - 130	92	50 - 130	98	%		
5074320	D8-Acenaphthylene	2017/07/15	89	50 - 130	80	50 - 130	85	%		
5053798	Acid Extractable Antimony (Sb)	2017/07/04	95	75 - 125	102	80 - 120	<0.20	ug/g	NC	30
5053798	Acid Extractable Arsenic (As)	2017/07/04	100	75 - 125	100	80 - 120	<1.0	ug/g	3.7	30
5053798	Acid Extractable Barium (Ba)	2017/07/04	NC	75 - 125	99	80 - 120	<0.50	ug/g	0.59	30
5053798	Acid Extractable Beryllium (Be)	2017/07/04	99	75 - 125	99	80 - 120	<0.20	ug/g	6.5	30
5053798	Acid Extractable Boron (B)	2017/07/04	95	75 - 125	99	80 - 120	<5.0	ug/g	NC	30
5053798	Acid Extractable Cadmium (Cd)	2017/07/04	100	75 - 125	104	80 - 120	<0.10	ug/g	NC	30
5053798	Acid Extractable Chromium (Cr)	2017/07/04	101	75 - 125	105	80 - 120	<1.0	ug/g	1.5	30
5053798	Acid Extractable Cobalt (Co)	2017/07/04	100	75 - 125	102	80 - 120	<0.10	ug/g	7.0	30
5053798	Acid Extractable Copper (Cu)	2017/07/04	99	75 - 125	104	80 - 120	<0.50	ug/g	6.9	30
5053798	Acid Extractable Lead (Pb)	2017/07/04	98	75 - 125	103	80 - 120	<1.0	ug/g	3.2	30
5053798	Acid Extractable Molybdenum (Mo)	2017/07/04	100	75 - 125	106	80 - 120	<0.50	ug/g	NC	30
5053798	Acid Extractable Nickel (Ni)	2017/07/04	101	75 - 125	102	80 - 120	<0.50	ug/g	0.74	30
5053798	Acid Extractable Selenium (Se)	2017/07/04	100	75 - 125	102	80 - 120	<0.50	ug/g	NC	30
5053798	Acid Extractable Silver (Ag)	2017/07/04	101	75 - 125	103	80 - 120	<0.20	ug/g	NC	30
5053798	Acid Extractable Thallium (Tl)	2017/07/04	99	75 - 125	103	80 - 120	<0.050	ug/g	21	30
5053798	Acid Extractable Uranium (U)	2017/07/04	96	75 - 125	98	80 - 120	<0.050	ug/g	5.3	30
5053798	Acid Extractable Vanadium (V)	2017/07/04	NC	75 - 125	100	80 - 120	<5.0	ug/g	3.3	30
5053798	Acid Extractable Zinc (Zn)	2017/07/04	100	75 - 125	97	80 - 120	<5.0	ug/g	5.0	30
5053923	Moisture	2017/06/30							1.6	20
5055587	F2 (C10-C16 Hydrocarbons)	2017/07/04	97	50 - 130	99	80 - 120	<10	ug/g	NC	30
5055587	F3 (C16-C34 Hydrocarbons)	2017/07/04	89	50 - 130	92	80 - 120	<50	ug/g	NC	30
5055587	F4 (C34-C50 Hydrocarbons)	2017/07/04	88	50 - 130	90	80 - 120	<50	ug/g	NC	30
5057671	Benzene	2017/07/05	86	60 - 140	116	60 - 140	<0.020	ug/g	NC	50
5057671	Ethylbenzene	2017/07/05	81	60 - 140	101	60 - 140	<0.020	ug/g	NC	50

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5057671	F1 (C6-C10) - BTEX	2017/07/05					<10	ug/g	NC	30
5057671	F1 (C6-C10)	2017/07/05	71	60 - 140	104	80 - 120	<10	ug/g	NC	30
5057671	o-Xylene	2017/07/05	93	60 - 140	101	60 - 140	<0.020	ug/g	NC	50
5057671	p+m-Xylene	2017/07/05	90	60 - 140	109	60 - 140	<0.040	ug/g	NC	50
5057671	Toluene	2017/07/05	80	60 - 140	96	60 - 140	<0.020	ug/g	NC	50
5057671	Total Xylenes	2017/07/05					<0.040	ug/g	NC	50
5074320	1-Methylnaphthalene	2017/07/15	83	50 - 130	84	50 - 130	<0.0050	ug/g	2.5	40
5074320	2-Methylnaphthalene	2017/07/15	78	50 - 130	80	50 - 130	<0.0050	ug/g	10	40
5074320	Acenaphthene	2017/07/15	NC	50 - 130	86	50 - 130	<0.0050	ug/g	69 (1)	40
5074320	Acenaphthylene	2017/07/15	90	50 - 130	83	50 - 130	<0.0050	ug/g	5.5	40
5074320	Anthracene	2017/07/15	NC	50 - 130	82	50 - 130	<0.0050	ug/g	41 (1)	40
5074320	Benzo(a)anthracene	2017/07/15	NC	50 - 130	81	50 - 130	<0.0050	ug/g	41 (1)	40
5074320	Benzo(a)pyrene	2017/07/15	105	50 - 130	86	50 - 130	<0.0050	ug/g	30	40
5074320	Benzo(b/j)fluoranthene	2017/07/15	NC	50 - 130	90	50 - 130	<0.0050	ug/g	41 (1)	40
5074320	Benzo(g,h,i)perylene	2017/07/15	96	50 - 130	88	50 - 130	<0.0050	ug/g	31	40
5074320	Benzo(k)fluoranthene	2017/07/15	NC	50 - 130	85	50 - 130	<0.0050	ug/g	49 (1)	40
5074320	Chrysene	2017/07/15	NC	50 - 130	86	50 - 130	<0.0050	ug/g	50 (1)	40
5074320	Dibenz(a,h)anthracene	2017/07/15	81	50 - 130	86	50 - 130	<0.0050	ug/g	38	40
5074320	Fluoranthene	2017/07/15	NC	50 - 130	89	50 - 130	<0.0050	ug/g	42 (1)	40
5074320	Fluorene	2017/07/15	NC	50 - 130	86	50 - 130	<0.0050	ug/g	42 (1)	40
5074320	Indeno(1,2,3-cd)pyrene	2017/07/15	74	50 - 130	84	50 - 130	<0.0050	ug/g	33	40
5074320	Naphthalene	2017/07/15	70	50 - 130	81	50 - 130	<0.0050	ug/g	45 (2)	40
5074320	Phenanthrene	2017/07/15	NC	50 - 130	86	50 - 130	<0.0050	ug/g	44 (1)	40

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5074320	Pyrene	2017/07/15	NC	50 - 130	92	50 - 130	<0.0050	ug/g	41 (1)	40

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

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

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

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

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

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

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

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

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D5083
Report Date: 2017/07/18

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Services

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam

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

27-Jun-17 17:30
Alison Cameron
B7D5083
MAF ENV-900

Page 1 of 1

INVOICE TO:
Company Name: DST Consulting Engineers Inc
Attention: Accounts Payable
Address: 2150 Thurston Dr Unit 203, Ottawa ON K1G 5T9
Tel: (613) 748-1415 x Fax: (613) 748-1356 x
Email: ap@dstgroup.com

REPORT TO:
Company Name:
Attention: Eve Sabourin
Address:
Tel: 613 697 4225 Fax:
Email: esabourin@dstgroup.com

PROJECT INFORMATION:
Quotation #: B61802
P.O. #:
Project: TS-SO-29563
Project Name:
Site #:
Sampled By:

Bottle Order #: 617077
Project Manager: Alison Cameron
C#617077-13-01

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): ☐ Table 1 ☐ Res/Park ☐ Medium/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ For RSC ☐ Table ___

Other Regulations: ☐ CCME ☐ Sanitary Sewer Bylaw ☐ Reg 558. ☐ Storm Sewer Bylaw ☐ MISA Municipality ☐ PWQO ☐ Other

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: Time Required: ☐
Rush Confirmation Number: *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	O.Reg 153 ~~PHCs~~ by HS & F1-F4 (Soil)	O.Reg 153 PAHs (Soil)	O.Reg 153 ICPMS Metals (Soil)	# of Bottles	Comments
1		BH2017-~~7~~ SS4	27/06/2017		Soil		X *				*Which ever shows higher content in PHC will be Analysed for PAH
2		BH2017-~~7~~ SS5	27/06/2017		Soil				X		
3		~~BH2017-10 SS6~~									
4		~~BH2017-10 SS7~~									
5		BH2017-~~7~~ SS8	27/06/2017		Soil		X *				
6		~~BH2017-10 SS9~~									
7		~~BH2017-10 SS10~~									
8		~~BH2017-10 SS11~~									
9		~~BH2017-10 SS12~~									
10		~~BH2017-10 SS13~~									ON E(C)

RECEIVED IN OTTAWA

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
	17/06/27	5:30		2017/06/27	17:30	

Laboratory Use Only
Time Sensitive
Temperature (°C) on Recei: 12, 10, 11
Custody Seal Present ☐ Intact ☐ Yes ☐ No ☑

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxa Yellow: Client

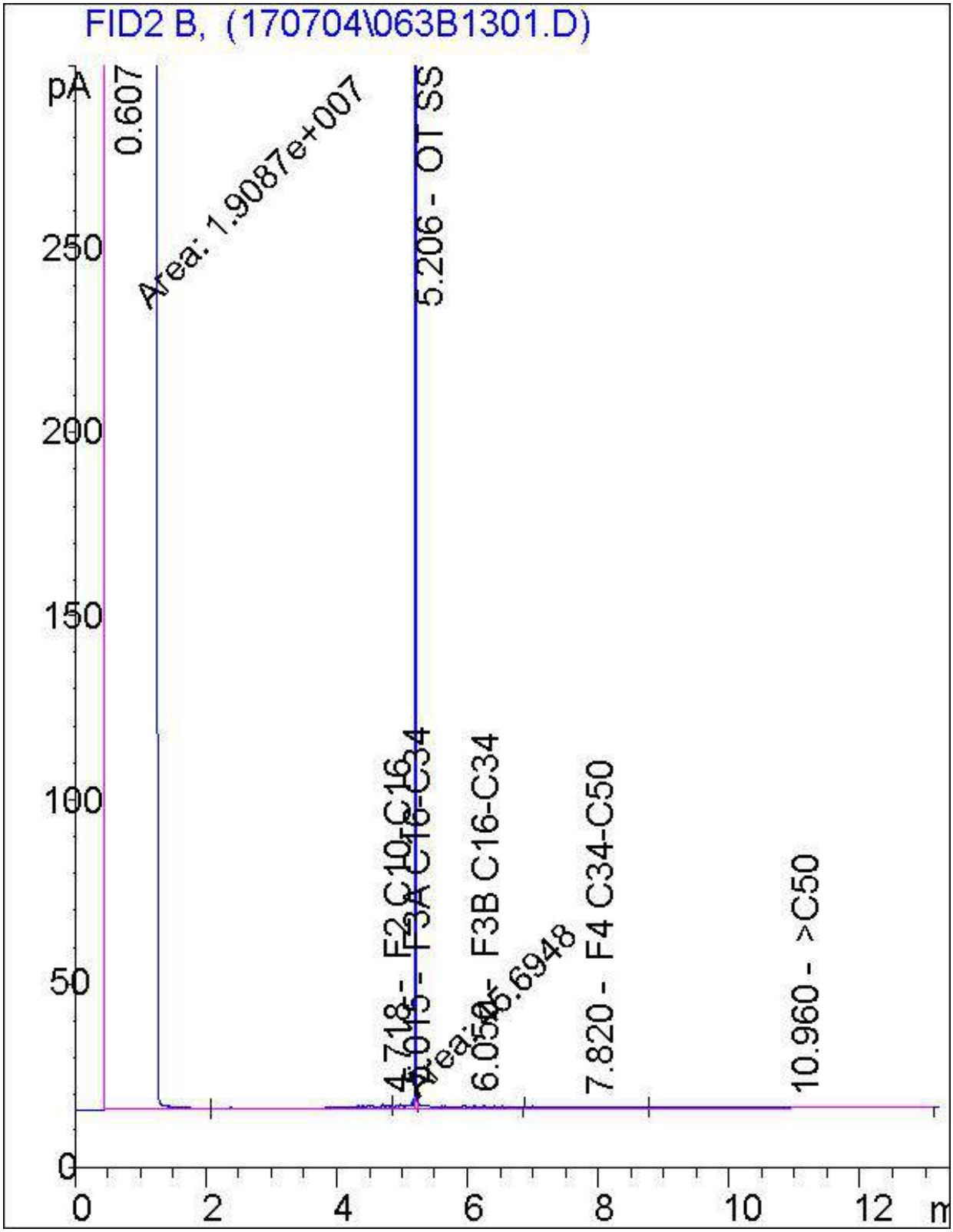
Maxxam Analytics International Corporation o/a Maxxam Analytics

KARIM Ahm 9/9/8
2017/06/27 22:30

Maxxam Job #: B7D5083
Report Date: 2017/07/18
Maxxam Sample: EQL313

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-7 SS14

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

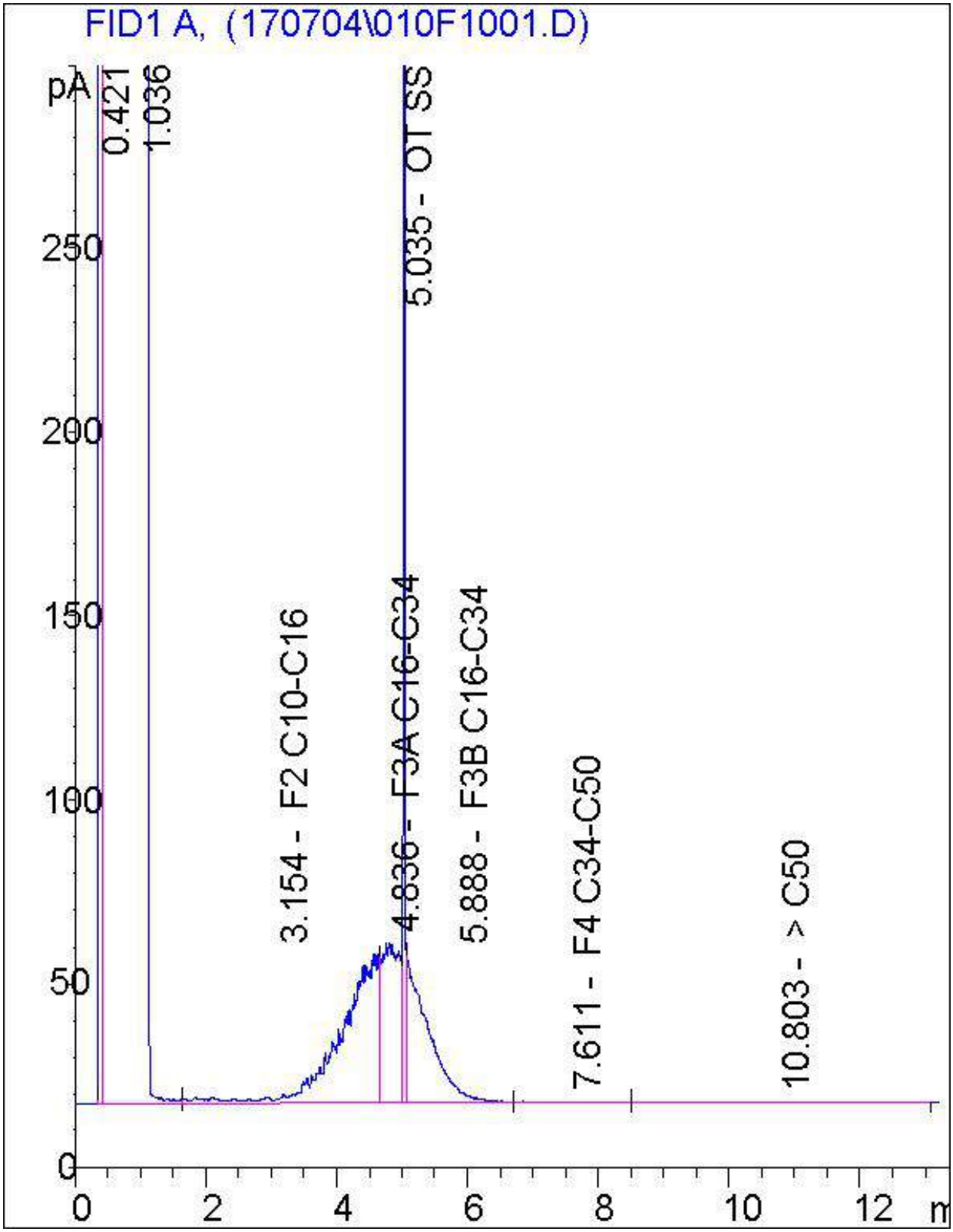


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7D5083
Report Date: 2017/07/18
Maxxam Sample: EQL315

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-7 SS8

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: TS-SO-29563
Your C.O.C. #: 617077-12-01

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/07
Report #: R4581369
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7D6393
Received: 2017/06/28, 16:50

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum (1)	1	N/A	2017/07/06	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum (1)	1	N/A	2017/07/06		EPA 8260C m
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2)	1	N/A	2017/07/05	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	2	2017/07/05	2017/07/05	CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric) (1)	1	2017/07/07	2017/07/07	CAM SOP-00316	CCME PHC-CWS m
Strong Acid Leachable Metals by ICPMS (1)	1	2017/07/04	2017/07/07	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS (1)	1	2017/07/05	2017/07/06	CAM SOP-00447	EPA 6020B m
Moisture (1)	1	N/A	2017/07/01	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture (1)	1	N/A	2017/07/05	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM) (1)	1	2017/07/05	2017/07/05	CAM SOP-00318	EPA 8270D m
Volatile Organic Compounds and F1 PHCs (1)	1	N/A	2017/07/06	CAM SOP-00230	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Your Project #: TS-SO-29563
Your C.O.C. #: 617077-12-01

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/07
Report #: R4581369
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7D6393
Received: 2017/06/28, 16:50

(1) This test was performed by Maxxam Analytics Mississauga
(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alison Cameron, Project Manager
Email: ACameron@maxxam.ca
Phone# (613) 274-0573
==========
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		EQR287		EQR289		
Sampling Date						
COC Number		617077-12-01		617077-12-01		
	UNITS	BH2017-13-SS3	QC Batch	BH2017-31-SS3	RDL	QC Batch
Metals						
Acid Extractable Antimony (Sb)	ug/g	<0.20	5056506	0.34	0.20	5058516
Acid Extractable Arsenic (As)	ug/g	2.1	5056506	1.7	1.0	5058516
Acid Extractable Barium (Ba)	ug/g	340	5056506	290	0.50	5058516
Acid Extractable Beryllium (Be)	ug/g	0.74	5056506	0.72	0.20	5058516
Acid Extractable Boron (B)	ug/g	6.6	5056506	6.2	5.0	5058516
Acid Extractable Cadmium (Cd)	ug/g	0.14	5056506	0.17	0.10	5058516
Acid Extractable Chromium (Cr)	ug/g	110	5056506	100	1.0	5058516
Acid Extractable Cobalt (Co)	ug/g	23	5056506	21	0.10	5058516
Acid Extractable Copper (Cu)	ug/g	55	5056506	50	0.50	5058516
Acid Extractable Lead (Pb)	ug/g	18	5056506	22	1.0	5058516
Acid Extractable Molybdenum (Mo)	ug/g	0.54	5056506	0.66	0.50	5058516
Acid Extractable Nickel (Ni)	ug/g	62	5056506	59	0.50	5058516
Acid Extractable Selenium (Se)	ug/g	<0.50	5056506	<0.50	0.50	5058516
Acid Extractable Silver (Ag)	ug/g	<0.20	5056506	<0.20	0.20	5058516
Acid Extractable Thallium (Tl)	ug/g	0.41	5056506	0.36	0.050	5058516
Acid Extractable Uranium (U)	ug/g	0.68	5056506	0.70	0.050	5058516
Acid Extractable Vanadium (V)	ug/g	100	5056506	95	5.0	5058516
Acid Extractable Zinc (Zn)	ug/g	120	5056506	110	5.0	5058516

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

O.REG 153 PAHS (SOIL)

Maxxam ID		EQR289		
Sampling Date				
COC Number		617077-12-01		
	UNITS	BH2017-31-SS3	RDL	QC Batch
Calculated Parameters				
Methylnaphthalene, 2-(1-)	ug/g	0.30	0.071	5053186
Polyaromatic Hydrocarbons				
Acenaphthene	ug/g	0.082	0.050	5058053
Acenaphthylene	ug/g	0.072	0.050	5058053
Anthracene	ug/g	0.13	0.050	5058053
Benzo(a)anthracene	ug/g	0.23	0.050	5058053
Benzo(a)pyrene	ug/g	0.19	0.050	5058053
Benzo(b/j)fluoranthene	ug/g	0.24	0.050	5058053
Benzo(g,h,i)perylene	ug/g	0.11	0.050	5058053
Benzo(k)fluoranthene	ug/g	0.085	0.050	5058053
Chrysene	ug/g	0.19	0.050	5058053
Dibenz(a,h)anthracene	ug/g	<0.050	0.050	5058053
Fluoranthene	ug/g	0.52	0.050	5058053
Fluorene	ug/g	0.15	0.050	5058053
Indeno(1,2,3-cd)pyrene	ug/g	0.11	0.050	5058053
1-Methylnaphthalene	ug/g	0.11	0.050	5058053
2-Methylnaphthalene	ug/g	0.19	0.050	5058053
Naphthalene	ug/g	0.18	0.050	5058053
Phenanthrene	ug/g	0.49	0.050	5058053
Pyrene	ug/g	0.38	0.050	5058053
Surrogate Recovery (%)				
D10-Anthracene	%	88		5058053
D14-Terphenyl (FS)	%	81		5058053
D8-Acenaphthylene	%	84		5058053

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		EQR287		
Sampling Date				
COC Number		617077-12-01		
	UNITS	**BH2017-13-SS3**	**RDL**	**QC Batch**
Inorganics				
Moisture	%	19	1.0	5055454
BTEX & F1 Hydrocarbons				
Benzene	ug/g	<0.020	0.020	5058500
Toluene	ug/g	<0.020	0.020	5058500
Ethylbenzene	ug/g	<0.020	0.020	5058500
o-Xylene	ug/g	<0.020	0.020	5058500
p+m-Xylene	ug/g	<0.040	0.040	5058500
Total Xylenes	ug/g	<0.040	0.040	5058500
F1 (C6-C10)	ug/g	<10	10	5058500
F1 (C6-C10) - BTEX	ug/g	<10	10	5058500
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	5057917
F3 (C16-C34 Hydrocarbons)	ug/g	170	50	5057917
F4 (C34-C50 Hydrocarbons)	ug/g	370	50	5057917
Reached Baseline at C50	ug/g	No		5057917
Surrogate Recovery (%)				
1,4-Difluorobenzene	%	99		5058500
4-Bromofluorobenzene	%	106		5058500
D10-Ethylbenzene	%	109		5058500
D4-1,2-Dichloroethane	%	99		5058500
o-Terphenyl	%	79		5057917

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Maxxam ID		EQR289		
Sampling Date				
COC Number		617077-12-01		
	UNITS	**BH2017-31-SS3**	**RDL**	**QC Batch**
Inorganics				
Moisture	%	24	1.0	5057924
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	0.050	5053409
Volatile Organics				
Acetone (2-Propanone)	ug/g	<0.50	0.50	5057908
Benzene	ug/g	<0.020	0.020	5057908
Bromodichloromethane	ug/g	<0.050	0.050	5057908
Bromoform	ug/g	<0.050	0.050	5057908
Bromomethane	ug/g	<0.050	0.050	5057908
Carbon Tetrachloride	ug/g	<0.050	0.050	5057908
Chlorobenzene	ug/g	<0.050	0.050	5057908
Chloroform	ug/g	<0.050	0.050	5057908
Dibromochloromethane	ug/g	<0.050	0.050	5057908
1,2-Dichlorobenzene	ug/g	<0.050	0.050	5057908
1,3-Dichlorobenzene	ug/g	<0.050	0.050	5057908
1,4-Dichlorobenzene	ug/g	<0.050	0.050	5057908
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	0.050	5057908
1,1-Dichloroethane	ug/g	<0.050	0.050	5057908
1,2-Dichloroethane	ug/g	<0.050	0.050	5057908
1,1-Dichloroethylene	ug/g	<0.050	0.050	5057908
cis-1,2-Dichloroethylene	ug/g	<0.050	0.050	5057908
trans-1,2-Dichloroethylene	ug/g	<0.050	0.050	5057908
1,2-Dichloropropane	ug/g	<0.050	0.050	5057908
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	5057908
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	5057908
Ethylbenzene	ug/g	<0.020	0.020	5057908
Ethylene Dibromide	ug/g	<0.050	0.050	5057908
Hexane	ug/g	0.084	0.050	5057908
Methylene Chloride(Dichloromethane)	ug/g	<0.050	0.050	5057908
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	0.50	5057908
Methyl Isobutyl Ketone	ug/g	<0.50	0.50	5057908
Methyl t-butyl ether (MTBE)	ug/g	<0.050	0.050	5057908
Styrene	ug/g	<0.050	0.050	5057908
1,1,1,2-Tetrachloroethane	ug/g	<0.050	0.050	5057908
1,1,2,2-Tetrachloroethane	ug/g	<0.050	0.050	5057908
Tetrachloroethylene	ug/g	<0.050	0.050	5057908

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Maxxam ID		EQR289		
Sampling Date				
COC Number		617077-12-01		
	UNITS	**BH2017-31-SS3**	**RDL**	**QC Batch**
Toluene	ug/g	0.027	0.020	5057908
1,1,1-Trichloroethane	ug/g	<0.050	0.050	5057908
1,1,2-Trichloroethane	ug/g	<0.050	0.050	5057908
Trichloroethylene	ug/g	<0.050	0.050	5057908
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	0.050	5057908
Vinyl Chloride	ug/g	<0.020	0.020	5057908
p+m-Xylene	ug/g	0.031	0.020	5057908
o-Xylene	ug/g	<0.020	0.020	5057908
Total Xylenes	ug/g	0.031	0.020	5057908
F1 (C6-C10)	ug/g	<10	10	5057908
F1 (C6-C10) - BTEX	ug/g	<10	10	5057908
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	5057917
F3 (C16-C34 Hydrocarbons)	ug/g	66	50	5057917
F4 (C34-C50 Hydrocarbons)	ug/g	180	50	5057917
Reached Baseline at C50	ug/g	No		5057917
Surrogate Recovery (%)				
o-Terphenyl	%	75		5057917
4-Bromofluorobenzene	%	91		5057908
D10-o-Xylene	%	102		5057908
D4-1,2-Dichloroethane	%	113		5057908
D8-Toluene	%	93		5057908

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		EQR289		
Sampling Date				
COC Number		617077-12-01		
	UNITS	**BH2017-31-SS3**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons				
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	610	100	5062252

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D6393
Report Date: 2017/07/07

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

TEST SUMMARY

Maxxam ID: EQR287
Sample ID: BH2017-13-SS3
Matrix: Soil

Collected:
Shipped:
Received: 2017/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5058500	N/A	2017/07/05	Domnica Andronescu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5057917	2017/07/05	2017/07/05	Barbara Wowk
Strong Acid Leachable Metals by ICPMS	ICP/MS	5056506	2017/07/04	2017/07/07	Kevin Comerford
Moisture	BAL	5055454	N/A	2017/07/01	Valentina Kaftani

Maxxam ID: EQR289
Sample ID: BH2017-31-SS3
Matrix: Soil

Collected:
Shipped:
Received: 2017/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5053186	N/A	2017/07/06	Automated Statchk
1,3-Dichloropropene Sum	CALC	5053409	N/A	2017/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5057917	2017/07/05	2017/07/05	Barbara Wowk
F4G (CCME Hydrocarbons Gravimetric)	BAL	5062252	2017/07/07	2017/07/07	Debra Deslandes
Strong Acid Leachable Metals by ICPMS	ICP/MS	5058516	2017/07/05	2017/07/06	Kevin Comerford
Moisture	BAL	5057924	N/A	2017/07/05	Valentina Kaftani
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5058053	2017/07/05	2017/07/05	Mitesh Raj
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5057908	N/A	2017/07/06	Xueming Jiang

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

GENERAL COMMENTS

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

Package 1	6.7°C

Sample EQR289 [BH2017-31-SS3] : PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D6393
Report Date: 2017/07/07

QUALITY ASSURANCE REPORT

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5057908	4-Bromofluorobenzene	2017/07/06	100	60 - 140	100	60 - 140	89	%		
5057908	D10-o-Xylene	2017/07/06	104	60 - 130	98	60 - 130	89	%		
5057908	D4-1,2-Dichloroethane	2017/07/06	104	60 - 140	106	60 - 140	110	%		
5057908	D8-Toluene	2017/07/06	107	60 - 140	106	60 - 140	94	%		
5057917	o-Terphenyl	2017/07/05	73	60 - 130	76	60 - 130	76	%		
5058053	D10-Anthracene	2017/07/05	80	50 - 130	76	50 - 130	77	%		
5058053	D14-Terphenyl (FS)	2017/07/05	77	50 - 130	77	50 - 130	76	%		
5058053	D8-Acenaphthylene	2017/07/05	80	50 - 130	75	50 - 130	76	%		
5058500	1,4-Difluorobenzene	2017/07/05	101	60 - 140	100	60 - 140	99	%		
5058500	4-Bromofluorobenzene	2017/07/05	102	60 - 140	103	60 - 140	98	%		
5058500	D10-Ethylbenzene	2017/07/05	96	60 - 140	90	60 - 140	91	%		
5058500	D4-1,2-Dichloroethane	2017/07/05	100	60 - 140	97	60 - 140	98	%		
5055454	Moisture	2017/07/01							5.0	20
5056506	Acid Extractable Antimony (Sb)	2017/07/07	100	75 - 125	102	80 - 120	<0.20	ug/g		
5056506	Acid Extractable Arsenic (As)	2017/07/07	101	75 - 125	104	80 - 120	<1.0	ug/g	NC	30
5056506	Acid Extractable Barium (Ba)	2017/07/07	103	75 - 125	95	80 - 120	<0.50	ug/g		
5056506	Acid Extractable Beryllium (Be)	2017/07/07	102	75 - 125	102	80 - 120	<0.20	ug/g		
5056506	Acid Extractable Boron (B)	2017/07/07	103	75 - 125	103	80 - 120	<5.0	ug/g		
5056506	Acid Extractable Cadmium (Cd)	2017/07/07	100	75 - 125	97	80 - 120	<0.10	ug/g		
5056506	Acid Extractable Chromium (Cr)	2017/07/07	104	75 - 125	100	80 - 120	<1.0	ug/g		
5056506	Acid Extractable Cobalt (Co)	2017/07/07	104	75 - 125	105	80 - 120	<0.10	ug/g		
5056506	Acid Extractable Copper (Cu)	2017/07/07	101	75 - 125	104	80 - 120	<0.50	ug/g		
5056506	Acid Extractable Lead (Pb)	2017/07/07	101	75 - 125	103	80 - 120	<1.0	ug/g		
5056506	Acid Extractable Molybdenum (Mo)	2017/07/07	102	75 - 125	101	80 - 120	<0.50	ug/g		
5056506	Acid Extractable Nickel (Ni)	2017/07/07	102	75 - 125	104	80 - 120	<0.50	ug/g		
5056506	Acid Extractable Selenium (Se)	2017/07/07	102	75 - 125	105	80 - 120	<0.50	ug/g		
5056506	Acid Extractable Silver (Ag)	2017/07/07	102	75 - 125	102	80 - 120	<0.20	ug/g		
5056506	Acid Extractable Thallium (Tl)	2017/07/07	101	75 - 125	101	80 - 120	<0.050	ug/g		
5056506	Acid Extractable Uranium (U)	2017/07/07	104	75 - 125	106	80 - 120	<0.050	ug/g		
5056506	Acid Extractable Vanadium (V)	2017/07/07	98	75 - 125	103	80 - 120	<5.0	ug/g		
5056506	Acid Extractable Zinc (Zn)	2017/07/07	107	75 - 125	106	80 - 120	<5.0	ug/g		
5057908	1,1,1,2-Tetrachloroethane	2017/07/06	102	60 - 140	104	60 - 130	<0.050	ug/g	NC	50

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5057908	1,1,1-Trichloroethane	2017/07/06	95	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
5057908	1,1,2,2-Tetrachloroethane	2017/07/06	100	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
5057908	1,1,2-Trichloroethane	2017/07/06	98	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5057908	1,1-Dichloroethane	2017/07/06	101	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
5057908	1,1-Dichloroethylene	2017/07/06	104	60 - 140	108	60 - 130	<0.050	ug/g	NC	50
5057908	1,2-Dichlorobenzene	2017/07/06	92	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
5057908	1,2-Dichloroethane	2017/07/06	97	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5057908	1,2-Dichloropropane	2017/07/06	91	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5057908	1,3-Dichlorobenzene	2017/07/06	93	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5057908	1,4-Dichlorobenzene	2017/07/06	89	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
5057908	Acetone (2-Propanone)	2017/07/06	94	60 - 140	97	60 - 140	<0.50	ug/g	NC	50
5057908	Benzene	2017/07/06	98	60 - 140	101	60 - 130	<0.020	ug/g	NC	50
5057908	Bromodichloromethane	2017/07/06	95	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
5057908	Bromoform	2017/07/06	102	60 - 140	104	60 - 130	<0.050	ug/g	NC	50
5057908	Bromomethane	2017/07/06	96	60 - 140	100	60 - 140	<0.050	ug/g	NC	50
5057908	Carbon Tetrachloride	2017/07/06	94	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
5057908	Chlorobenzene	2017/07/06	93	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
5057908	Chloroform	2017/07/06	95	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
5057908	cis-1,2-Dichloroethylene	2017/07/06	94	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
5057908	cis-1,3-Dichloropropene	2017/07/06	79	60 - 140	75	60 - 130	<0.030	ug/g	NC	50
5057908	Dibromochloromethane	2017/07/06	101	60 - 140	103	60 - 130	<0.050	ug/g	NC	50
5057908	Dichlorodifluoromethane (FREON 12)	2017/07/06	105	60 - 140	118	60 - 140	<0.050	ug/g	NC	50
5057908	Ethylbenzene	2017/07/06	89	60 - 140	92	60 - 130	<0.020	ug/g	NC	50
5057908	Ethylene Dibromide	2017/07/06	102	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
5057908	F1 (C6-C10) - BTEX	2017/07/06					<10	ug/g	NC	30
5057908	F1 (C6-C10)	2017/07/06	105	60 - 140	99	80 - 120	<10	ug/g	NC	30
5057908	Hexane	2017/07/06	107	60 - 140	111	60 - 130	<0.050	ug/g	NC	50
5057908	Methyl Ethyl Ketone (2-Butanone)	2017/07/06	97	60 - 140	101	60 - 140	<0.50	ug/g	NC	50
5057908	Methyl Isobutyl Ketone	2017/07/06	95	60 - 140	99	60 - 130	<0.50	ug/g	NC	50
5057908	Methyl t-butyl ether (MTBE)	2017/07/06	92	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
5057908	Methylene Chloride(Dichloromethane)	2017/07/06	103	60 - 140	108	60 - 130	<0.050	ug/g	NC	50
5057908	o-Xylene	2017/07/06	90	60 - 140	93	60 - 130	<0.020	ug/g	NC	50

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5057908	p+m-Xylene	2017/07/06	89	60 - 140	93	60 - 130	<0.020	ug/g	NC	50
5057908	Styrene	2017/07/06	71	60 - 140	74	60 - 130	<0.050	ug/g	NC	50
5057908	Tetrachloroethylene	2017/07/06	90	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5057908	Toluene	2017/07/06	95	60 - 140	99	60 - 130	<0.020	ug/g	NC	50
5057908	Total Xylenes	2017/07/06					<0.020	ug/g	NC	50
5057908	trans-1,2-Dichloroethylene	2017/07/06	95	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
5057908	trans-1,3-Dichloropropene	2017/07/06	88	60 - 140	83	60 - 130	<0.040	ug/g	NC	50
5057908	Trichloroethylene	2017/07/06	92	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
5057908	Trichlorofluoromethane (FREON 11)	2017/07/06	101	60 - 140	106	60 - 130	<0.050	ug/g	NC	50
5057908	Vinyl Chloride	2017/07/06	95	60 - 140	104	60 - 130	<0.020	ug/g	NC	50
5057917	F2 (C10-C16 Hydrocarbons)	2017/07/05	85	50 - 130	88	80 - 120	<10	ug/g	NC	30
5057917	F3 (C16-C34 Hydrocarbons)	2017/07/05	88	50 - 130	89	80 - 120	<50	ug/g	NC	30
5057917	F4 (C34-C50 Hydrocarbons)	2017/07/05	81	50 - 130	83	80 - 120	<50	ug/g	NC	30
5057924	Moisture	2017/07/05							0	20
5058053	1-Methylnaphthalene	2017/07/05	88	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
5058053	2-Methylnaphthalene	2017/07/05	83	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
5058053	Acenaphthene	2017/07/05	82	50 - 130	81	50 - 130	<0.0050	ug/g	NC	40
5058053	Acenaphthylene	2017/07/05	79	50 - 130	74	50 - 130	<0.0050	ug/g	NC	40
5058053	Anthracene	2017/07/05	75	50 - 130	69	50 - 130	<0.0050	ug/g	NC	40
5058053	Benzo(a)anthracene	2017/07/05	80	50 - 130	74	50 - 130	<0.0050	ug/g	NC	40
5058053	Benzo(a)pyrene	2017/07/05	86	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
5058053	Benzo(b/j)fluoranthene	2017/07/05	91	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
5058053	Benzo(g,h,i)perylene	2017/07/05	97	50 - 130	104	50 - 130	<0.0050	ug/g	NC	40
5058053	Benzo(k)fluoranthene	2017/07/05	85	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
5058053	Chrysene	2017/07/05	88	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
5058053	Dibenz(a,h)anthracene	2017/07/05	94	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
5058053	Fluoranthene	2017/07/05	81	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40
5058053	Fluorene	2017/07/05	83	50 - 130	81	50 - 130	<0.0050	ug/g	NC	40
5058053	Indeno(1,2,3-cd)pyrene	2017/07/05	86	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
5058053	Naphthalene	2017/07/05	68	50 - 130	71	50 - 130	<0.0050	ug/g	NC	40
5058053	Phenanthrene	2017/07/05	84	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
5058053	Pyrene	2017/07/05	82	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5058500	Benzene	2017/07/05	86	60 - 140	90	60 - 140	<0.020	ug/g	NC	50
5058500	Ethylbenzene	2017/07/05	92	60 - 140	100	60 - 140	<0.020	ug/g	NC	50
5058500	F1 (C6-C10) - BTEX	2017/07/05					<10	ug/g	NC	30
5058500	F1 (C6-C10)	2017/07/05	109	60 - 140	93	80 - 120	<10	ug/g	NC	30
5058500	o-Xylene	2017/07/05	94	60 - 140	101	60 - 140	<0.020	ug/g	NC	50
5058500	p+m-Xylene	2017/07/05	96	60 - 140	105	60 - 140	<0.040	ug/g	NC	50
5058500	Toluene	2017/07/05	86	60 - 140	92	60 - 140	<0.020	ug/g	NC	50
5058500	Total Xylenes	2017/07/05					<0.040	ug/g	NC	50
5058516	Acid Extractable Antimony (Sb)	2017/07/06	102	75 - 125	103	80 - 120	<0.20	ug/g	NC	30
5058516	Acid Extractable Arsenic (As)	2017/07/06	101	75 - 125	101	80 - 120	<1.0	ug/g	NC	30
5058516	Acid Extractable Barium (Ba)	2017/07/06	103	75 - 125	104	80 - 120	<0.50	ug/g	6.2	30
5058516	Acid Extractable Beryllium (Be)	2017/07/06	100	75 - 125	100	80 - 120	<0.20	ug/g	NC	30
5058516	Acid Extractable Boron (B)	2017/07/06	98	75 - 125	101	80 - 120	<5.0	ug/g	NC	30
5058516	Acid Extractable Cadmium (Cd)	2017/07/06	98	75 - 125	103	80 - 120	<0.10	ug/g	NC	30
5058516	Acid Extractable Chromium (Cr)	2017/07/06	100	75 - 125	104	80 - 120	<1.0	ug/g	3.1	30
5058516	Acid Extractable Cobalt (Co)	2017/07/06	98	75 - 125	104	80 - 120	<0.10	ug/g	1.4	30
5058516	Acid Extractable Copper (Cu)	2017/07/06	99	75 - 125	103	80 - 120	<0.50	ug/g	2.5	30
5058516	Acid Extractable Lead (Pb)	2017/07/06	99	75 - 125	105	80 - 120	<1.0	ug/g	3.3	30
5058516	Acid Extractable Molybdenum (Mo)	2017/07/06	101	75 - 125	104	80 - 120	<0.50	ug/g	NC	30
5058516	Acid Extractable Nickel (Ni)	2017/07/06	95	75 - 125	105	80 - 120	<0.50	ug/g	5.5	30
5058516	Acid Extractable Selenium (Se)	2017/07/06	99	75 - 125	103	80 - 120	<0.50	ug/g	NC	30
5058516	Acid Extractable Silver (Ag)	2017/07/06	101	75 - 125	107	80 - 120	<0.20	ug/g	NC	30
5058516	Acid Extractable Thallium (Tl)	2017/07/06	98	75 - 125	106	80 - 120	<0.050	ug/g	NC	30
5058516	Acid Extractable Uranium (U)	2017/07/06	99	75 - 125	104	80 - 120	<0.050	ug/g	13	30
5058516	Acid Extractable Vanadium (V)	2017/07/06	104	75 - 125	103	80 - 120	<5.0	ug/g	4.5	30
5058516	Acid Extractable Zinc (Zn)	2017/07/06	100	75 - 125	94	80 - 120	<5.0	ug/g	3.8	30

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5062252	F4G-sg (Grav. Heavy Hydrocarbons)	2017/07/07	96	65 - 135	101	65 - 135	<100	ug/g	0	50

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

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

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

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

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

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Services

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

IMMEDIATE

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

28-Jun-17 16:50
Alison Cameron
B7D6393
MAF ENV-1132
C#617077-12-01

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Lab Use Only:	
Company Name:	#3824 DST Consulting Engineers Inc	Company Name:		Quotation #:	B61802	Bottle Order #:	617077
Attention:	Accounts Payable	Attention:	Eve Sabourin	P.O. #:			
Address:	2150 Thurston Dr Unit 203 Ottawa ON K1G 5T9	Address:		Project:	TS-SO-29563	Project Manager:	Alison Cameron
Tel:	(613) 748-1415 x Fax: (613) 748-1356 x	Tel:	613 697 4225 Fax:	Project Name:			
Email:	ap@dstgroup.com	Email:	esabourin@dstgroup.com	Site #:			
				Sampled By:	ES		

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): ☐ Table 1 ☐ Res/Park ☐ Medium/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ For RSC ☐ Table ___

Other Regulations: ☐ CCME ☐ Sanitary Sewer Bylaw ☐ Reg 558 ☐ Storm Sewer Bylaw ☐ MISA Municipality ☐ PWQO ☐ Other

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ____

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ____ Time Required: ____ ☐
Rush Confirmation Number: ____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	O.Reg 153 VOCs by HS & F1-F4 (Soil)	O.Reg 153 PAHs (Soil)	O.Reg 153 ICPMS Metals (Soil)	BTEX		VOC					# of Bottles	Comments
1		~~BH2017-10-SS1~~ BH2017-13-SS3					X		X	X	X							
2		BH2017-13-SS2										X						
3		BH2017-13-SS3					X	X	X	X								
4		~~BH2017-9-SS10~~																
5		~~BH2017-9-SS11~~																
6		~~BH2017-9-SS12~~																RECEIVED IN OTTAWA
7		~~BH2017-9-SS13~~																
8		~~BH2017-10-SS1~~																ON $ce
9		~~BH2017-10-SS2~~																
10		BH2017-10-SS3					X					X						B7D5076

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only				
Eve Sabourin	2017/06/28	17:00	Ikem Jegede	2017/06/28	16:50		Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
Eve Sabourin	2017/06/28	17:00							Present		X
									Intact		X

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxa Yellow: Client

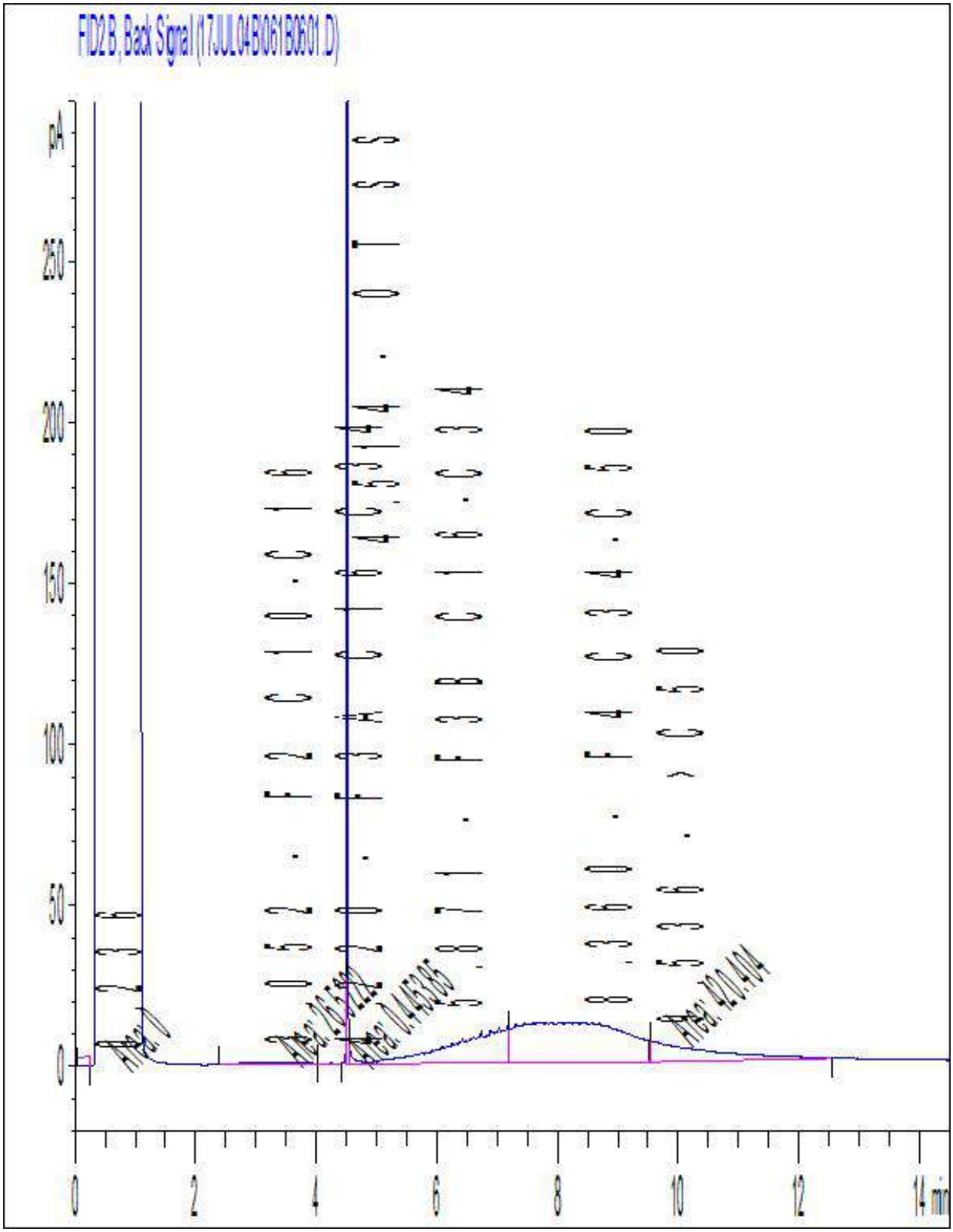
Maxxam Analytics International Corporation o/a Maxxam Analytics

2017/06/28 22:30

Maxxam Job #: B7D6393
Report Date: 2017/07/07
Maxxam Sample: EQR287

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-13-SS3

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

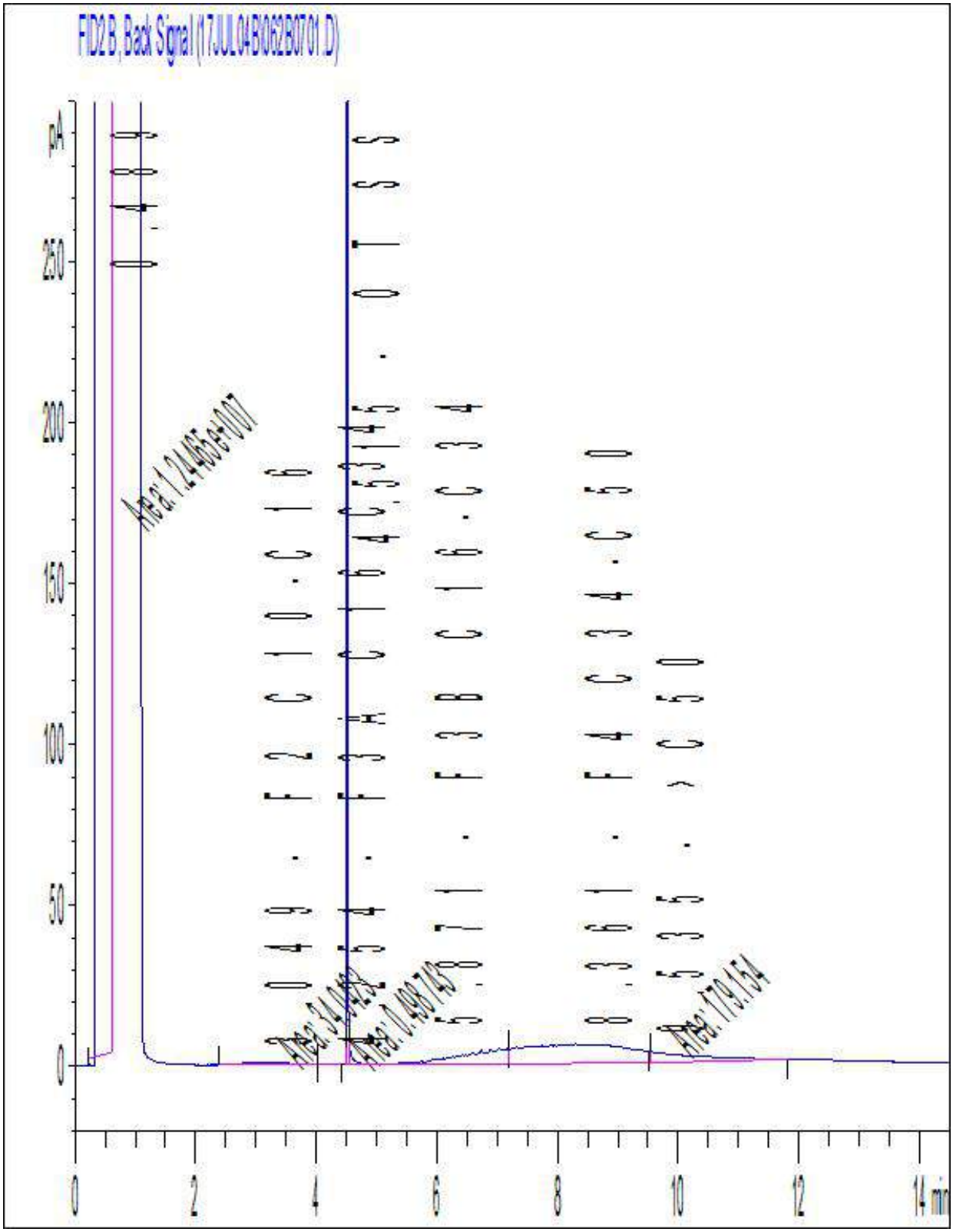


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7D6393
Report Date: 2017/07/07
Maxxam Sample: EQR289

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-31-SS3

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: TS-SO-29563
Your C.O.C. #: 617077-15-01

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/13
Report #: R4594323
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B7D9999
Received: 2017/07/04, 17:05

Sample Matrix: Soil
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum (1)	1	N/A	2017/07/11	CAM SOP-00301	EPA 8270D m
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2)	2	N/A	2017/07/10	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	2	2017/07/07	2017/07/09	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS (1)	1	2017/07/11	2017/07/11	CAM SOP-00447	EPA 6020B m
Moisture (1)	2	N/A	2017/07/07	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture (1)	1	N/A	2017/07/10	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM) (1)	1	2017/07/07	2017/07/08	CAM SOP-00318	EPA 8270D m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: TS-SO-29563
Your C.O.C. #: 617077-15-01

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/13
Report #: R4594323
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B7D9999
Received: 2017/07/04, 17:05

(1) This test was performed by Maxxam Analytics Mississauga
(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alison Cameron, Project Manager
Email: ACameron@maxxam.ca
Phone# (613) 274-0573

==========

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

Maxxam Job #: B7D9999
Report Date: 2017/07/13

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Sampler Initials: ES

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		ERJ082		
Sampling Date		2017/07/04 13:00		
COC Number		617077-15-01		
	UNITS	BH2017-11 SS3	RDL	QC Batch
Metals				
Acid Extractable Antimony (Sb)	ug/g	3.9	0.20	5066786
Acid Extractable Arsenic (As)	ug/g	33	1.0	5066786
Acid Extractable Barium (Ba)	ug/g	300	0.50	5066786
Acid Extractable Beryllium (Be)	ug/g	0.44	0.20	5066786
Acid Extractable Boron (B)	ug/g	11	5.0	5066786
Acid Extractable Cadmium (Cd)	ug/g	0.80	0.10	5066786
Acid Extractable Chromium (Cr)	ug/g	31	1.0	5066786
Acid Extractable Cobalt (Co)	ug/g	7.0	0.10	5066786
Acid Extractable Copper (Cu)	ug/g	100	0.50	5066786
Acid Extractable Lead (Pb)	ug/g	410	1.0	5066786
Acid Extractable Molybdenum (Mo)	ug/g	6.5	0.50	5066786
Acid Extractable Nickel (Ni)	ug/g	29	0.50	5066786
Acid Extractable Selenium (Se)	ug/g	1.2	0.50	5066786
Acid Extractable Silver (Ag)	ug/g	0.37	0.20	5066786
Acid Extractable Thallium (Tl)	ug/g	0.19	0.050	5066786
Acid Extractable Uranium (U)	ug/g	1.2	0.050	5066786
Acid Extractable Vanadium (V)	ug/g	24	5.0	5066786
Acid Extractable Zinc (Zn)	ug/g	310	5.0	5066786

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D9999
Report Date: 2017/07/13

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Sampler Initials: ES

O.REG 153 PAHS (SOIL)

Maxxam ID		ERJ082		
Sampling Date		2017/07/04 13:00		
COC Number		617077-15-01		
	UNITS	BH2017-11 SS3	RDL	QC Batch
Inorganics				
Moisture	%	22	1.0	5065361
Calculated Parameters				
Methylnaphthalene, 2-(1-)	ug/g	0.62	0.071	5057870
Polyaromatic Hydrocarbons				
Acenaphthene	ug/g	0.26	0.050	5062480
Acenaphthylene	ug/g	0.84	0.050	5062480
Anthracene	ug/g	0.73	0.050	5062480
Benzo(a)anthracene	ug/g	3.5	0.050	5062480
Benzo(a)pyrene	ug/g	3.2	0.050	5062480
Benzo(b/j)fluoranthene	ug/g	3.9	0.050	5062480
Benzo(g,h,i)perylene	ug/g	2.1	0.050	5062480
Benzo(k)fluoranthene	ug/g	1.4	0.050	5062480
Chrysene	ug/g	2.9	0.050	5062480
Dibenz(a,h)anthracene	ug/g	0.51	0.050	5062480
Fluoranthene	ug/g	7.0	0.050	5062480
Fluorene	ug/g	0.46	0.050	5062480
Indeno(1,2,3-cd)pyrene	ug/g	2.5	0.050	5062480
1-Methylnaphthalene	ug/g	0.24	0.050	5062480
2-Methylnaphthalene	ug/g	0.38	0.050	5062480
Naphthalene	ug/g	0.40	0.050	5062480
Phenanthrene	ug/g	2.2	0.050	5062480
Pyrene	ug/g	5.7	0.050	5062480
Surrogate Recovery (%)				
D10-Anthracene	%	112		5062480
D14-Terphenyl (FS)	%	105		5062480
D8-Acenaphthylene	%	98		5062480

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D9999
Report Date: 2017/07/13

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Sampler Initials: ES

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		ERJ083	ERJ084		
Sampling Date		2017/07/04 13:30	2017/07/04 13:40		
COC Number		617077-15-01	617077-15-01		
	UNITS	BH2017-11 SS11	BH2017-11 SS13	RDL	QC Batch
Inorganics					
Moisture	%	17	15	1.0	5063565
BTEX & F1 Hydrocarbons					
Benzene	ug/g	<0.020	<0.020	0.020	5064239
Toluene	ug/g	<0.020	<0.020	0.020	5064239
Ethylbenzene	ug/g	<0.020	<0.020	0.020	5064239
o-Xylene	ug/g	<0.020	<0.020	0.020	5064239
p+m-Xylene	ug/g	<0.040	<0.040	0.040	5064239
Total Xylenes	ug/g	<0.040	<0.040	0.040	5064239
F1 (C6-C10)	ug/g	<10	<10	10	5064239
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	5064239
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	10	5063140
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	50	5063140
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	50	5063140
Reached Baseline at C50	ug/g	Yes	Yes		5063140
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	98	99		5064239
4-Bromofluorobenzene	%	92	91		5064239
D10-Ethylbenzene	%	122	108		5064239
D4-1,2-Dichloroethane	%	104	105		5064239
o-Terphenyl	%	95	97		5063140

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D9999
Report Date: 2017/07/13

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Sampler Initials: ES

TEST SUMMARY

Maxxam ID: ERJ082
Sample ID: BH2017-11 SS3
Matrix: Soil

Collected: 2017/07/04
Shipped:
Received: 2017/07/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5057870	N/A	2017/07/11	Automated Statchk
Strong Acid Leachable Metals by ICPMS	ICP/MS	5066786	2017/07/11	2017/07/11	Viviana Canzonieri
Moisture	BAL	5065361	N/A	2017/07/10	Valentina Kaftani
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5062480	2017/07/07	2017/07/08	Mitesh Raj

Maxxam ID: ERJ083
Sample ID: BH2017-11 SS11
Matrix: Soil

Collected: 2017/07/04
Shipped:
Received: 2017/07/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5064239	N/A	2017/07/10	Abdi Mohamud
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5063140	2017/07/07	2017/07/09	Atoosa Keshavarz
Moisture	BAL	5063565	N/A	2017/07/07	Navpreet Singh Deol

Maxxam ID: ERJ084
Sample ID: BH2017-11 SS13
Matrix: Soil

Collected: 2017/07/04
Shipped:
Received: 2017/07/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5064239	N/A	2017/07/10	Abdi Mohamud
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5063140	2017/07/07	2017/07/09	Atoosa Keshavarz
Moisture	BAL	5063565	N/A	2017/07/07	Navpreet Singh Deol

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D9999
Report Date: 2017/07/13

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Sampler Initials: ES

GENERAL COMMENTS

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

Package 1	12.0°C

Sample ERJ082 [BH2017-11 SS3] : PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample ERJ083 [BH2017-11 SS11] : F1/BTEX Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample ERJ084 [BH2017-11 SS13] : Revised Report (2017-07-13): Client sample ID has been amended.

F1/BTEX Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D9999
Report Date: 2017/07/13

QUALITY ASSURANCE REPORT

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Sampler Initials: ES

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5062480	D10-Anthracene	2017/07/07	95	50 - 130	86	50 - 130	93	%		
5062480	D14-Terphenyl (FS)	2017/07/07	92	50 - 130	88	50 - 130	104	%		
5062480	D8-Acenaphthylene	2017/07/07	82	50 - 130	78	50 - 130	81	%		
5063140	o-Terphenyl	2017/07/08	95	60 - 130	98	60 - 130	94	%		
5064239	1,4-Difluorobenzene	2017/07/10	97	60 - 140	98	60 - 140	98	%		
5064239	4-Bromofluorobenzene	2017/07/10	99	60 - 140	96	60 - 140	93	%		
5064239	D10-Ethylbenzene	2017/07/10	103	60 - 140	98	60 - 140	98	%		
5064239	D4-1,2-Dichloroethane	2017/07/10	102	60 - 140	104	60 - 140	103	%		
5062480	1-Methylnaphthalene	2017/07/07	87	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
5062480	2-Methylnaphthalene	2017/07/07	82	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
5062480	Acenaphthene	2017/07/07	86	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
5062480	Acenaphthylene	2017/07/07	88	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
5062480	Anthracene	2017/07/07	83	50 - 130	81	50 - 130	<0.0050	ug/g	NC	40
5062480	Benzo(a)anthracene	2017/07/07	101	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
5062480	Benzo(a)pyrene	2017/07/07	90	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40
5062480	Benzo(b/j)fluoranthene	2017/07/07	89	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
5062480	Benzo(g,h,i)perylene	2017/07/07	88	50 - 130	102	50 - 130	<0.0050	ug/g	NC	40
5062480	Benzo(k)fluoranthene	2017/07/07	83	50 - 130	102	50 - 130	<0.0050	ug/g	NC	40
5062480	Chrysene	2017/07/07	94	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
5062480	Dibenz(a,h)anthracene	2017/07/07	93	50 - 130	106	50 - 130	<0.0050	ug/g	NC	40
5062480	Fluoranthene	2017/07/07	99	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
5062480	Fluorene	2017/07/07	99	50 - 130	103	50 - 130	<0.0050	ug/g	NC	40
5062480	Indeno(1,2,3-cd)pyrene	2017/07/07	87	50 - 130	101	50 - 130	<0.0050	ug/g	NC	40
5062480	Naphthalene	2017/07/07	62	50 - 130	76	50 - 130	<0.0050	ug/g	NC	40
5062480	Phenanthrene	2017/07/07	94	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
5062480	Pyrene	2017/07/07	100	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
5063140	F2 (C10-C16 Hydrocarbons)	2017/07/09	98	50 - 130	98	80 - 120	<10	ug/g	NC	30
5063140	F3 (C16-C34 Hydrocarbons)	2017/07/09	92	50 - 130	93	80 - 120	<50	ug/g	NC	30
5063140	F4 (C34-C50 Hydrocarbons)	2017/07/09	109	50 - 130	108	80 - 120	<50	ug/g	NC	30
5063565	Moisture	2017/07/07							3.7	20
5064239	Benzene	2017/07/10	93	60 - 140	98	60 - 140	<0.020	ug/g	NC	50

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5064239	Ethylbenzene	2017/07/10	90	60 - 140	98	60 - 140	<0.020	ug/g	4.8	50
5064239	F1 (C6-C10) - BTEX	2017/07/10					<10	ug/g	NC	30
5064239	F1 (C6-C10)	2017/07/10	102	60 - 140	94	80 - 120	<10	ug/g	NC	30
5064239	o-Xylene	2017/07/10	71	60 - 140	101	60 - 140	<0.020	ug/g	4.6	50
5064239	p+m-Xylene	2017/07/10	87	60 - 140	99	60 - 140	<0.040	ug/g	2.0	50
5064239	Toluene	2017/07/10	87	60 - 140	93	60 - 140	<0.020	ug/g	NC	50
5064239	Total Xylenes	2017/07/10					<0.040	ug/g	1.9	50
5065361	Moisture	2017/07/10							1.4	20
5066786	Acid Extractable Antimony (Sb)	2017/07/11	95	75 - 125	101	80 - 120	<0.20	ug/g	NC	30
5066786	Acid Extractable Arsenic (As)	2017/07/11	99	75 - 125	104	80 - 120	<1.0	ug/g	18	30
5066786	Acid Extractable Barium (Ba)	2017/07/11	NC	75 - 125	107	80 - 120	<0.50	ug/g	2.6	30
5066786	Acid Extractable Beryllium (Be)	2017/07/11	99	75 - 125	104	80 - 120	<0.20	ug/g	5.8	30
5066786	Acid Extractable Boron (B)	2017/07/11	96	75 - 125	106	80 - 120	<5.0	ug/g		
5066786	Acid Extractable Cadmium (Cd)	2017/07/11	98	75 - 125	102	80 - 120	<0.10	ug/g	0.83	30
5066786	Acid Extractable Chromium (Cr)	2017/07/11	104	75 - 125	106	80 - 120	<1.0	ug/g	11	30
5066786	Acid Extractable Cobalt (Co)	2017/07/11	98	75 - 125	105	80 - 120	<0.10	ug/g	1.8	30
5066786	Acid Extractable Copper (Cu)	2017/07/11	101	75 - 125	105	80 - 120	<0.50	ug/g	0.62	30
5066786	Acid Extractable Lead (Pb)	2017/07/11	99	75 - 125	105	80 - 120	<1.0	ug/g	4.2	30
5066786	Acid Extractable Molybdenum (Mo)	2017/07/11	101	75 - 125	103	80 - 120	<0.50	ug/g	NC	30
5066786	Acid Extractable Nickel (Ni)	2017/07/11	99	75 - 125	103	80 - 120	<0.50	ug/g	6.2	30
5066786	Acid Extractable Selenium (Se)	2017/07/11	98	75 - 125	102	80 - 120	<0.50	ug/g	NC	30
5066786	Acid Extractable Silver (Ag)	2017/07/11	102	75 - 125	104	80 - 120	<0.20	ug/g	NC	30
5066786	Acid Extractable Thallium (Tl)	2017/07/11	101	75 - 125	105	80 - 120	<0.050	ug/g	4.6	30
5066786	Acid Extractable Uranium (U)	2017/07/11	100	75 - 125	105	80 - 120	<0.050	ug/g	4.2	30
5066786	Acid Extractable Vanadium (V)	2017/07/11	96	75 - 125	103	80 - 120	<5.0	ug/g	9.2	30

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D9999
Report Date: 2017/07/13

QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Sampler Initials: ES

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5066786	Acid Extractable Zinc (Zn)	2017/07/11	NC	75 - 125	103	80 - 120	<5.0	ug/g	9.5	30

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

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

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

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

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

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

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7D9999
Report Date: 2017/07/13

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Sampler Initials: ES

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Services

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Analytics International Corporation o/a Maxxam Analytics
5740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5777 www.maxxam.ca

04-Jul-17 17:05
Alison Cameron
B7D9999

Page 15 of 15

IMMEDIATE

INVOICE TO:
Company Name: #3824 DST Consulting Engineers Inc
Attention: Accounts Payable
Address: 2150 Thurston Dr Unit 203
Ottawa ON K1G 5T9
Tel: (613) 748-1415 x Fax: (613) 748-1356 x
Email: ap@dstgroup.com

REPORT TO:
Company Name:
Attention: Eve Sabourin
Address:
Tel: Fax:
Email: esabourin@dstgroup.com

PROJECT INFORMATION:
Quotation #: B61802
P.O. #:
Project: TS-SO-29563 MAF ENV-808
Project Name:
Site #:
Sampled By:

Bottle Order #: 617077
Project Manager: Alison Cameron
C8617077-15-01

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
☐ Table 1 ☐ Res/Park ☐ Medium/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ For RSC
☐ Table ___

Other Regulations
☐ CCME ☐ Sanitary Sewer Bylaw
☐ Reg 558 ☐ Storm Sewer Bylaw
☐ MISA Municipality ___
☐ PWQO
☐ Other ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

Field Filtered (please circle): Metals / Hg / Cr VI

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	O.Reg 153 VOCs by HS & F1-F4 (Soil)	O.Reg 153 PAHs (Soil)	O.Reg 153 ICPMS Metals (Soil)	BTEX	# of Bottles	Comments
1		BH2017-11 SS3	04/07/17	13 00	Soil		X	X		3	
2		BH2017-11 SS12	↓	13 30	↓	X			X	3	
3		BH2017-11 SS13	↓	13.40	↓	X			X	3	
4		~~BH2017-12GS1~~									
5		~~BH2017-12SS2~~									RECEIVED IN OTTAWA
6		~~BH2017-12SS3~~									
7		~~BH2017-13SS1~~									
8		~~BH2017-13SS2~~									
9		~~BH2017-13SS3~~									
10											ON Ice

RECEIVED IN OTTAWA

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
[signature]	17/07/04	17:00	[signature]	2017/07/04	17.05	
Eve Sabourin	17/07/04	17:00				

Laboratory Use Only
Time Sensitive
Temperature (°C) on Recei: 11, 12, 13

Custody Seal	Yes	No
Present		
Intact		

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxa Yellow: Client

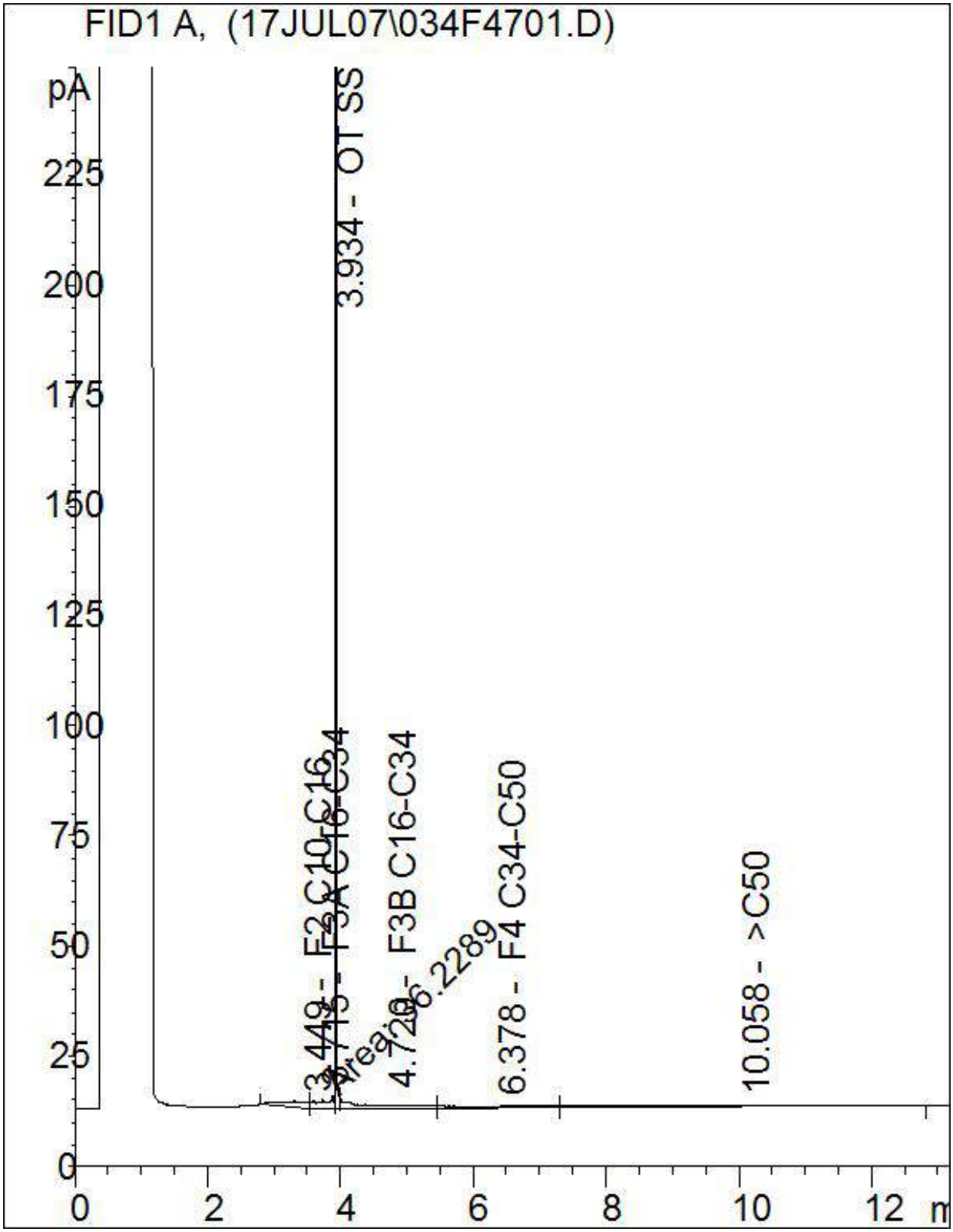
[signature] 8/8/6
2017/07/04 22:50

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam Job #: B7D9999
Report Date: 2017/07/13
Maxxam Sample: ERJ083

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-11 SS11

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

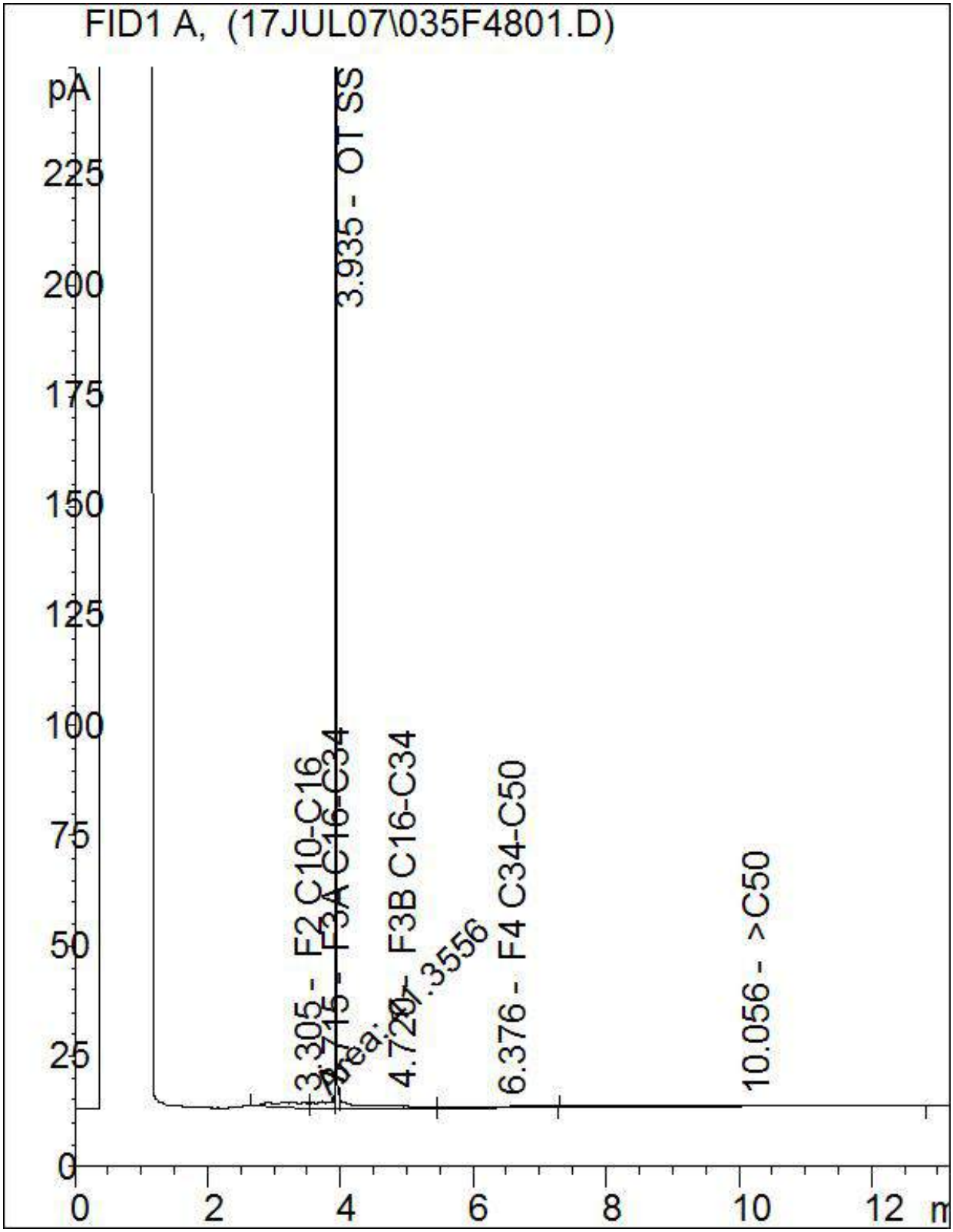


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7D9999
Report Date: 2017/07/13
Maxxam Sample: ERJ084

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-11 SS13

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/14
Report #: R4598534
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7E2666
Received: 2017/07/07, 11:15

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum (1)	2	N/A	2017/07/14	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum (1)	3	N/A	2017/07/13		EPA 8260C m
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2)	3	N/A	2017/07/12	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	3	2017/07/09	2017/07/12	CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (3)	3	2017/07/07	2017/07/07	OTT SOP-00001	CCME CWS
F4G (CCME Hydrocarbons Gravimetric) (1)	1	2017/07/13	2017/07/13	CAM SOP-00316	CCME PHC-CWS m
Strong Acid Leachable Metals by ICPMS (1)	1	2017/07/11	2017/07/12	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS (1)	2	2017/07/12	2017/07/14	CAM SOP-00447	EPA 6020B m
Moisture	3	N/A	2017/07/10	CAM SOP-00445	McKeague 2nd ed 1978
Moisture (1)	2	N/A	2017/07/12	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture (1)	1	N/A	2017/07/13	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM) (1)	2	2017/07/12	2017/07/12	CAM SOP-00318	EPA 8270D m
Volatile Organic Compounds and F1 PHCs (1)	3	N/A	2017/07/13	CAM SOP-00230	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Your Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/14
Report #: R4598534
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7E2666
Received: 2017/07/07, 11:15

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Analytics Mississauga
(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alison Cameron, Project Manager
Email: ACameron@maxxam.ca
Phone# (613) 274-0573

==========

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

Maxxam Job #: B7E2666
Report Date: 2017/07/14

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE
Sampler Initials: AM

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		ERV884		ERV886	ERV887		
Sampling Date		2017/07/06 08:20		2017/07/06 11:10	2017/07/06 14:30		
	UNITS	BH 2017-2-SS9	QC Batch	BH 2017-4-SS5	BH 2017-9-SS4	RDL	QC Batch
Metals							
Acid Extractable Antimony (Sb)	ug/g	<0.20	5067443	<0.20	<0.20	0.20	5069588
Acid Extractable Arsenic (As)	ug/g	<1.0	5067443	<1.0	<1.0	1.0	5069588
Acid Extractable Barium (Ba)	ug/g	82	5067443	110	190	0.50	5069588
Acid Extractable Beryllium (Be)	ug/g	0.33	5067443	0.36	0.56	0.20	5069588
Acid Extractable Boron (B)	ug/g	<5.0	5067443	5.8	5.8	5.0	5069588
Acid Extractable Cadmium (Cd)	ug/g	<0.10	5067443	<0.10	<0.10	0.10	5069588
Acid Extractable Chromium (Cr)	ug/g	18	5067443	21	42	1.0	5069588
Acid Extractable Cobalt (Co)	ug/g	6.7	5067443	8.0	12	0.10	5069588
Acid Extractable Copper (Cu)	ug/g	14	5067443	15	24	0.50	5069588
Acid Extractable Lead (Pb)	ug/g	4.7	5067443	4.8	5.9	1.0	5069588
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	5067443	<0.50	<0.50	0.50	5069588
Acid Extractable Nickel (Ni)	ug/g	13	5067443	13	26	0.50	5069588
Acid Extractable Selenium (Se)	ug/g	<0.50	5067443	<0.50	<0.50	0.50	5069588
Acid Extractable Silver (Ag)	ug/g	<0.20	5067443	<0.20	<0.20	0.20	5069588
Acid Extractable Thallium (Tl)	ug/g	0.14	5067443	0.13	0.28	0.050	5069588
Acid Extractable Uranium (U)	ug/g	0.53	5067443	0.57	0.58	0.050	5069588
Acid Extractable Vanadium (V)	ug/g	32	5067443	34	62	5.0	5069588
Acid Extractable Zinc (Zn)	ug/g	27	5067443	30	63	5.0	5069588

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2666
Report Date: 2017/07/14

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE
Sampler Initials: AM

O.REG 153 PAHS (SOIL)

Maxxam ID		ERV886		ERV887		
Sampling Date		2017/07/06 11:10		2017/07/06 14:30		
	UNITS	BH 2017-4-SS5	RDL	BH 2017-9-SS4	RDL	QC Batch
Calculated Parameters						
Methylnaphthalene, 2-(1-)	ug/g	0.0073	0.0071	<0.071	0.071	5062264
Polyaromatic Hydrocarbons						
Acenaphthene	ug/g	<0.0050	0.0050	<0.050	0.050	5069109
Acenaphthylene	ug/g	<0.0050	0.0050	<0.050	0.050	5069109
Anthracene	ug/g	0.014	0.0050	<0.050	0.050	5069109
Benzo(a)anthracene	ug/g	<0.0050	0.0050	<0.050	0.050	5069109
Benzo(a)pyrene	ug/g	<0.0050	0.0050	<0.050	0.050	5069109
Benzo(b/j)fluoranthene	ug/g	<0.0050	0.0050	<0.050	0.050	5069109
Benzo(g,h,i)perylene	ug/g	<0.0050	0.0050	<0.050	0.050	5069109
Benzo(k)fluoranthene	ug/g	<0.0050	0.0050	<0.050	0.050	5069109
Chrysene	ug/g	0.0050	0.0050	<0.050	0.050	5069109
Dibenz(a,h)anthracene	ug/g	<0.0050	0.0050	<0.050	0.050	5069109
Fluoranthene	ug/g	0.019	0.0050	0.067	0.050	5069109
Fluorene	ug/g	0.0055	0.0050	<0.050	0.050	5069109
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	0.0050	<0.050	0.050	5069109
1-Methylnaphthalene	ug/g	0.0073	0.0050	<0.050	0.050	5069109
2-Methylnaphthalene	ug/g	<0.0050	0.0050	<0.050	0.050	5069109
Naphthalene	ug/g	<0.0050	0.0050	<0.050	0.050	5069109
Phenanthrene	ug/g	0.022	0.0050	0.074	0.050	5069109
Pyrene	ug/g	0.014	0.0050	0.055	0.050	5069109
Surrogate Recovery (%)						
D10-Anthracene	%	98		108		5069109
D14-Terphenyl (FS)	%	90		102		5069109
D8-Acenaphthylene	%	93		102		5069109

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2666
Report Date: 2017/07/14

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE
Sampler Initials: AM

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		ERV883	ERV885	ERV888		
Sampling Date		2017/07/06 08:00	2017/07/06 11:00	2017/07/06 14:50		
	UNITS	BH 2017-2-SS6	BH 2017-4-SS4	BH 2017-9-SS8	RDL	QC Batch
Inorganics						
Moisture	%	30	26	15	0.2	5062898
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	<10	55	<10	10	5062902
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	50	5062902
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	50	5062902
Reached Baseline at C50	ug/g	Yes	Yes	Yes		5062902
Surrogate Recovery (%)						
o-Terphenyl	%	97	96	93		5062902

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2666
Report Date: 2017/07/14

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE
Sampler Initials: AM

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Maxxam ID		ERV884		ERV886		ERV887		
Sampling Date		2017/07/06 08:20		2017/07/06 11:10		2017/07/06 14:30		
	UNITS	BH 2017-2-SS9	QC Batch	BH 2017-4-SS5	QC Batch	BH 2017-9-SS4	RDL	QC Batch
Inorganics								
Moisture	%	15	5069158	15	5068874	24	1.0	5068874
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	5062265	<0.050	5062265	<0.050	0.050	5062873
Volatile Organics								
Acetone (2-Propanone)	ug/g	<0.50	5069471	<0.50	5069471	<0.50	0.50	5069471
Benzene	ug/g	<0.020	5069471	<0.020	5069471	<0.020	0.020	5069471
Bromodichloromethane	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Bromoform	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Bromomethane	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Carbon Tetrachloride	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Chlorobenzene	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Chloroform	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Dibromochloromethane	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
1,2-Dichlorobenzene	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
1,3-Dichlorobenzene	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
1,4-Dichlorobenzene	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
1,1-Dichloroethane	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
1,2-Dichloroethane	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
1,1-Dichloroethylene	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
cis-1,2-Dichloroethylene	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
trans-1,2-Dichloroethylene	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
1,2-Dichloropropane	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
cis-1,3-Dichloropropene	ug/g	<0.030	5069471	<0.030	5069471	<0.030	0.030	5069471
trans-1,3-Dichloropropene	ug/g	<0.040	5069471	<0.040	5069471	<0.040	0.040	5069471
Ethylbenzene	ug/g	0.33	5069471	0.13	5069471	<0.020	0.020	5069471
Ethylene Dibromide	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Hexane	ug/g	0.17	5069471	0.41	5069471	<0.050	0.050	5069471
Methylene Chloride(Dichloromethane)	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	5069471	<0.50	5069471	<0.50	0.50	5069471
Methyl Isobutyl Ketone	ug/g	<0.50	5069471	<0.50	5069471	<0.50	0.50	5069471
Methyl t-butyl ether (MTBE)	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Styrene	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
1,1,1,2-Tetrachloroethane	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2666
Report Date: 2017/07/14

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE
Sampler Initials: AM

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Maxxam ID		ERV884		ERV886		ERV887		
Sampling Date		2017/07/06 08:20		2017/07/06 11:10		2017/07/06 14:30		
	UNITS	BH 2017-2-SS9	QC Batch	BH 2017-4-SS5	QC Batch	BH 2017-9-SS4	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Tetrachloroethylene	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Toluene	ug/g	<0.020	5069471	<0.020	5069471	<0.020	0.020	5069471
1,1,1-Trichloroethane	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
1,1,2-Trichloroethane	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Trichloroethylene	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	5069471	<0.050	5069471	<0.050	0.050	5069471
Vinyl Chloride	ug/g	<0.020	5069471	<0.020	5069471	<0.020	0.020	5069471
p+m-Xylene	ug/g	0.55	5069471	<0.020	5069471	<0.020	0.020	5069471
o-Xylene	ug/g	0.039	5069471	<0.020	5069471	<0.020	0.020	5069471
Total Xylenes	ug/g	0.59	5069471	<0.020	5069471	<0.020	0.020	5069471
F1 (C6-C10)	ug/g	<10	5069471	30	5069471	<10	10	5069471
F1 (C6-C10) - BTEX	ug/g	<10	5069471	30	5069471	<10	10	5069471
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	5064666	<10	5064666	<10	10	5064666
F3 (C16-C34 Hydrocarbons)	ug/g	<50	5064666	<50	5064666	170	50	5064666
F4 (C34-C50 Hydrocarbons)	ug/g	<50	5064666	<50	5064666	380	50	5064666
Reached Baseline at C50	ug/g	Yes	5064666	Yes	5064666	No		5064666
Surrogate Recovery (%)								
o-Terphenyl	%	98	5064666	95	5064666	95		5064666
4-Bromofluorobenzene	%	93	5069471	96	5069471	95		5069471
D10-o-Xylene	%	92	5069471	100	5069471	103		5069471
D4-1,2-Dichloroethane	%	103	5069471	105	5069471	106		5069471
D8-Toluene	%	98	5069471	99	5069471	98		5069471

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2666
Report Date: 2017/07/14

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE
Sampler Initials: AM

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		ERV883	ERV885	ERV887	ERV888		
Sampling Date		2017/07/06 08:00	2017/07/06 11:00	2017/07/06 14:30	2017/07/06 14:50		
	UNITS	BH 2017-2-SS6	BH 2017-4-SS4	BH 2017-9-SS4	BH 2017-9-SS8	RDL	QC Batch
BTEX & F1 Hydrocarbons							
Benzene	ug/g	<0.020	<0.020		<0.020	0.020	5069977
Toluene	ug/g	<0.020	<0.020		0.059	0.020	5069977
Ethylbenzene	ug/g	<0.020	<0.020		0.19	0.020	5069977
o-Xylene	ug/g	<0.020	<0.020		0.16	0.020	5069977
p+m-Xylene	ug/g	<0.040	<0.040		0.71	0.040	5069977
Total Xylenes	ug/g	<0.040	<0.040		0.87	0.040	5069977
F1 (C6-C10)	ug/g	<10	33		15	10	5069977
F1 (C6-C10) - BTEX	ug/g	<10	33		14	10	5069977
F2-F4 Hydrocarbons							
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g			920		100	5071068
Surrogate Recovery (%)							
1,4-Difluorobenzene	%	113	93		113		5069977
4-Bromofluorobenzene	%	102	98		100		5069977
D10-Ethylbenzene	%	94	100		96		5069977
D4-1,2-Dichloroethane	%	115	100		116		5069977

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2666
Report Date: 2017/07/14

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE
Sampler Initials: AM

TEST SUMMARY

Maxxam ID: ERV883 **Collected:** 2017/07/06
Sample ID: BH 2017-2-SS6 **Shipped:**
Matrix: Soil **Received:** 2017/07/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5069977	N/A	2017/07/12	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5062902	2017/07/07	2017/07/07	Liliana Gaburici
Moisture	BAL	5062898	N/A	2017/07/10	Liliana Gaburici

Maxxam ID: ERV884 **Collected:** 2017/07/06
Sample ID: BH 2017-2-SS9 **Shipped:**
Matrix: Soil **Received:** 2017/07/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5062265	N/A	2017/07/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5064666	2017/07/09	2017/07/12	(Kent) Maolin Li
Strong Acid Leachable Metals by ICPMS	ICP/MS	5067443	2017/07/11	2017/07/12	Thao Nguyen
Moisture	BAL	5069158	N/A	2017/07/13	Valentina Kaftani
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5069471	N/A	2017/07/13	Xueming Jiang

Maxxam ID: ERV885 **Collected:** 2017/07/06
Sample ID: BH 2017-4-SS4 **Shipped:**
Matrix: Soil **Received:** 2017/07/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5069977	N/A	2017/07/12	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5062902	2017/07/07	2017/07/07	Liliana Gaburici
Moisture	BAL	5062898	N/A	2017/07/10	Liliana Gaburici

Maxxam ID: ERV886 **Collected:** 2017/07/06
Sample ID: BH 2017-4-SS5 **Shipped:**
Matrix: Soil **Received:** 2017/07/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5062264	N/A	2017/07/14	Automated Statchk
1,3-Dichloropropene Sum	CALC	5062265	N/A	2017/07/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5064666	2017/07/09	2017/07/12	(Kent) Maolin Li
Strong Acid Leachable Metals by ICPMS	ICP/MS	5069588	2017/07/12	2017/07/14	Daniel Teclu
Moisture	BAL	5068874	N/A	2017/07/12	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5069109	2017/07/12	2017/07/12	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5069471	N/A	2017/07/13	Xueming Jiang

Maxxam ID: ERV887 **Collected:** 2017/07/06
Sample ID: BH 2017-9-SS4 **Shipped:**
Matrix: Soil **Received:** 2017/07/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5062264	N/A	2017/07/14	Automated Statchk
1,3-Dichloropropene Sum	CALC	5062873	N/A	2017/07/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5064666	2017/07/09	2017/07/12	(Kent) Maolin Li

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2666
Report Date: 2017/07/14

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE
Sampler Initials: AM

TEST SUMMARY

Maxxam ID: ERV887
Sample ID: BH 2017-9-SS4
Matrix: Soil

Collected: 2017/07/06
Shipped:
Received: 2017/07/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
F4G (CCME Hydrocarbons Gravimetric)	BAL	5071068	2017/07/13	2017/07/13	Debra Deslandes
Strong Acid Leachable Metals by ICPMS	ICP/MS	5069588	2017/07/12	2017/07/14	Daniel Teclu
Moisture	BAL	5068874	N/A	2017/07/12	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5069109	2017/07/12	2017/07/12	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5069471	N/A	2017/07/13	Xueming Jiang

Maxxam ID: ERV888
Sample ID: BH 2017-9-SS8
Matrix: Soil

Collected: 2017/07/06
Shipped:
Received: 2017/07/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5069977	N/A	2017/07/12	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5062902	2017/07/07	2017/07/07	Liliana Gaburici
Moisture	BAL	5062898	N/A	2017/07/10	Liliana Gaburici

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2666
Report Date: 2017/07/14

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE
Sampler Initials: AM

GENERAL COMMENTS

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

Package 1	10.0°C

Sample ERV884 [BH 2017-2-SS9] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample ERV885 [BH 2017-4-SS4] : F1/BTEX Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample ERV886 [BH 2017-4-SS5] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample ERV887 [BH 2017-9-SS4] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.
PAH analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample ERV888 [BH 2017-9-SS8] : F1/BTEX Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2666
Report Date: 2017/07/14

QUALITY ASSURANCE REPORT

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE
Sampler Initials: AM

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5062902	o-Terphenyl	2017/07/07	101	30 - 130	99	30 - 130	97	%		
5064666	o-Terphenyl	2017/07/10	96	60 - 130	95	60 - 130	96	%		
5069109	D10-Anthracene	2017/07/12	97	50 - 130	99	50 - 130	97	%		
5069109	D14-Terphenyl (FS)	2017/07/12	104	50 - 130	100	50 - 130	98	%		
5069109	D8-Acenaphthylene	2017/07/12	84	50 - 130	92	50 - 130	83	%		
5069471	4-Bromofluorobenzene	2017/07/12	96	60 - 140	96	60 - 140	94	%		
5069471	D10-o-Xylene	2017/07/12	98	60 - 130	90	60 - 130	93	%		
5069471	D4-1,2-Dichloroethane	2017/07/12	105	60 - 140	105	60 - 140	105	%		
5069471	D8-Toluene	2017/07/12	102	60 - 140	102	60 - 140	99	%		
5069977	1,4-Difluorobenzene	2017/07/12	97	60 - 140	112	60 - 140	90	%		
5069977	4-Bromofluorobenzene	2017/07/12	101	60 - 140	103	60 - 140	101	%		
5069977	D10-Ethylbenzene	2017/07/12	104	60 - 140	96	60 - 140	86	%		
5069977	D4-1,2-Dichloroethane	2017/07/12	102	60 - 140	115	60 - 140	99	%		
5062898	Moisture	2017/07/10							2.3	50
5062902	F2 (C10-C16 Hydrocarbons)	2017/07/07	101	50 - 130	99	80 - 120	<10	ug/g	11	50
5062902	F3 (C16-C34 Hydrocarbons)	2017/07/07	101	50 - 130	99	80 - 120	<50	ug/g	14	50
5062902	F4 (C34-C50 Hydrocarbons)	2017/07/07	101	50 - 130	99	80 - 120	<50	ug/g	NC	50
5064666	F2 (C10-C16 Hydrocarbons)	2017/07/10	99	50 - 130	98	80 - 120	<10	ug/g	NC	30
5064666	F3 (C16-C34 Hydrocarbons)	2017/07/10	101	50 - 130	100	80 - 120	<50	ug/g	NC	30
5064666	F4 (C34-C50 Hydrocarbons)	2017/07/10	102	50 - 130	101	80 - 120	<50	ug/g	NC	30
5067443	Acid Extractable Antimony (Sb)	2017/07/12	100	75 - 125	99	80 - 120	<0.20	ug/g	NC	30
5067443	Acid Extractable Arsenic (As)	2017/07/12	101	75 - 125	99	80 - 120	<1.0	ug/g	2.2	30
5067443	Acid Extractable Barium (Ba)	2017/07/12	NC	75 - 125	105	80 - 120	<0.50	ug/g	2.7	30
5067443	Acid Extractable Beryllium (Be)	2017/07/12	110	75 - 125	105	80 - 120	<0.20	ug/g	1.7	30
5067443	Acid Extractable Boron (B)	2017/07/12	107	75 - 125	90	80 - 120	<5.0	ug/g	NC	30
5067443	Acid Extractable Cadmium (Cd)	2017/07/12	100	75 - 125	96	80 - 120	<0.10	ug/g	NC	30
5067443	Acid Extractable Chromium (Cr)	2017/07/12	109	75 - 125	103	80 - 120	<1.0	ug/g	1.7	30
5067443	Acid Extractable Cobalt (Co)	2017/07/12	104	75 - 125	100	80 - 120	<0.10	ug/g	1.1	30
5067443	Acid Extractable Copper (Cu)	2017/07/12	105	75 - 125	101	80 - 120	<0.50	ug/g	0.88	30
5067443	Acid Extractable Lead (Pb)	2017/07/12	100	75 - 125	100	80 - 120	<1.0	ug/g	3.0	30
5067443	Acid Extractable Molybdenum (Mo)	2017/07/12	105	75 - 125	97	80 - 120	<0.50	ug/g	NC	30

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5067443	Acid Extractable Nickel (Ni)	2017/07/12	109	75 - 125	101	80 - 120	<0.50	ug/g	10	30
5067443	Acid Extractable Selenium (Se)	2017/07/12	104	75 - 125	103	80 - 120	<0.50	ug/g	NC	30
5067443	Acid Extractable Silver (Ag)	2017/07/12	105	75 - 125	100	80 - 120	<0.20	ug/g	NC	30
5067443	Acid Extractable Thallium (Tl)	2017/07/12	98	75 - 125	98	80 - 120	<0.050	ug/g	0.74	30
5067443	Acid Extractable Uranium (U)	2017/07/12	108	75 - 125	106	80 - 120	<0.050	ug/g	0.89	30
5067443	Acid Extractable Vanadium (V)	2017/07/12	113	75 - 125	101	80 - 120	<5.0	ug/g	0.55	30
5067443	Acid Extractable Zinc (Zn)	2017/07/12	NC	75 - 125	98	80 - 120	<5.0	ug/g	6.6	30
5068874	Moisture	2017/07/12							5.3	20
5069109	1-Methylnaphthalene	2017/07/12	98	50 - 130	107	50 - 130	<0.0050	ug/g	NC	40
5069109	2-Methylnaphthalene	2017/07/12	89	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
5069109	Acenaphthene	2017/07/12	84	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
5069109	Acenaphthylene	2017/07/12	93	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
5069109	Anthracene	2017/07/12	84	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
5069109	Benzo(a)anthracene	2017/07/12	89	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
5069109	Benzo(a)pyrene	2017/07/12	89	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
5069109	Benzo(b/j)fluoranthene	2017/07/12	86	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
5069109	Benzo(g,h,i)perylene	2017/07/12	85	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
5069109	Benzo(k)fluoranthene	2017/07/12	84	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40
5069109	Chrysene	2017/07/12	90	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
5069109	Dibenz(a,h)anthracene	2017/07/12	85	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
5069109	Fluoranthene	2017/07/12	112	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
5069109	Fluorene	2017/07/12	86	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
5069109	Indeno(1,2,3-cd)pyrene	2017/07/12	81	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
5069109	Naphthalene	2017/07/12	69	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
5069109	Phenanthrene	2017/07/12	88	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40
5069109	Pyrene	2017/07/12	100	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
5069158	Moisture	2017/07/13							5.5	20
5069471	1,1,1,2-Tetrachloroethane	2017/07/13	109	60 - 140	108	60 - 130	<0.050	ug/g	NC	50
5069471	1,1,1-Trichloroethane	2017/07/13	97	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
5069471	1,1,2,2-Tetrachloroethane	2017/07/13	110	60 - 140	109	60 - 130	<0.050	ug/g	NC	50
5069471	1,1,2-Trichloroethane	2017/07/13	108	60 - 140	106	60 - 130	<0.050	ug/g	NC	50

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2666
Report Date: 2017/07/14

QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE
Sampler Initials: AM

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5069471	1,1-Dichloroethane	2017/07/13	104	60 - 140	103	60 - 130	<0.050	ug/g	NC	50
5069471	1,1-Dichloroethylene	2017/07/13	106	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
5069471	1,2-Dichlorobenzene	2017/07/13	100	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
5069471	1,2-Dichloroethane	2017/07/13	101	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
5069471	1,2-Dichloropropane	2017/07/13	92	60 - 140	91	60 - 130	<0.050	ug/g	NC	50
5069471	1,3-Dichlorobenzene	2017/07/13	102	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
5069471	1,4-Dichlorobenzene	2017/07/13	98	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
5069471	Acetone (2-Propanone)	2017/07/13	99	60 - 140	97	60 - 140	<0.50	ug/g	NC	50
5069471	Benzene	2017/07/13	102	60 - 140	101	60 - 130	<0.020	ug/g	NC	50
5069471	Bromodichloromethane	2017/07/13	102	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5069471	Bromoform	2017/07/13	108	60 - 140	107	60 - 130	<0.050	ug/g	NC	50
5069471	Bromomethane	2017/07/13	98	60 - 140	96	60 - 140	<0.050	ug/g	NC	50
5069471	Carbon Tetrachloride	2017/07/13	98	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
5069471	Chlorobenzene	2017/07/13	97	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
5069471	Chloroform	2017/07/13	100	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
5069471	cis-1,2-Dichloroethylene	2017/07/13	98	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
5069471	cis-1,3-Dichloropropene	2017/07/13	81	60 - 140	80	60 - 130	<0.030	ug/g	NC	50
5069471	Dibromochloromethane	2017/07/13	106	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
5069471	Dichlorodifluoromethane (FREON 12)	2017/07/13	104	60 - 140	102	60 - 140	<0.050	ug/g	NC	50
5069471	Ethylbenzene	2017/07/13	96	60 - 140	96	60 - 130	<0.020	ug/g	NC	50
5069471	Ethylene Dibromide	2017/07/13	109	60 - 140	108	60 - 130	<0.050	ug/g	NC	50
5069471	F1 (C6-C10) - BTEX	2017/07/13					<10	ug/g	NC	30
5069471	F1 (C6-C10)	2017/07/13	101	60 - 140	98	80 - 120	<10	ug/g	NC	30
5069471	Hexane	2017/07/13	103	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
5069471	Methyl Ethyl Ketone (2-Butanone)	2017/07/13	101	60 - 140	99	60 - 140	<0.50	ug/g	NC	50
5069471	Methyl Isobutyl Ketone	2017/07/13	98	60 - 140	96	60 - 130	<0.50	ug/g	NC	50
5069471	Methyl t-butyl ether (MTBE)	2017/07/13	94	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5069471	Methylene Chloride(Dichloromethane)	2017/07/13	100	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
5069471	o-Xylene	2017/07/13	95	60 - 140	94	60 - 130	<0.020	ug/g	NC	50
5069471	p+m-Xylene	2017/07/13	95	60 - 140	94	60 - 130	<0.020	ug/g	NC	50
5069471	Styrene	2017/07/13	93	60 - 140	92	60 - 130	<0.050	ug/g	NC	50

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2666
Report Date: 2017/07/14

QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE
Sampler Initials: AM

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5069471	Tetrachloroethylene	2017/07/13	97	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
5069471	Toluene	2017/07/13	94	60 - 140	94	60 - 130	<0.020	ug/g	NC	50
5069471	Total Xylenes	2017/07/13					<0.020	ug/g	NC	50
5069471	trans-1,2-Dichloroethylene	2017/07/13	97	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
5069471	trans-1,3-Dichloropropene	2017/07/13	86	60 - 140	85	60 - 130	<0.040	ug/g	NC	50
5069471	Trichloroethylene	2017/07/13	97	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
5069471	Trichlorofluoromethane (FREON 11)	2017/07/13	104	60 - 140	103	60 - 130	<0.050	ug/g	NC	50
5069471	Vinyl Chloride	2017/07/13	98	60 - 140	97	60 - 130	<0.020	ug/g	NC	50
5069588	Acid Extractable Antimony (Sb)	2017/07/13	100	75 - 125	97	80 - 120	<0.20	ug/g	NC	30
5069588	Acid Extractable Arsenic (As)	2017/07/13	96	75 - 125	100	80 - 120	<1.0	ug/g	NC	30
5069588	Acid Extractable Barium (Ba)	2017/07/13	98	75 - 125	98	80 - 120	<0.50	ug/g	2.5	30
5069588	Acid Extractable Beryllium (Be)	2017/07/13	97	75 - 125	97	80 - 120	<0.20	ug/g	NC	30
5069588	Acid Extractable Boron (B)	2017/07/13	98	75 - 125	99	80 - 120	<5.0	ug/g	NC	30
5069588	Acid Extractable Cadmium (Cd)	2017/07/13	102	75 - 125	98	80 - 120	<0.10	ug/g	NC	30
5069588	Acid Extractable Chromium (Cr)	2017/07/13	103	75 - 125	101	80 - 120	<1.0	ug/g	0.71	30
5069588	Acid Extractable Cobalt (Co)	2017/07/13	99	75 - 125	99	80 - 120	<0.10	ug/g	1.4	30
5069588	Acid Extractable Copper (Cu)	2017/07/13	101	75 - 125	102	80 - 120	<0.50	ug/g	4.1	30
5069588	Acid Extractable Lead (Pb)	2017/07/13	101	75 - 125	100	80 - 120	<1.0	ug/g	3.6	30
5069588	Acid Extractable Molybdenum (Mo)	2017/07/13	102	75 - 125	97	80 - 120	<0.50	ug/g	NC	30
5069588	Acid Extractable Nickel (Ni)	2017/07/13	99	75 - 125	104	80 - 120	<0.50	ug/g	2.3	30
5069588	Acid Extractable Selenium (Se)	2017/07/13	100	75 - 125	102	80 - 120	<0.50	ug/g	NC	30
5069588	Acid Extractable Silver (Ag)	2017/07/13	103	75 - 125	102	80 - 120	<0.20	ug/g	NC	30
5069588	Acid Extractable Thallium (Tl)	2017/07/13	102	75 - 125	100	80 - 120	<0.050	ug/g	NC	30
5069588	Acid Extractable Uranium (U)	2017/07/13	102	75 - 125	99	80 - 120	<0.050	ug/g	2.1	30
5069588	Acid Extractable Vanadium (V)	2017/07/13	102	75 - 125	102	80 - 120	<5.0	ug/g	1.2	30
5069588	Acid Extractable Zinc (Zn)	2017/07/13	100	75 - 125	101	80 - 120	<5.0	ug/g	8.7	30
5069977	Benzene	2017/07/12	103	60 - 140	122	60 - 140	<0.020	ug/g	NC	50
5069977	Ethylbenzene	2017/07/12	99	60 - 140	100	60 - 140	<0.020	ug/g	NC	50
5069977	F1 (C6-C10) - BTEX	2017/07/12					<10	ug/g	NC	30
5069977	F1 (C6-C10)	2017/07/12	83	60 - 140	102	80 - 120	<10	ug/g	NC	30
5069977	o-Xylene	2017/07/12	102	60 - 140	103	60 - 140	<0.020	ug/g	NC	50

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2666
Report Date: 2017/07/14

QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE
Sampler Initials: AM

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5069977	p+m-Xylene	2017/07/12	99	60 - 140	101	60 - 140	<0.040	ug/g	NC	50
5069977	Toluene	2017/07/12	86	60 - 140	101	60 - 140	<0.020	ug/g	NC	50
5069977	Total Xylenes	2017/07/12					<0.040	ug/g	NC	50
5071068	F4G-sg (Grav. Heavy Hydrocarbons)	2017/07/13	106	65 - 135	102	65 - 135	<100	ug/g	22	50

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

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

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

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

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

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

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2666
Report Date: 2017/07/14

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Site Location: TRINITY 951GLADSTONE
Sampler Initials: AM

VALIDATION SIGNATURE PAGE

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

Brad Newman, Scientific Specialist

Cristina Carriere, Scientific Services

Paul Rubinato, Analyst, Maxxam Analytics

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam
A Bureau Veritas Group Company

6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/3

CHAIN OF CUSTODY RECORD

Page 1 of 1

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: DST Consulting Engineers Inc.	Company Name: DST	Quotation #:	☑ Regular TAT (5-7 days) Most analyses
Contact Name: Accounts Payable	Contact Name: Eve Sabourin	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 2150 Thurston Dr Unit 203	Address: 2150 Thurston dr	Project #: 1590-29563	Rush TAT (Surcharges will be applied)
Ottawa ON K1G 5T9		Site Location: Trinity, 951 Gladstone	☐ 1 Day ☐ 2 Days ☐ 3-4 Days
Phone: (613) 748-1415 Fax: (613) 748-1356	Phone: 613-697-4225 Fax:	Site #:	
Email: ap@dstgroup.com	Email: esabourin@dstgroup.com	Sampled By: [redacted] ES AM	Date Required:

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Rush Confirmation #:

Regulation 153
☐ Table 1 ☐ Res/Park ☐ Med/ Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/ Other
☐ Table ____
FOR RSC (PLEASE CIRCLE) Y / N

Other Regulations
☐ CCME ☐ Sanitary Sewer Bylaw
☐ MISA ☐ Storm Sewer Bylaw
☐ PWQO Region ____
☐ Other (Specify) ____
☐ REG 558 (MIN. 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

LABORATORY USE ONLY
CUSTODY SEAL (Y) / N — Present: J — Intact: Y
COOLER TEMPERATURES: 10.1.0.1
COOLING MEDIA PRESENT: (Y) / N

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	PAH	LD- DO NOT ANALYZE
1	BH2017-2-SS6	2017/07/06	8:00	Soil	3		X	X						
2	BH2017-2-SS9		8:20		3		X	X	X	X				
3	BH2017-4-SS4		11:00		3		X	X						
4	BH2017-4-SS5		11:10		3		X	X	X	X			X	
5	BH2017-9-SS4		14:30		3		X	X	X	X			X	
6	BH2017-9-SS8		14:50		3		X	X						
7														
8														
9														
10														

07-Jul-17 11:15
Alison Cameron
B7E2666
KIV OTT 001

RECEIVED IN OTTAWA

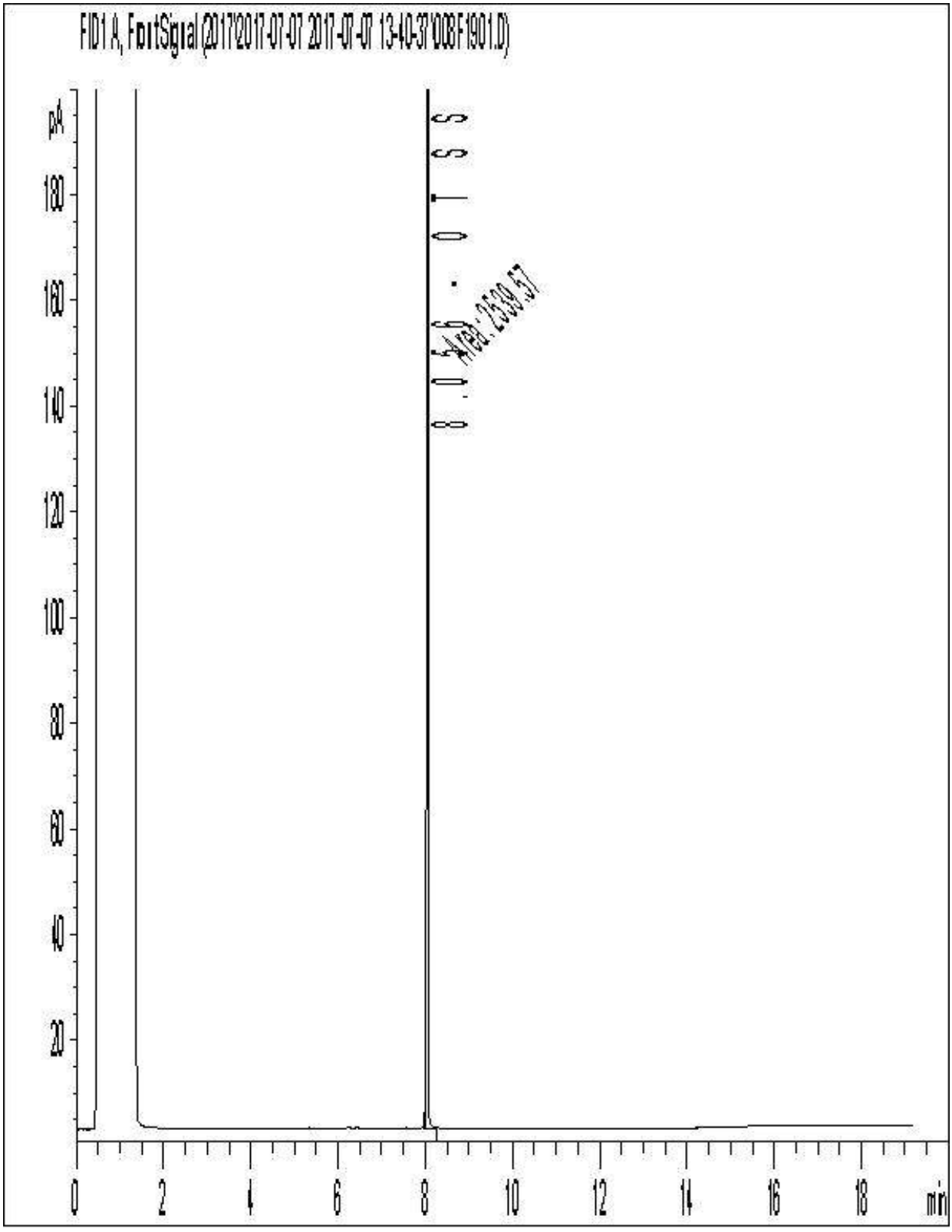
Onica

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
C. Pitt / Carol Pietka	2017/07/07	11:15	Mariana Vascon / Vascon	2017/07/07	11:15	

Maxxam Job #: B7E2666
Report Date: 2017/07/14
Maxxam Sample: ERV883

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Project name: TRINITY 951GLADSTONE
Client ID: BH 2017-2-SS6

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

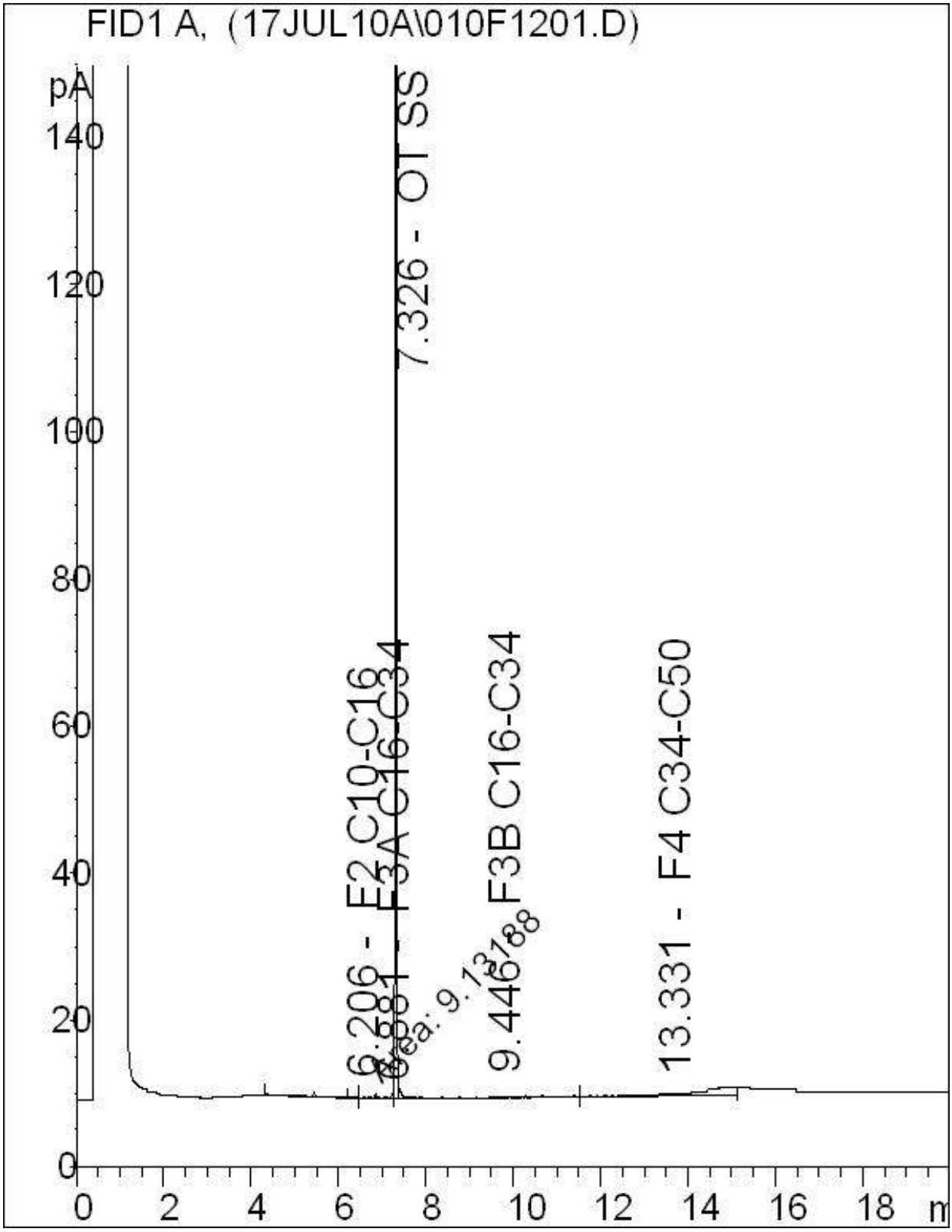


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7E2666
Report Date: 2017/07/14
Maxxam Sample: ERV884

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Project name: TRINITY 951GLADSTONE
Client ID: BH 2017-2-SS9

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

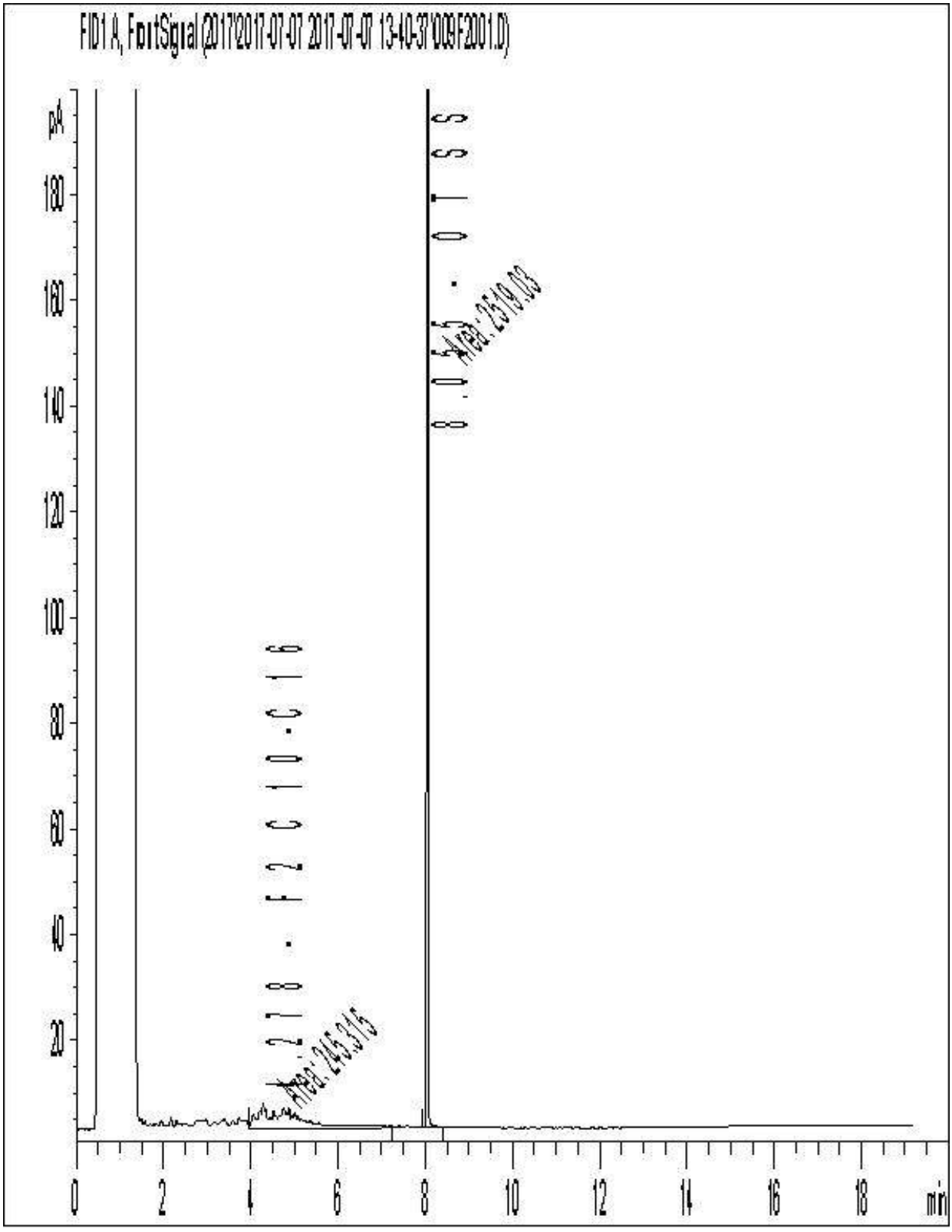


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7E2666
Report Date: 2017/07/14
Maxxam Sample: ERV885

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Project name: TRINITY 951GLADSTONE
Client ID: BH 2017-4-SS4

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

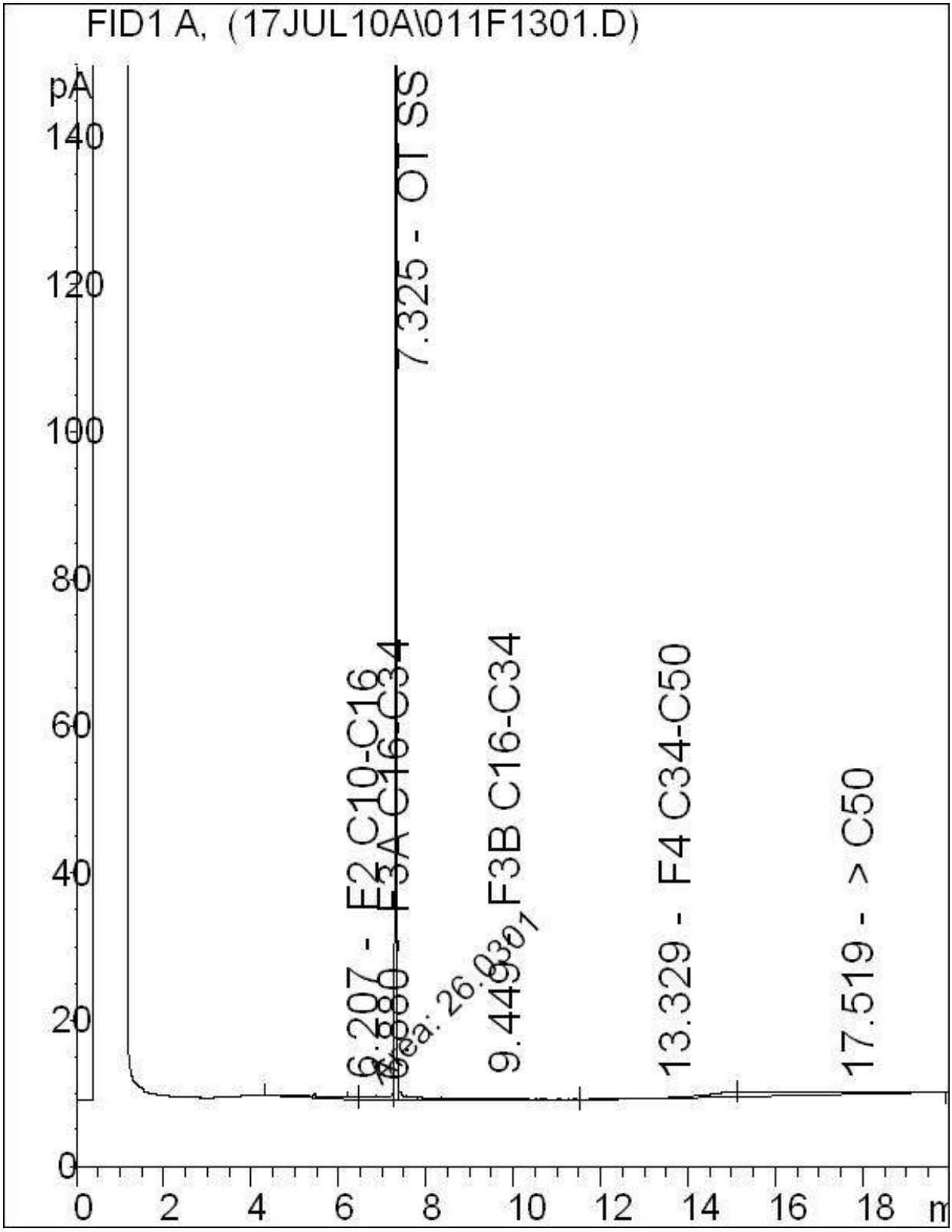


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7E2666
Report Date: 2017/07/14
Maxxam Sample: ERV886

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Project name: TRINITY 951GLADSTONE
Client ID: BH 2017-4-SS5

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

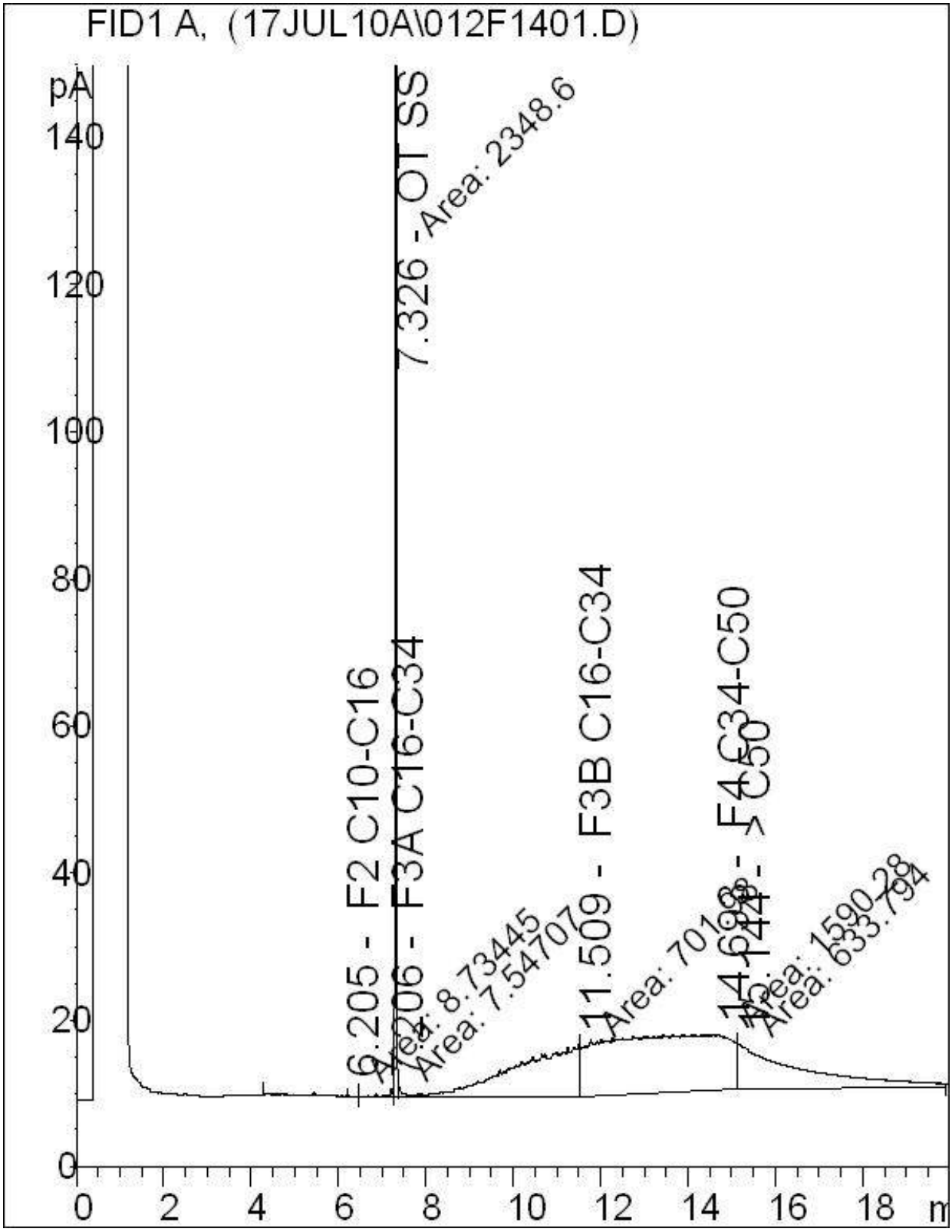


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7E2666
Report Date: 2017/07/14
Maxxam Sample: ERV887

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Project name: TRINITY 951GLADSTONE
Client ID: BH 2017-9-SS4

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

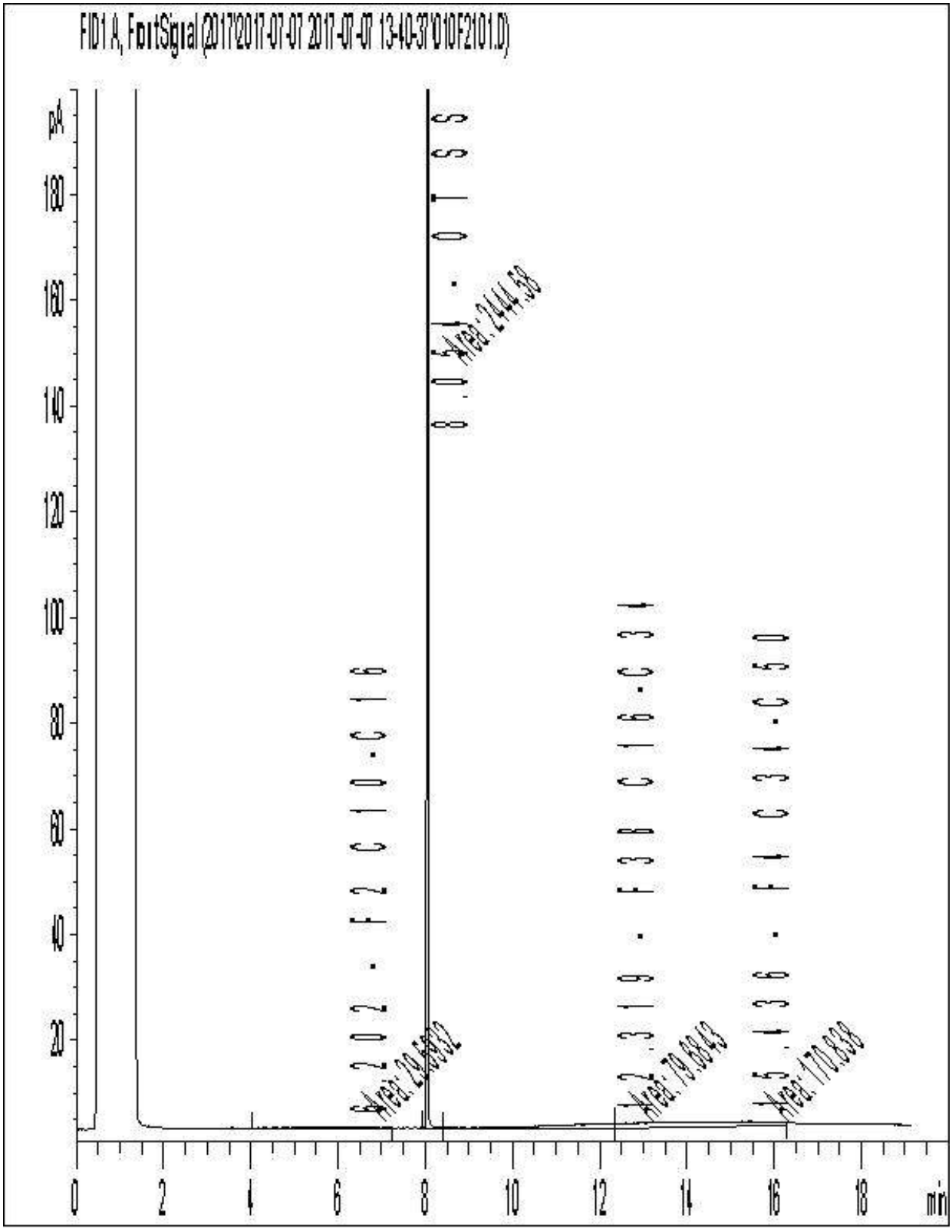


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7E2666
Report Date: 2017/07/14
Maxxam Sample: ERV888

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Project name: TRINITY 951GLADSTONE
Client ID: BH 2017-9-SS8

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: TS-SO-29563
Your C.O.C. #: 617077-03-01

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/13
Report #: R4595985
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7E2706
Received: 2017/07/06, 09:30

Sample Matrix: Soil
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum (1)	1	N/A	2017/07/13		EPA 8260C m
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2)	3	N/A	2017/07/12	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	4	2017/07/11	2017/07/12	CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric) (1)	1	2017/07/13	2017/07/13	CAM SOP-00316	CCME PHC-CWS m
Strong Acid Leachable Metals by ICPMS (1)	2	2017/07/12	2017/07/12	CAM SOP-00447	EPA 6020B m
Moisture (1)	4	N/A	2017/07/11	CAM SOP-00445	Carter 2nd ed 51.2 m
Volatile Organic Compounds and F1 PHCs (1)	1	N/A	2017/07/12	CAM SOP-00230	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Your Project #: TS-SO-29563
Your C.O.C. #: 617077-03-01

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/13
Report #: R4595985
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7E2706
Received: 2017/07/06, 09:30

(1) This test was performed by Maxxam Analytics Mississauga
(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alison Cameron, Project Manager
Email: ACameron@maxxam.ca
Phone# (613) 274-0573

==========

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

Maxxam Job #: B7E2706
Report Date: 2017/07/13

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		ERW223	ERW225		
Sampling Date		2017/07/05 09:30	2017/07/05 11:00		
COC Number		617077-03-01	617077-03-01		
	UNITS	BH2017-1 SS7	BH2017-3 SS2	RDL	QC Batch
Metals					
Acid Extractable Antimony (Sb)	ug/g	<0.20	0.45	0.20	5069242
Acid Extractable Arsenic (As)	ug/g	<1.0	3.5	1.0	5069242
Acid Extractable Barium (Ba)	ug/g	68	160	0.50	5069242
Acid Extractable Beryllium (Be)	ug/g	0.25	0.56	0.20	5069242
Acid Extractable Boron (B)	ug/g	5.1	8.1	5.0	5069242
Acid Extractable Cadmium (Cd)	ug/g	<0.10	0.22	0.10	5069242
Acid Extractable Chromium (Cr)	ug/g	14	40	1.0	5069242
Acid Extractable Cobalt (Co)	ug/g	6.0	10	0.10	5069242
Acid Extractable Copper (Cu)	ug/g	11	35	0.50	5069242
Acid Extractable Lead (Pb)	ug/g	5.0	38	1.0	5069242
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	0.90	0.50	5069242
Acid Extractable Nickel (Ni)	ug/g	10	26	0.50	5069242
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	0.50	5069242
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	0.20	5069242
Acid Extractable Thallium (Tl)	ug/g	0.10	0.23	0.050	5069242
Acid Extractable Uranium (U)	ug/g	0.42	0.82	0.050	5069242
Acid Extractable Vanadium (V)	ug/g	25	56	5.0	5069242
Acid Extractable Zinc (Zn)	ug/g	24	79	5.0	5069242

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		ERW223	ERW223	ERW225	ERW226		
Sampling Date		2017/07/05 09:30	2017/07/05 09:30	2017/07/05 11:00	2017/07/05 11:30		
COC Number		617077-03-01	617077-03-01	617077-03-01	617077-03-01		
	UNITS	BH2017-1 SS7	BH2017-1 SS7 Lab-Dup	BH2017-3 SS2	BH2017-3 SS11	RDL	QC Batch
Inorganics							
Moisture	%	12		13	11	1.0	5066843
BTEX & F1 Hydrocarbons							
Benzene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	5067957
Toluene	ug/g	0.042	0.050	<0.020	0.030	0.020	5067957
Ethylbenzene	ug/g	0.037	0.040	<0.020	<0.020	0.020	5067957
o-Xylene	ug/g	1.1	1.1	<0.020	0.038	0.020	5067957
p+m-Xylene	ug/g	3.8	3.7	<0.040	0.091	0.040	5067957
Total Xylenes	ug/g	4.9	4.8	<0.040	0.13	0.040	5067957
F1 (C6-C10)	ug/g	200	190	<10	<10	10	5067957
F1 (C6-C10) - BTEX	ug/g	200	180	<10	<10	10	5067957
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	78		23	16	10	5068391
F3 (C16-C34 Hydrocarbons)	ug/g	<50		170	<50	50	5068391
F4 (C34-C50 Hydrocarbons)	ug/g	<50		630	<50	50	5068391
Reached Baseline at C50	ug/g	Yes		No	Yes		5068391
Surrogate Recovery (%)							
1,4-Difluorobenzene	%	96	92	91	100		5067957
4-Bromofluorobenzene	%	98	97	96	96		5067957
D10-Ethylbenzene	%	87	85	84	78		5067957
D4-1,2-Dichloroethane	%	107	97	100	100		5067957
o-Terphenyl	%	92		95	95		5068391

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Maxxam ID		ERW224	ERW224		
Sampling Date		2017/07/05 09:45	2017/07/05 09:45		
COC Number		617077-03-01	617077-03-01		
	UNITS	BH2017-1 SS12	BH2017-1 SS12 Lab-Dup	RDL	QC Batch
Inorganics					
Moisture	%	11	10	1.0	5066843
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/g	<0.050		0.050	5065483
Volatile Organics					
Acetone (2-Propanone)	ug/g	<0.50		0.50	5067283
Benzene	ug/g	0.93		0.020	5067283
Bromodichloromethane	ug/g	<0.050		0.050	5067283
Bromoform	ug/g	<0.050		0.050	5067283
Bromomethane	ug/g	<0.050		0.050	5067283
Carbon Tetrachloride	ug/g	<0.050		0.050	5067283
Chlorobenzene	ug/g	<0.050		0.050	5067283
Chloroform	ug/g	<0.050		0.050	5067283
Dibromochloromethane	ug/g	<0.050		0.050	5067283
1,2-Dichlorobenzene	ug/g	<0.050		0.050	5067283
1,3-Dichlorobenzene	ug/g	<0.050		0.050	5067283
1,4-Dichlorobenzene	ug/g	<0.050		0.050	5067283
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050		0.050	5067283
1,1-Dichloroethane	ug/g	<0.050		0.050	5067283
1,2-Dichloroethane	ug/g	<0.050		0.050	5067283
1,1-Dichloroethylene	ug/g	<0.050		0.050	5067283
cis-1,2-Dichloroethylene	ug/g	<0.050		0.050	5067283
trans-1,2-Dichloroethylene	ug/g	<0.050		0.050	5067283
1,2-Dichloropropane	ug/g	<0.050		0.050	5067283
cis-1,3-Dichloropropene	ug/g	<0.030		0.030	5067283
trans-1,3-Dichloropropene	ug/g	<0.040		0.040	5067283
Ethylbenzene	ug/g	8.1		0.020	5067283
Ethylene Dibromide	ug/g	<0.050		0.050	5067283
Hexane	ug/g	11		0.050	5067283
Methylene Chloride(Dichloromethane)	ug/g	<0.050		0.050	5067283
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50		0.50	5067283
Methyl Isobutyl Ketone	ug/g	<0.50		0.50	5067283
Methyl t-butyl ether (MTBE)	ug/g	<0.050		0.050	5067283
Styrene	ug/g	<0.050		0.050	5067283

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Maxxam ID		ERW224	ERW224		
Sampling Date		2017/07/05 09:45	2017/07/05 09:45		
COC Number		617077-03-01	617077-03-01		
	UNITS	BH2017-1 SS12	BH2017-1 SS12 Lab-Dup	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/g	<0.050		0.050	5067283
1,1,2,2-Tetrachloroethane	ug/g	<0.050		0.050	5067283
Tetrachloroethylene	ug/g	<0.050		0.050	5067283
Toluene	ug/g	11		0.020	5067283
1,1,1-Trichloroethane	ug/g	<0.050		0.050	5067283
1,1,2-Trichloroethane	ug/g	<0.050		0.050	5067283
Trichloroethylene	ug/g	<0.050		0.050	5067283
Trichlorofluoromethane (FREON 11)	ug/g	<0.050		0.050	5067283
Vinyl Chloride	ug/g	<0.020		0.020	5067283
p+m-Xylene	ug/g	31		0.10	5067283
o-Xylene	ug/g	11		0.020	5067283
Total Xylenes	ug/g	41		0.10	5067283
F1 (C6-C10)	ug/g	520		50	5067283
F1 (C6-C10) - BTEX	ug/g	460		50	5067283
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	470		10	5068391
F3 (C16-C34 Hydrocarbons)	ug/g	<50		50	5068391
F4 (C34-C50 Hydrocarbons)	ug/g	<50		50	5068391
Reached Baseline at C50	ug/g	Yes			5068391
Surrogate Recovery (%)					
o-Terphenyl	%	95			5068391
4-Bromofluorobenzene	%	99			5067283
D10-o-Xylene	%	90			5067283
D4-1,2-Dichloroethane	%	100			5067283
D8-Toluene	%	107			5067283

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		ERW225		
Sampling Date		2017/07/05 11:00		
COC Number		617077-03-01		
	UNITS	**BH2017-3 SS2**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons				
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	2400	100	5071068

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2706
Report Date: 2017/07/13

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

TEST SUMMARY

Maxxam ID: ERW223
Sample ID: BH2017-1 SS7
Matrix: Soil

Collected: 2017/07/05
Shipped:
Received: 2017/07/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5067957	N/A	2017/07/12	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5068391	2017/07/11	2017/07/12	Atoosa Keshavarz
Strong Acid Leachable Metals by ICPMS	ICP/MS	5069242	2017/07/12	2017/07/12	Viviana Canzonieri
Moisture	BAL	5066843	N/A	2017/07/11	Prgya Panchal

Maxxam ID: ERW223 Dup
Sample ID: BH2017-1 SS7
Matrix: Soil

Collected: 2017/07/05
Shipped:
Received: 2017/07/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5067957	N/A	2017/07/12	Georgeta Rusu

Maxxam ID: ERW224
Sample ID: BH2017-1 SS12
Matrix: Soil

Collected: 2017/07/05
Shipped:
Received: 2017/07/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5065483	N/A	2017/07/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5068391	2017/07/11	2017/07/12	Atoosa Keshavarz
Moisture	BAL	5066843	N/A	2017/07/11	Prgya Panchal
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5067283	N/A	2017/07/12	Xueming Jiang

Maxxam ID: ERW224 Dup
Sample ID: BH2017-1 SS12
Matrix: Soil

Collected: 2017/07/05
Shipped:
Received: 2017/07/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	5066843	N/A	2017/07/11	Prgya Panchal

Maxxam ID: ERW225
Sample ID: BH2017-3 SS2
Matrix: Soil

Collected: 2017/07/05
Shipped:
Received: 2017/07/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5067957	N/A	2017/07/12	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5068391	2017/07/11	2017/07/12	Atoosa Keshavarz
F4G (CCME Hydrocarbons Gravimetric)	BAL	5071068	2017/07/13	2017/07/13	Debra Deslandes
Strong Acid Leachable Metals by ICPMS	ICP/MS	5069242	2017/07/12	2017/07/12	Viviana Canzonieri
Moisture	BAL	5066843	N/A	2017/07/11	Prgya Panchal

Maxxam ID: ERW226
Sample ID: BH2017-3 SS11
Matrix: Soil

Collected: 2017/07/05
Shipped:
Received: 2017/07/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5067957	N/A	2017/07/12	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5068391	2017/07/11	2017/07/12	Atoosa Keshavarz

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2706
Report Date: 2017/07/13

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

TEST SUMMARY

Maxxam ID: ERW226
Sample ID: BH2017-3 SS11
Matrix: Soil

Collected: 2017/07/05
Shipped:
Received: 2017/07/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	5066843	N/A	2017/07/11	Prgya Panchal

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

GENERAL COMMENTS

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

Package 1	2.0°C

Sample ERW224 [BH2017-1 SS12] : VOC Analysis:Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency. Due to high concentrations of target analytes, sample required dilution. Detection limits were adjusted accordingly. In order to meet required regulatory criteria, results for selected compounds (obtained by a separate analysis using an appropriate low dilution) are included in the report.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E2706
Report Date: 2017/07/13

QUALITY ASSURANCE REPORT

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5067283	4-Bromofluorobenzene	2017/07/12	98	60 - 140	98	60 - 140	96	%		
5067283	D10-o-Xylene	2017/07/12	92	60 - 130	98	60 - 130	112	%		
5067283	D4-1,2-Dichloroethane	2017/07/12	102	60 - 140	103	60 - 140	102	%		
5067283	D8-Toluene	2017/07/12	100	60 - 140	99	60 - 140	98	%		
5067957	1,4-Difluorobenzene	2017/07/12	93	60 - 140	100	60 - 140	112	%		
5067957	4-Bromofluorobenzene	2017/07/12	100	60 - 140	96	60 - 140	99	%		
5067957	D10-Ethylbenzene	2017/07/12	90	60 - 140	86	60 - 140	82	%		
5067957	D4-1,2-Dichloroethane	2017/07/12	106	60 - 140	102	60 - 140	119	%		
5068391	o-Terphenyl	2017/07/11	89	60 - 130	92	60 - 130	78	%		
5066843	Moisture	2017/07/11							1.9	20
5067283	1,1,1,2-Tetrachloroethane	2017/07/12	102	60 - 140	107	60 - 130	<0.050	ug/g	NC	50
5067283	1,1,1-Trichloroethane	2017/07/12	92	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
5067283	1,1,2,2-Tetrachloroethane	2017/07/12	104	60 - 140	106	60 - 130	<0.050	ug/g	NC	50
5067283	1,1,2-Trichloroethane	2017/07/12	101	60 - 140	104	60 - 130	<0.050	ug/g	NC	50
5067283	1,1-Dichloroethane	2017/07/12	98	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
5067283	1,1-Dichloroethylene	2017/07/12	100	60 - 140	108	60 - 130	<0.050	ug/g	NC	50
5067283	1,2-Dichlorobenzene	2017/07/12	95	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
5067283	1,2-Dichloroethane	2017/07/12	96	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5067283	1,2-Dichloropropane	2017/07/12	88	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5067283	1,3-Dichlorobenzene	2017/07/12	98	60 - 140	104	60 - 130	<0.050	ug/g	NC	50
5067283	1,4-Dichlorobenzene	2017/07/12	96	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5067283	Acetone (2-Propanone)	2017/07/12	93	60 - 140	100	60 - 140	<0.50	ug/g	NC	50
5067283	Benzene	2017/07/12	97	60 - 140	103	60 - 130	<0.020	ug/g	NC	50
5067283	Bromodichloromethane	2017/07/12	96	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5067283	Bromoform	2017/07/12	103	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
5067283	Bromomethane	2017/07/12	95	60 - 140	101	60 - 140	<0.050	ug/g	NC	50
5067283	Carbon Tetrachloride	2017/07/12	92	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
5067283	Chlorobenzene	2017/07/12	93	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
5067283	Chloroform	2017/07/12	95	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5067283	cis-1,2-Dichloroethylene	2017/07/12	93	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
5067283	cis-1,3-Dichloropropene	2017/07/12	84	60 - 140	88	60 - 130	<0.030	ug/g	NC	50
5067283	Dibromochloromethane	2017/07/12	100	60 - 140	103	60 - 130	<0.050	ug/g	NC	50

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5067283	Dichlorodifluoromethane (FREON 12)	2017/07/12	97	60 - 140	107	60 - 140	<0.050	ug/g	NC	50
5067283	Ethylbenzene	2017/07/12	92	60 - 140	96	60 - 130	<0.020	ug/g	NC	50
5067283	Ethylene Dibromide	2017/07/12	103	60 - 140	106	60 - 130	<0.050	ug/g	NC	50
5067283	F1 (C6-C10) - BTEX	2017/07/12					<10	ug/g	NC	30
5067283	F1 (C6-C10)	2017/07/12	108	60 - 140	89	80 - 120	<10	ug/g	NC	30
5067283	Hexane	2017/07/12	94	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
5067283	Methyl Ethyl Ketone (2-Butanone)	2017/07/12	95	60 - 140	101	60 - 140	<0.50	ug/g	NC	50
5067283	Methyl Isobutyl Ketone	2017/07/12	92	60 - 140	96	60 - 130	<0.50	ug/g	NC	50
5067283	Methyl t-butyl ether (MTBE)	2017/07/12	89	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5067283	Methylene Chloride(Dichloromethane)	2017/07/12	94	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
5067283	o-Xylene	2017/07/12	90	60 - 140	95	60 - 130	<0.020	ug/g	NC	50
5067283	p+m-Xylene	2017/07/12	91	60 - 140	96	60 - 130	<0.020	ug/g	NC	50
5067283	Styrene	2017/07/12	89	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
5067283	Tetrachloroethylene	2017/07/12	92	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
5067283	Toluene	2017/07/12	89	60 - 140	94	60 - 130	<0.020	ug/g	NC	50
5067283	Total Xylenes	2017/07/12					<0.020	ug/g	NC	50
5067283	trans-1,2-Dichloroethylene	2017/07/12	94	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5067283	trans-1,3-Dichloropropene	2017/07/12	91	60 - 140	92	60 - 130	<0.040	ug/g	NC	50
5067283	Trichloroethylene	2017/07/12	94	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
5067283	Trichlorofluoromethane (FREON 11)	2017/07/12	98	60 - 140	106	60 - 130	<0.050	ug/g	NC	50
5067283	Vinyl Chloride	2017/07/12	92	60 - 140	100	60 - 130	<0.020	ug/g	NC	50
5067957	Benzene	2017/07/12	70	60 - 140	91	60 - 140	<0.020	ug/g	NC	50
5067957	Ethylbenzene	2017/07/12	75	60 - 140	89	60 - 140	<0.020	ug/g	8.2	50
5067957	F1 (C6-C10) - BTEX	2017/07/12					<10	ug/g	8.5	30
5067957	F1 (C6-C10)	2017/07/12	NC	60 - 140	88	80 - 120	<10	ug/g	8.3	30
5067957	o-Xylene	2017/07/12	NC	60 - 140	93	60 - 140	<0.020	ug/g	1.0	50
5067957	p+m-Xylene	2017/07/12	NC	60 - 140	89	60 - 140	<0.040	ug/g	2.2	50
5067957	Toluene	2017/07/12	64	60 - 140	86	60 - 140	<0.020	ug/g	18	50
5067957	Total Xylenes	2017/07/12					<0.040	ug/g	2.0	50
5068391	F2 (C10-C16 Hydrocarbons)	2017/07/12	97	50 - 130	100	80 - 120	<10	ug/g	NC	30
5068391	F3 (C16-C34 Hydrocarbons)	2017/07/11	91	50 - 130	93	80 - 120	<50	ug/g		
5068391	F4 (C34-C50 Hydrocarbons)	2017/07/11	92	50 - 130	94	80 - 120	<50	ug/g		

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5069242	Acid Extractable Antimony (Sb)	2017/07/12	97	75 - 125	99	80 - 120	<0.20	ug/g	NC	30
5069242	Acid Extractable Arsenic (As)	2017/07/12	103	75 - 125	105	80 - 120	<1.0	ug/g	0.11	30
5069242	Acid Extractable Barium (Ba)	2017/07/12	99	75 - 125	96	80 - 120	<0.50	ug/g	1.6	30
5069242	Acid Extractable Beryllium (Be)	2017/07/12	99	75 - 125	99	80 - 120	<0.20	ug/g	8.2	30
5069242	Acid Extractable Boron (B)	2017/07/12	97	75 - 125	96	80 - 120	<5.0	ug/g	NC	30
5069242	Acid Extractable Cadmium (Cd)	2017/07/12	99	75 - 125	97	80 - 120	<0.10	ug/g	NC	30
5069242	Acid Extractable Chromium (Cr)	2017/07/12	108	75 - 125	105	80 - 120	<1.0	ug/g	6.9	30
5069242	Acid Extractable Cobalt (Co)	2017/07/12	104	75 - 125	104	80 - 120	<0.10	ug/g	4.1	30
5069242	Acid Extractable Copper (Cu)	2017/07/12	100	75 - 125	102	80 - 120	<0.50	ug/g	1.9	30
5069242	Acid Extractable Lead (Pb)	2017/07/12	99	75 - 125	99	80 - 120	<1.0	ug/g	4.4	30
5069242	Acid Extractable Molybdenum (Mo)	2017/07/12	99	75 - 125	97	80 - 120	<0.50	ug/g	NC	30
5069242	Acid Extractable Nickel (Ni)	2017/07/12	104	75 - 125	108	80 - 120	<0.50	ug/g	2.9	30
5069242	Acid Extractable Selenium (Se)	2017/07/12	103	75 - 125	104	80 - 120	<0.50	ug/g	NC	30
5069242	Acid Extractable Silver (Ag)	2017/07/12	105	75 - 125	101	80 - 120	<0.20	ug/g	NC	30
5069242	Acid Extractable Thallium (Tl)	2017/07/12	101	75 - 125	99	80 - 120	<0.050	ug/g	NC	30
5069242	Acid Extractable Uranium (U)	2017/07/12	97	75 - 125	95	80 - 120	<0.050	ug/g	4.9	30
5069242	Acid Extractable Vanadium (V)	2017/07/12	106	75 - 125	106	80 - 120	<5.0	ug/g	0.23	30
5069242	Acid Extractable Zinc (Zn)	2017/07/12	NC	75 - 125	102	80 - 120	<5.0	ug/g	1.5	30
5071068	F4G-sg (Grav. Heavy Hydrocarbons)	2017/07/13	106	65 - 135	102	65 - 135	<100	ug/g	22	50

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

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

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

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

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

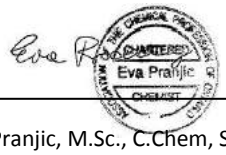
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

VALIDATION SIGNATURE PAGE

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



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

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

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

CHAIN OF CUSTODY RECORD

Page 1 of 5

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#3824 DST Consulting Engineers Inc	Company Name:		Quotation #:	B61802	Maxxam Job #:	Bottle Order #: 617077
Attention:	Accounts Payable	Attention:	Eve Sabourin	P.O. #:			
Address:	2150 Thurston Dr Unit 203	Address:		Project:	TS-SO-29563	COC #:	Project Manager:
	Ottawa ON K1G 5T9			Project Name:		C#617077-03-01	Alison Cameron
Tel:	(613) 748-1415 x Fax: (613) 748-1356 x	Tel:	Fax:	Site #:			
Email:	ap@dstgroup.com	Email:	esabourin@dstgroup.com	Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): ☐ Table 1 ☐ Res/Park ☐ Medium/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ For RSC ☐ Table ___

Other Regulations: ☐ CCME ☐ Sanitary Sewer Bylaw ☐ Reg 558 ☐ Storm Sewer Bylaw ☐ MISA Municipality ☐ PWQO ☐ Other

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	ANALYSIS REQUESTED (PLEASE BE SPECIFIC): O.Reg 153 (51) by HS & F1-F4 (Soil)	O.Reg 153 PAHs (Soil)	O.Reg 153 ICPMS Metals (Soil)	B7E2706	VOC					# of Bottles	Comments
1		BH2017-1 SS7	05/07/17	9h30	Soil		X		X	X							
2		BH2017-1 SS12	"	9H45	"		X			X	X						
3		BH2017-3 SS8	"	11h00	"		X		X	X							
4		BH2017-3 SS11	"	11h30	"		X			X							
5		BH2017-2 SS12															
6		BH2017-2 SS13															
7		BH2017-3 SS1															
8		BH2017-3 SS2															
9		BH2017-3 SS3															
10		BH2017-3 SS4															

06-Jul-17 09:30
Alison Cameron
B7E2706
HGR ENV-420

RECEIVED IN OTTAWA

ON ICE

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Eve Sabourin	17/07/05	18:00	Kumar Jayaseelan MR	2017/07/06	9:30	
Eve Sabourin	17/07/05	18:00				

Laboratory Use Only

Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
	2 | 2 | 2	Present	☑	
		Intact	☑	

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxa Yellow: Client

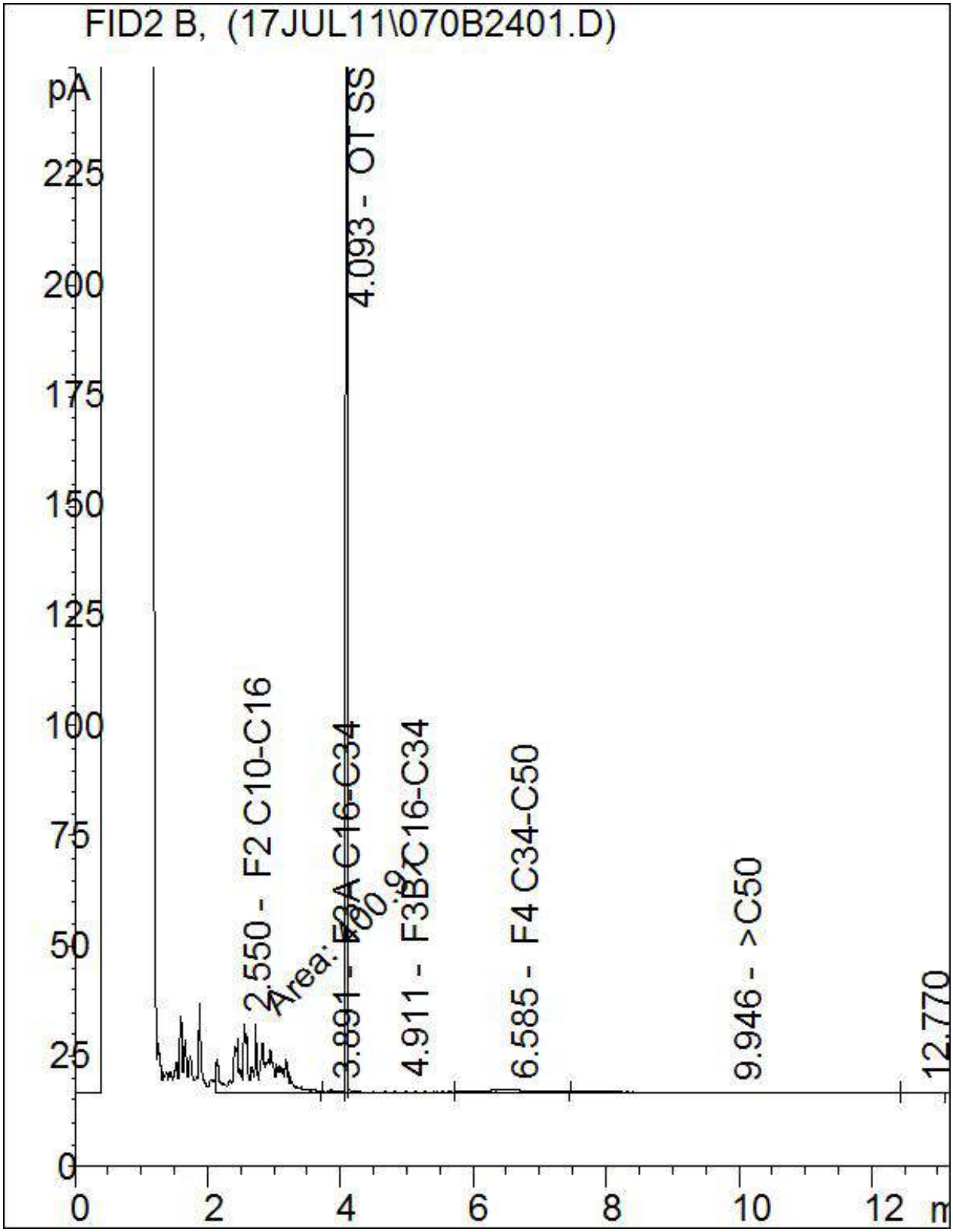
Maxxam Analytics International Corporation o/a Maxxam Analytics

E. Harrington 5/8/8
2017/07/06 02:45

Maxxam Job #: B7E2706
Report Date: 2017/07/13
Maxxam Sample: ERW223

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-1 SS7

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

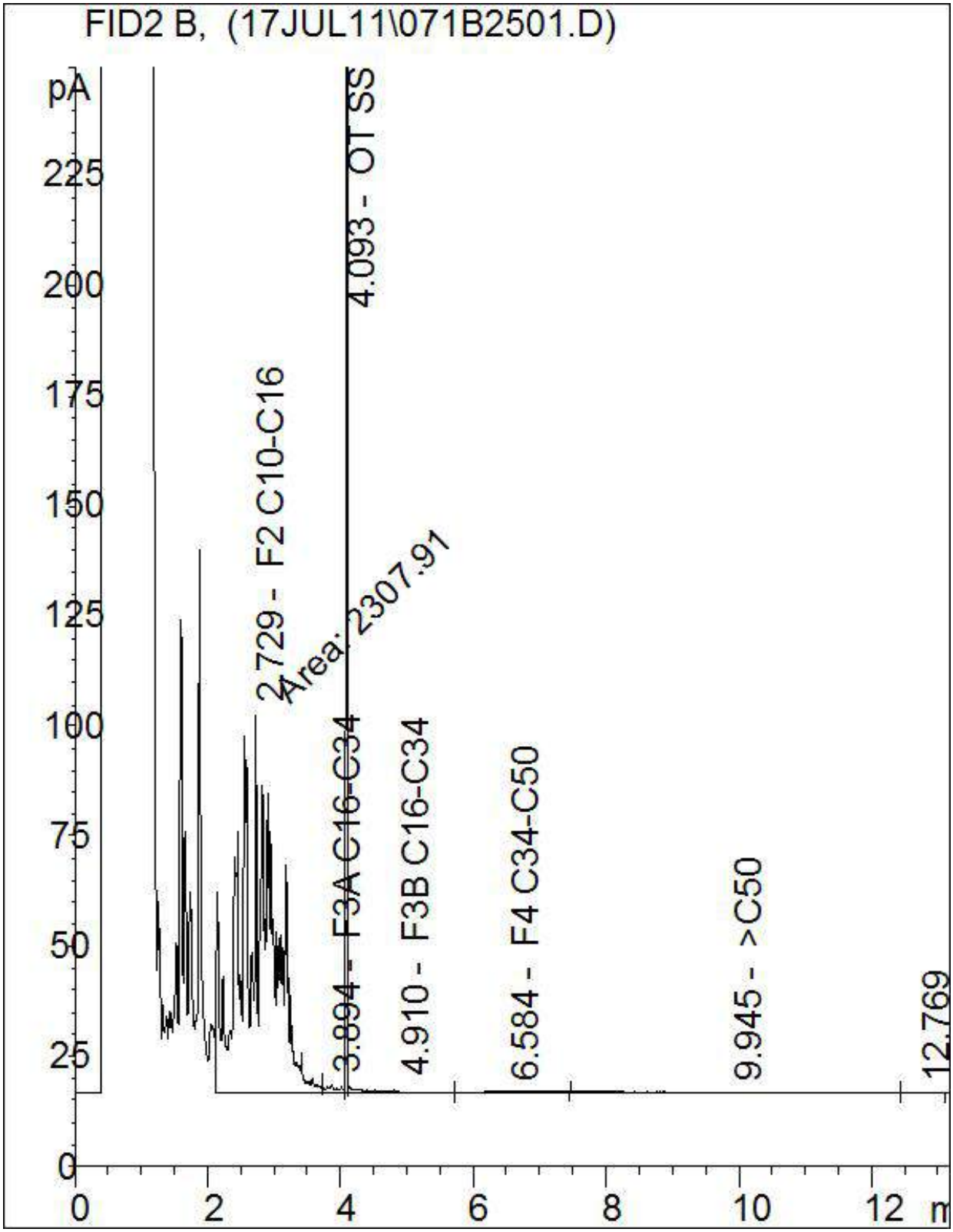


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7E2706
Report Date: 2017/07/13
Maxxam Sample: ERW224

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-1 SS12

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

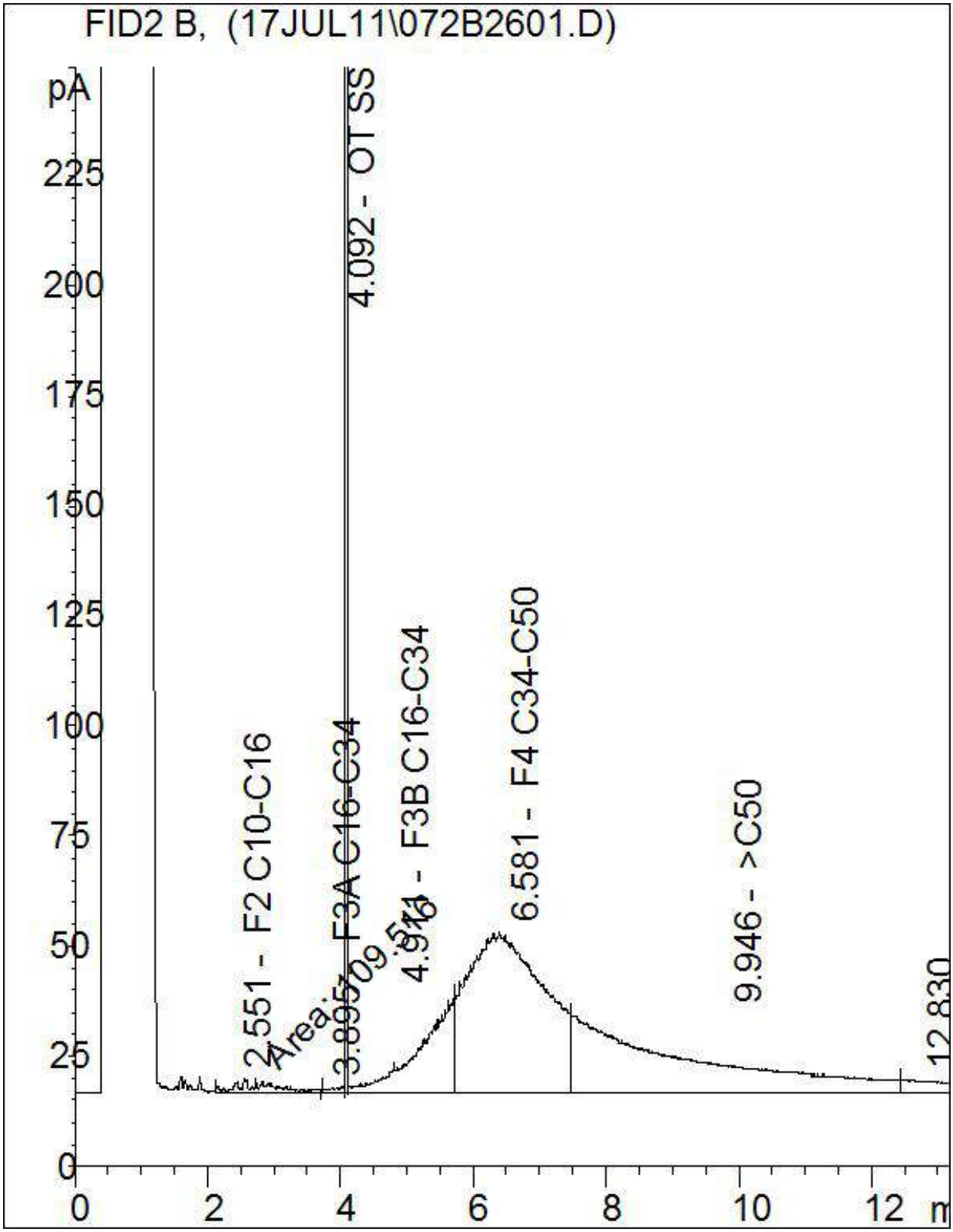


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7E2706
Report Date: 2017/07/13
Maxxam Sample: ERW225

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-3 SS2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

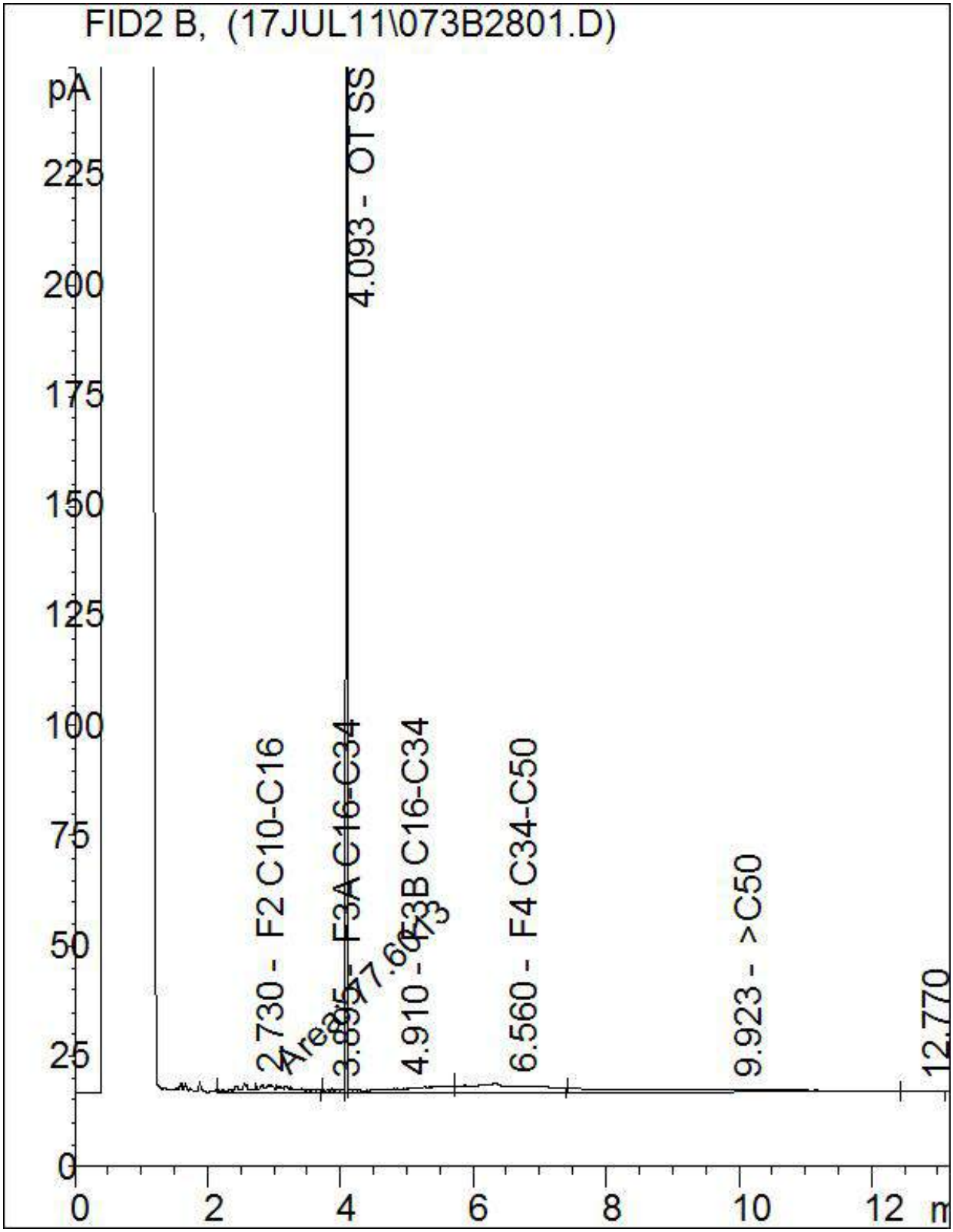


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7E2706
Report Date: 2017/07/13
Maxxam Sample: ERW226

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-3 SS11

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your Project #: TS-SO-29563
Your C.O.C. #: 617077-16-01

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/14
Report #: R4599408
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7E5306
Received: 2017/07/10, 14:40

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum (1)	4	N/A	2017/07/14		EPA 8260C m
Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2)	2	N/A	2017/07/13	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	6	2017/07/13	2017/07/14	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS (1)	3	2017/07/13	2017/07/14	CAM SOP-00447	EPA 6020B m
Moisture (1)	6	N/A	2017/07/13	CAM SOP-00445	Carter 2nd ed 51.2 m
Volatile Organic Compounds and F1 PHCs (1)	4	N/A	2017/07/14	CAM SOP-00230	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Your Project #: TS-SO-29563
Your C.O.C. #: 617077-16-01

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/14
Report #: R4599408
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7E5306
Received: 2017/07/10, 14:40

(1) This test was performed by Maxxam Analytics Mississauga
(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alison Cameron, Project Manager
Email: ACameron@maxxam.ca
Phone# (613) 274-0573

==========

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

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		ESJ278	ESJ280	ESJ282		
Sampling Date		2017/07/07 14:00	2017/07/07 12:00	2017/07/10 09:00		
COC Number		617077-16-01	617077-16-01	617077-16-01		
	UNITS	BH2017-05-SS7	BH2017-06-SS12	BH2017-8-SS5	RDL	QC Batch
Metals						
Acid Extractable Antimony (Sb)	ug/g	<0.20	<0.20	0.21	0.20	5071935
Acid Extractable Arsenic (As)	ug/g	1.4	<1.0	2.0	1.0	5071935
Acid Extractable Barium (Ba)	ug/g	320	56	370	0.50	5071935
Acid Extractable Beryllium (Be)	ug/g	0.74	0.26	0.78	0.20	5071935
Acid Extractable Boron (B)	ug/g	8.1	6.4	7.7	5.0	5071935
Acid Extractable Cadmium (Cd)	ug/g	<0.10	<0.10	0.10	0.10	5071935
Acid Extractable Chromium (Cr)	ug/g	100	15	120	1.0	5071935
Acid Extractable Cobalt (Co)	ug/g	21	5.4	22	0.10	5071935
Acid Extractable Copper (Cu)	ug/g	48	11	54	0.50	5071935
Acid Extractable Lead (Pb)	ug/g	13	4.0	10	1.0	5071935
Acid Extractable Molybdenum (Mo)	ug/g	0.54	0.55	0.53	0.50	5071935
Acid Extractable Nickel (Ni)	ug/g	55	9.7	64	0.50	5071935
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	<0.50	0.50	5071935
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	0.20	5071935
Acid Extractable Thallium (Tl)	ug/g	0.36	0.068	0.38	0.050	5071935
Acid Extractable Uranium (U)	ug/g	0.66	0.90	0.57	0.050	5071935
Acid Extractable Vanadium (V)	ug/g	92	23	90	5.0	5071935
Acid Extractable Zinc (Zn)	ug/g	110	19	110	5.0	5071935

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		ESJ279	ESJ282		
Sampling Date		2017/07/07 14:30	2017/07/10 09:00		
COC Number		617077-16-01	617077-16-01		
	UNITS	BH2017-05-SS12	BH2017-8-SS5	RDL	QC Batch
Inorganics					
Moisture	%	16	27	1.0	5071367
BTEX & F1 Hydrocarbons					
Benzene	ug/g	0.11	<0.020	0.020	5071390
Toluene	ug/g	<0.020	<0.020	0.020	5071390
Ethylbenzene	ug/g	<0.020	<0.020	0.020	5071390
o-Xylene	ug/g	<0.020	<0.020	0.020	5071390
p+m-Xylene	ug/g	<0.040	<0.040	0.040	5071390
Total Xylenes	ug/g	<0.040	<0.040	0.040	5071390
F1 (C6-C10)	ug/g	<10	<10	10	5071390
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	5071390
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	10	5071933
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	50	5071933
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	50	5071933
Reached Baseline at C50	ug/g	Yes	Yes		5071933
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	97	97		5071390
4-Bromofluorobenzene	%	94	95		5071390
D10-Ethylbenzene	%	92	102		5071390
D4-1,2-Dichloroethane	%	98	98		5071390
o-Terphenyl	%	92	93		5071933

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Maxxam ID		ESJ278	ESJ280	ESJ281	ESJ283		
Sampling Date		2017/07/07 14:00	2017/07/07 12:00	2017/07/07 13:00	2017/07/10 09:45		
COC Number		617077-16-01	617077-16-01	617077-16-01	617077-16-01		
	UNITS	BH2017-05-SS7	BH2017-06-SS12	BH2017-05-A-SS3	BH2017-8-SS12	RDL	QC Batch
Inorganics							
Moisture	%	27	12	9.8	15	1.0	5071367
Calculated Parameters							
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5067248
Volatile Organics							
Acetone (2-Propanone)	ug/g	<0.50	<0.50	<0.50	<0.50	0.50	5072360
Benzene	ug/g	<0.020	<0.020	0.039	<0.020	0.020	5072360
Bromodichloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
Bromoform	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
Bromomethane	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
Carbon Tetrachloride	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
Chlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
Chloroform	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
Dibromochloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
1,4-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
1,1-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
1,2-Dichloroethane	ug/g	<0.050	<0.050	0.20	<0.050	0.050	5072360
1,1-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
1,2-Dichloropropane	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	<0.030	<0.030	0.030	5072360
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	5072360
Ethylbenzene	ug/g	<0.020	<0.020	0.056	<0.020	0.020	5072360
Ethylene Dibromide	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
Hexane	ug/g	<0.050	<0.050	<0.050	0.25	0.050	5072360
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	<0.50	<0.50	0.50	5072360
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	<0.50	<0.50	0.50	5072360
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
Styrene	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E5306
Report Date: 2017/07/14

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Maxxam ID		ESJ278	ESJ280	ESJ281	ESJ283		
Sampling Date		2017/07/07 14:00	2017/07/07 12:00	2017/07/07 13:00	2017/07/10 09:45		
COC Number		617077-16-01	617077-16-01	617077-16-01	617077-16-01		
	UNITS	BH2017-05-SS7	BH2017-06-SS12	BH2017-05-A-SS3	BH2017-8-SS12	RDL	QC Batch
Tetrachloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
Toluene	ug/g	<0.020	<0.020	0.32	<0.020	0.020	5072360
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
Trichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	<0.050	<0.050	0.050	5072360
Vinyl Chloride	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	5072360
p+m-Xylene	ug/g	<0.020	<0.020	0.35	0.029	0.020	5072360
o-Xylene	ug/g	<0.020	<0.020	0.091	<0.020	0.020	5072360
Total Xylenes	ug/g	<0.020	<0.020	0.44	0.029	0.020	5072360
F1 (C6-C10)	ug/g	60	<10	<10	<10	10	5072360
F1 (C6-C10) - BTEX	ug/g	60	<10	<10	<10	10	5072360
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	160	<10	260	<10	10	5071933
F3 (C16-C34 Hydrocarbons)	ug/g	340	<50	2300	<50	50	5071933
F4 (C34-C50 Hydrocarbons)	ug/g	79	<50	490	<50	50	5071933
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes		5071933
Surrogate Recovery (%)							
o-Terphenyl	%	93	92	96	95		5071933
4-Bromofluorobenzene	%	104	99	101	98		5072360
D10-o-Xylene	%	94	83	95	90		5072360
D4-1,2-Dichloroethane	%	89	89	88	81		5072360
D8-Toluene	%	91	94	95	97		5072360

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E5306
Report Date: 2017/07/14

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

TEST SUMMARY

Maxxam ID: ESJ278
Sample ID: BH2017-05-SS7
Matrix: Soil

Collected: 2017/07/07
Shipped:
Received: 2017/07/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5067248	N/A	2017/07/14	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5071933	2017/07/13	2017/07/14	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5071935	2017/07/13	2017/07/14	Daniel Teclu
Moisture	BAL	5071367	N/A	2017/07/13	Min Yang
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5072360	N/A	2017/07/14	Karen Hughes

Maxxam ID: ESJ279
Sample ID: BH2017-05-SS12
Matrix: Soil

Collected: 2017/07/07
Shipped:
Received: 2017/07/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5071390	N/A	2017/07/13	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5071933	2017/07/13	2017/07/14	Zhiyue (Frank) Zhu
Moisture	BAL	5071367	N/A	2017/07/13	Min Yang

Maxxam ID: ESJ280
Sample ID: BH2017-06-SS12
Matrix: Soil

Collected: 2017/07/07
Shipped:
Received: 2017/07/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5067248	N/A	2017/07/14	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5071933	2017/07/13	2017/07/14	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5071935	2017/07/13	2017/07/14	Daniel Teclu
Moisture	BAL	5071367	N/A	2017/07/13	Min Yang
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5072360	N/A	2017/07/14	Karen Hughes

Maxxam ID: ESJ281
Sample ID: BH2017-05-A-SS3
Matrix: Soil

Collected: 2017/07/07
Shipped:
Received: 2017/07/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5067248	N/A	2017/07/14	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5071933	2017/07/13	2017/07/14	Zhiyue (Frank) Zhu
Moisture	BAL	5071367	N/A	2017/07/13	Min Yang
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5072360	N/A	2017/07/14	Karen Hughes

Maxxam ID: ESJ282
Sample ID: BH2017-8-SS5
Matrix: Soil

Collected: 2017/07/10
Shipped:
Received: 2017/07/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5071390	N/A	2017/07/13	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5071933	2017/07/13	2017/07/14	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5071935	2017/07/13	2017/07/14	Daniel Teclu
Moisture	BAL	5071367	N/A	2017/07/13	Min Yang

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E5306
Report Date: 2017/07/14

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

TEST SUMMARY

Maxxam ID: ESJ283
Sample ID: BH2017-8-SS12
Matrix: Soil

Collected: 2017/07/10
Shipped:
Received: 2017/07/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5067248	N/A	2017/07/14	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5071933	2017/07/13	2017/07/14	Zhiyue (Frank) Zhu
Moisture	BAL	5071367	N/A	2017/07/13	Min Yang
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5072360	N/A	2017/07/14	Karen Hughes

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

GENERAL COMMENTS

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

Package 1	14.0°C

Sample ESJ279 [BH2017-05-SS12] : F1/BTEX Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample ESJ280 [BH2017-06-SS12] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample ESJ283 [BH2017-8-SS12] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E5306
Report Date: 2017/07/14

QUALITY ASSURANCE REPORT

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5071390	1,4-Difluorobenzene	2017/07/13	97	60 - 140	97	60 - 140	96	%		
5071390	4-Bromofluorobenzene	2017/07/13	94	60 - 140	96	60 - 140	94	%		
5071390	D10-Ethylbenzene	2017/07/13	90	60 - 140	102	60 - 140	86	%		
5071390	D4-1,2-Dichloroethane	2017/07/13	98	60 - 140	99	60 - 140	96	%		
5071933	o-Terphenyl	2017/07/13	98	60 - 130	96	60 - 130	91	%		
5072360	4-Bromofluorobenzene	2017/07/13	104	60 - 140	106	60 - 140	99	%		
5072360	D10-o-Xylene	2017/07/13	97	60 - 130	101	60 - 130	83	%		
5072360	D4-1,2-Dichloroethane	2017/07/13	88	60 - 140	92	60 - 140	89	%		
5072360	D8-Toluene	2017/07/13	98	60 - 140	98	60 - 140	94	%		
5071367	Moisture	2017/07/13							2.6	20
5071390	Benzene	2017/07/13	96	60 - 140	115	60 - 140	<0.020	ug/g	NC	50
5071390	Ethylbenzene	2017/07/13	88	60 - 140	105	60 - 140	<0.020	ug/g	NC	50
5071390	F1 (C6-C10) - BTEX	2017/07/13					<10	ug/g	NC	30
5071390	F1 (C6-C10)	2017/07/13	89	60 - 140	91	80 - 120	<10	ug/g	NC	30
5071390	o-Xylene	2017/07/13	89	60 - 140	106	60 - 140	<0.020	ug/g	NC	50
5071390	p+m-Xylene	2017/07/13	87	60 - 140	103	60 - 140	<0.040	ug/g	NC	50
5071390	Toluene	2017/07/13	86	60 - 140	103	60 - 140	<0.020	ug/g	NC	50
5071390	Total Xylenes	2017/07/13					<0.040	ug/g	NC	50
5071933	F2 (C10-C16 Hydrocarbons)	2017/07/13	98	50 - 130	96	80 - 120	<10	ug/g	NC	30
5071933	F3 (C16-C34 Hydrocarbons)	2017/07/13	101	50 - 130	98	80 - 120	<50	ug/g	NC	30
5071933	F4 (C34-C50 Hydrocarbons)	2017/07/13	100	50 - 130	98	80 - 120	<50	ug/g	NC	30
5071935	Acid Extractable Antimony (Sb)	2017/07/14	109	75 - 125	100	80 - 120	<0.20	ug/g	NC	30
5071935	Acid Extractable Arsenic (As)	2017/07/14	101	75 - 125	96	80 - 120	<1.0	ug/g	1.5	30
5071935	Acid Extractable Barium (Ba)	2017/07/14	109	75 - 125	107	80 - 120	<0.50	ug/g	2.1	30
5071935	Acid Extractable Beryllium (Be)	2017/07/14	98	75 - 125	94	80 - 120	<0.20	ug/g	NC	30
5071935	Acid Extractable Boron (B)	2017/07/14	97	75 - 125	93	80 - 120	<5.0	ug/g	NC	30
5071935	Acid Extractable Cadmium (Cd)	2017/07/14	103	75 - 125	97	80 - 120	<0.10	ug/g	NC	30
5071935	Acid Extractable Chromium (Cr)	2017/07/14	102	75 - 125	100	80 - 120	<1.0	ug/g	9.9	30
5071935	Acid Extractable Cobalt (Co)	2017/07/14	99	75 - 125	98	80 - 120	<0.10	ug/g	1.1	30
5071935	Acid Extractable Copper (Cu)	2017/07/14	106	75 - 125	101	80 - 120	<0.50	ug/g	2.4	30
5071935	Acid Extractable Lead (Pb)	2017/07/14	103	75 - 125	98	80 - 120	<1.0	ug/g	8.9	30
5071935	Acid Extractable Molybdenum (Mo)	2017/07/14	107	75 - 125	100	80 - 120	<0.50	ug/g	NC	30

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5071935	Acid Extractable Nickel (Ni)	2017/07/14	100	75 - 125	98	80 - 120	<0.50	ug/g	3.8	30
5071935	Acid Extractable Selenium (Se)	2017/07/14	100	75 - 125	97	80 - 120	<0.50	ug/g	NC	30
5071935	Acid Extractable Silver (Ag)	2017/07/14	106	75 - 125	101	80 - 120	<0.20	ug/g	NC	30
5071935	Acid Extractable Thallium (Tl)	2017/07/14	104	75 - 125	98	80 - 120	<0.050	ug/g	NC	30
5071935	Acid Extractable Uranium (U)	2017/07/14	104	75 - 125	97	80 - 120	<0.050	ug/g	7.9	30
5071935	Acid Extractable Vanadium (V)	2017/07/14	108	75 - 125	99	80 - 120	<5.0	ug/g	17	30
5071935	Acid Extractable Zinc (Zn)	2017/07/14	98	75 - 125	96	80 - 120	<5.0	ug/g	2.2	30
5072360	1,1,1,2-Tetrachloroethane	2017/07/14	103	60 - 140	106	60 - 130	<0.050	ug/g	NC	50
5072360	1,1,1-Trichloroethane	2017/07/14	95	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
5072360	1,1,2,2-Tetrachloroethane	2017/07/14	91	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5072360	1,1,2-Trichloroethane	2017/07/14	88	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5072360	1,1-Dichloroethane	2017/07/14	99	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
5072360	1,1-Dichloroethylene	2017/07/14	100	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
5072360	1,2-Dichlorobenzene	2017/07/14	99	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
5072360	1,2-Dichloroethane	2017/07/14	88	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5072360	1,2-Dichloropropane	2017/07/14	91	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5072360	1,3-Dichlorobenzene	2017/07/14	105	60 - 140	104	60 - 130	<0.050	ug/g	NC	50
5072360	1,4-Dichlorobenzene	2017/07/14	105	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
5072360	Acetone (2-Propanone)	2017/07/14	75	60 - 140	91	60 - 140	<0.50	ug/g	NC	50
5072360	Benzene	2017/07/14	104	60 - 140	105	60 - 130	<0.020	ug/g	NC	50
5072360	Bromodichloromethane	2017/07/14	89	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5072360	Bromoform	2017/07/14	100	60 - 140	109	60 - 130	<0.050	ug/g	NC	50
5072360	Bromomethane	2017/07/14	97	60 - 140	96	60 - 140	<0.050	ug/g	NC	50
5072360	Carbon Tetrachloride	2017/07/14	96	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
5072360	Chlorobenzene	2017/07/14	99	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
5072360	Chloroform	2017/07/14	97	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
5072360	cis-1,2-Dichloroethylene	2017/07/14	100	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
5072360	cis-1,3-Dichloropropene	2017/07/14	80	60 - 140	84	60 - 130	<0.030	ug/g	NC	50
5072360	Dibromochloromethane	2017/07/14	98	60 - 140	104	60 - 130	<0.050	ug/g	NC	50
5072360	Dichlorodifluoromethane (FREON 12)	2017/07/14	97	60 - 140	95	60 - 140	<0.050	ug/g	NC	50
5072360	Ethylbenzene	2017/07/14	94	60 - 140	92	60 - 130	<0.020	ug/g	NC	50
5072360	Ethylene Dibromide	2017/07/14	100	60 - 140	109	60 - 130	<0.050	ug/g	NC	50

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5072360	F1 (C6-C10) - BTEX	2017/07/14					<10	ug/g	NC	30
5072360	F1 (C6-C10)	2017/07/14	98	60 - 140	103	80 - 120	<10	ug/g	NC	30
5072360	Hexane	2017/07/14	99	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
5072360	Methyl Ethyl Ketone (2-Butanone)	2017/07/14	74	60 - 140	89	60 - 140	<0.50	ug/g	NC	50
5072360	Methyl Isobutyl Ketone	2017/07/14	74	60 - 140	84	60 - 130	<0.50	ug/g	NC	50
5072360	Methyl t-butyl ether (MTBE)	2017/07/14	87	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
5072360	Methylene Chloride(Dichloromethane)	2017/07/14	104	60 - 140	108	60 - 130	<0.050	ug/g	NC	50
5072360	o-Xylene	2017/07/14	92	60 - 140	92	60 - 130	<0.020	ug/g	NC	50
5072360	p+m-Xylene	2017/07/14	96	60 - 140	94	60 - 130	<0.020	ug/g	NC	50
5072360	Styrene	2017/07/14	89	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
5072360	Tetrachloroethylene	2017/07/14	109	60 - 140	106	60 - 130	<0.050	ug/g	NC	50
5072360	Toluene	2017/07/14	96	60 - 140	95	60 - 130	<0.020	ug/g	NC	50
5072360	Total Xylenes	2017/07/14					<0.020	ug/g	NC	50
5072360	trans-1,2-Dichloroethylene	2017/07/14	107	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
5072360	trans-1,3-Dichloropropene	2017/07/14	79	60 - 140	82	60 - 130	<0.040	ug/g	NC	50
5072360	Trichloroethylene	2017/07/14	106	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
5072360	Trichlorofluoromethane (FREON 11)	2017/07/14	98	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
5072360	Vinyl Chloride	2017/07/14	97	60 - 140	94	60 - 130	<0.020	ug/g	NC	50

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

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

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

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

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

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7E5306
Report Date: 2017/07/14

DST Consulting Engineers Inc
Client Project #: TS-SO-29563

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Services

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

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

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:
Company Name: #3824 DST Consulting Engineers Inc
Attention: Accounts Payable
Address: 2150 Thurston Dr Unit 203, Ottawa ON K1G 5T9
Tel: (613) 748-1415 x Fax: (613) 748-1356 x
Email: ap@dstgroup.com

REPORT TO:
Company Name:
Attention: Eve Sabourin
Address:
Tel: Fax:
Email: esabourin@dstgroup.com

PROJECT INFORMATION:
Quotation #: B61802
P.O. #:
Project: TS-SO-29563
Project Name:
Site #:
Sampled By:

Laboratory Use Only:
Maxxam Job #:
Bottle Order #: 617077
COC #: C#617077-16-01
Project Manager: Alison Cameron

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): ☐ Table 1 ☐ Res/Park ☐ Medium/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agr/Other ☐ For RSC ☐ Table ___

Other Regulations: ☐ CCME ☐ Sanitary Sewer Bylaw ☐ Reg 558. ☐ Storm Sewer Bylaw ☐ MISA Municipality ☐ PWQO ☐ Other

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? ____

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: Time Required: ☐
Rush Confirmation Number: *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	O.Reg 153 HS & F1-F4 (Soil)	O.Reg 153 PAHs (Soil)	O.Reg 153 ICPMS Metals (Soil)	BTEX	VOC	# of Bottles	Comments
1	-	BH2017-05-SS7	7/07/2017	14:00	Soil	NA	X		X	X	X	3	
2		BH2017-05-SS12	7/07/2017	14:30	Soil		X			X		3	
3		BH2017-06-SS12	7/07/2017	12:00	Soil		X		X	X	X	3	
4		BH2017-05-A-SS3	7/07/2017	13:00	Soil		X			X	X	3	
5		BH2017-8SS5	10/07/2017	9:00	Soil		X		X	X		3	RECEIVED IN OTTAWA
6		BH2017-B-SS12	10/07/2017	9:45	Soil	↓	X			X	X	3	
7													
8													
9													On ice
10													

10-Jul-17 14:40
Alison Cameron
B7E5306
GK1 ENV-265

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time
Eve Sabourin	2017/07/10	14:40	Mariana Ivascan / Ivascan	2017/07/10	14:40
Eve Sabourin	2017/07/10	14:40	[illegible]	2017/07/10	23:00

jars used and not submitted:
Time Sensitive:

Laboratory Use Only
Temperature (°C) on Recei: 14, 17, 14
Custody Seal Present: Yes ☐ No ☐
Intact: Yes ☐ No ☐

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxa Yellow: Client

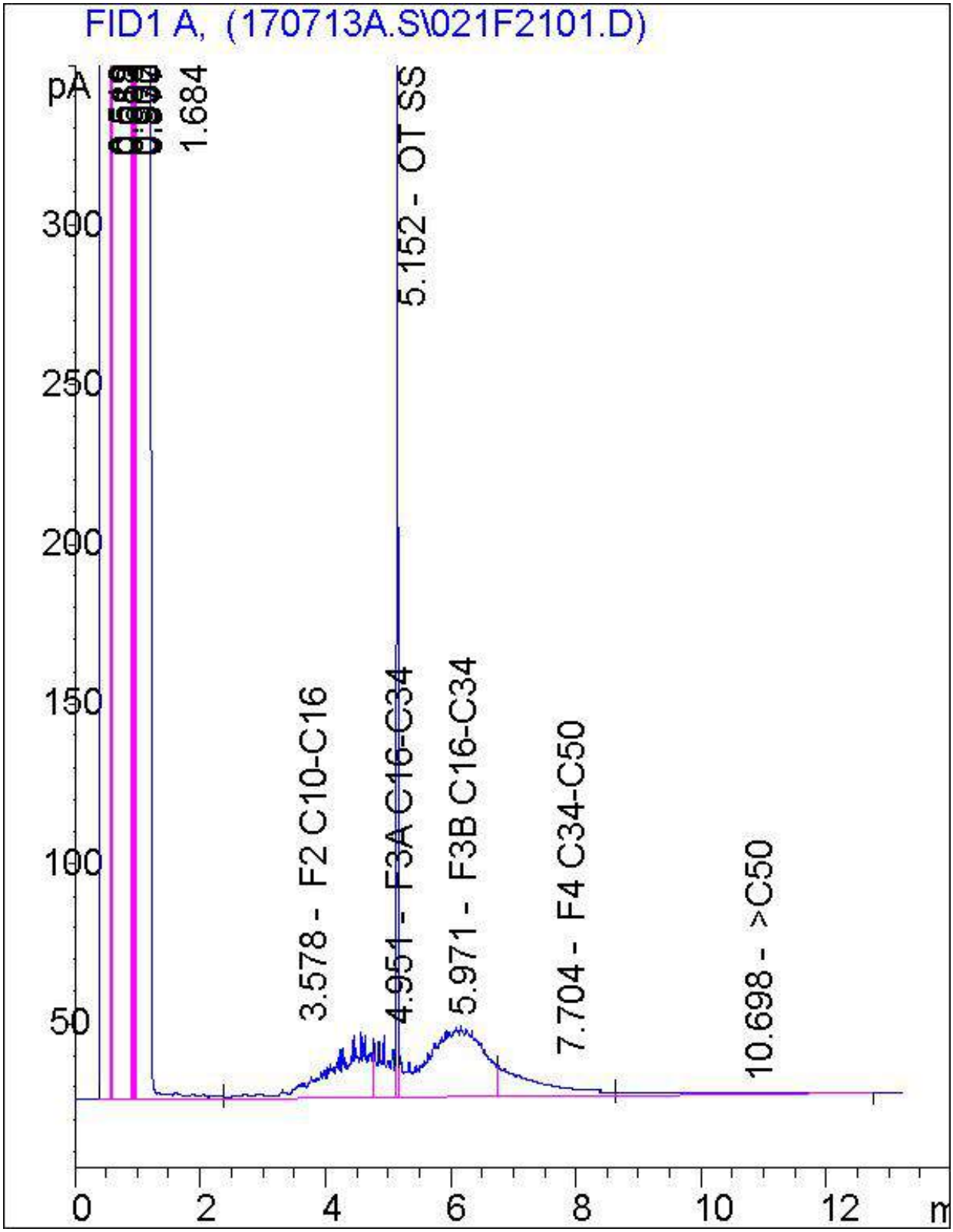
8/8/8

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam Job #: B7E5306
Report Date: 2017/07/14
Maxxam Sample: ESJ278

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-05-SS7

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

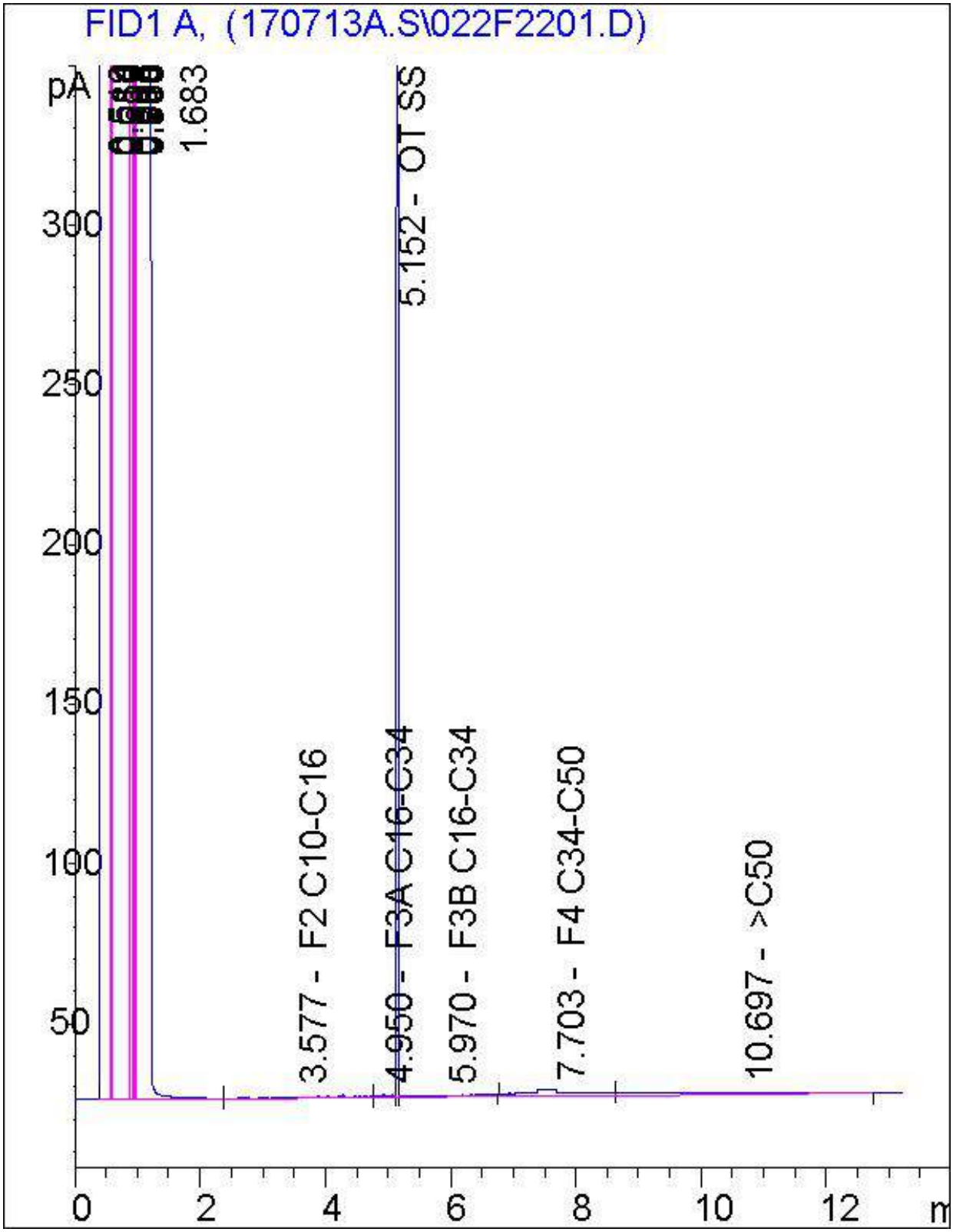


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7E5306
Report Date: 2017/07/14
Maxxam Sample: ESJ279

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-05-SS12

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

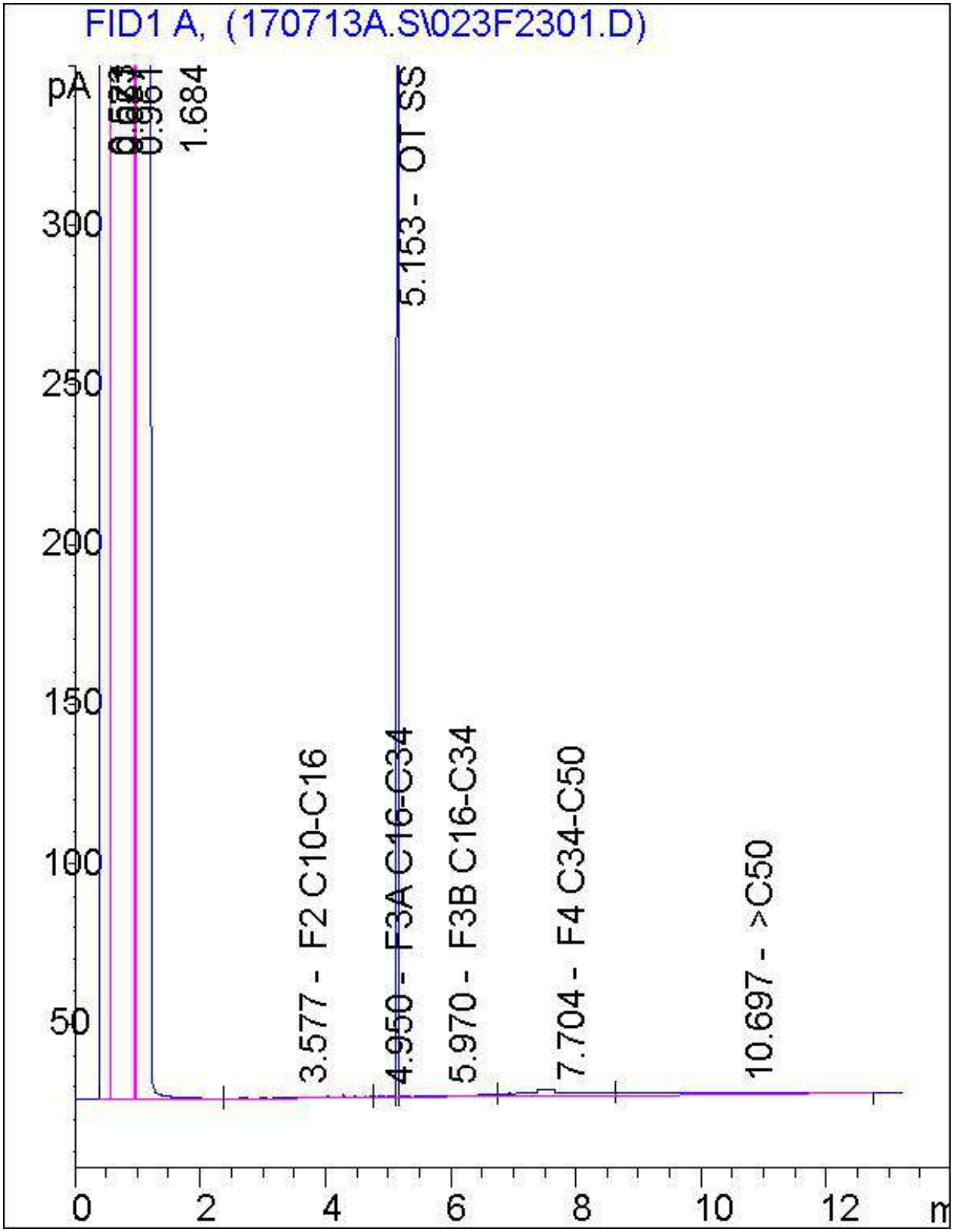


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7E5306
Report Date: 2017/07/14
Maxxam Sample: ESJ280

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-06-SS12

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

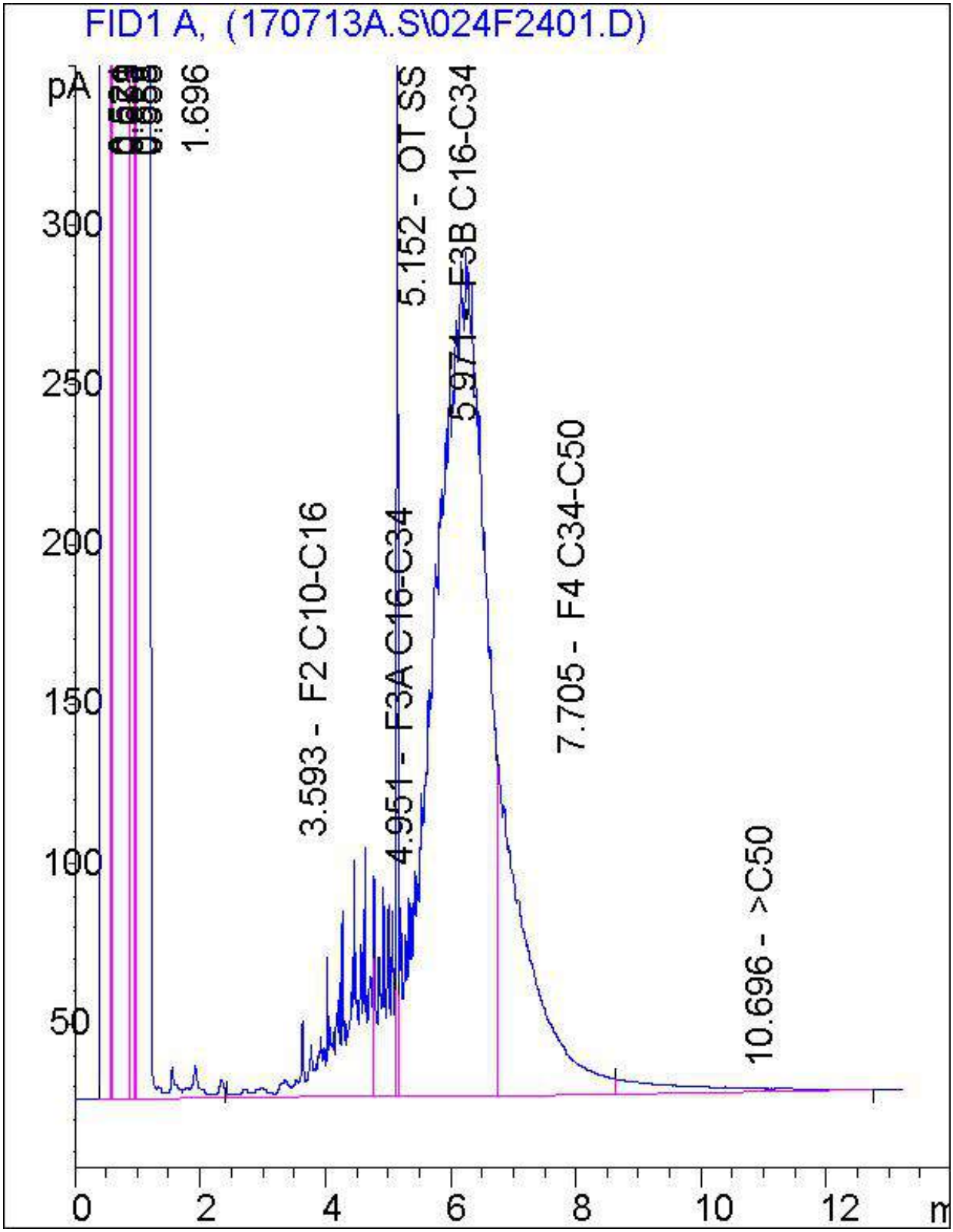


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7E5306
Report Date: 2017/07/14
Maxxam Sample: ESJ281

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-05-A-SS3

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

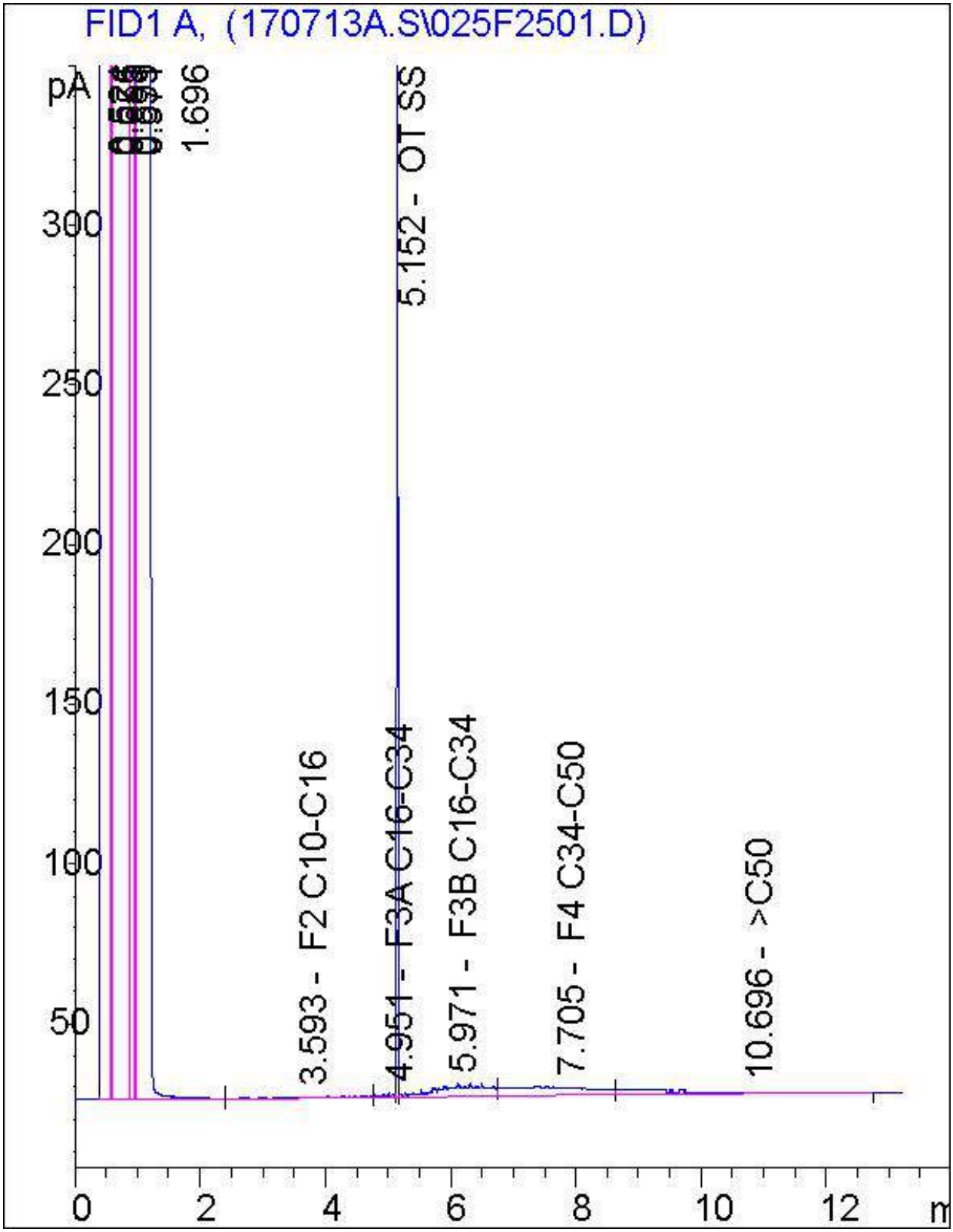


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7E5306
Report Date: 2017/07/14
Maxxam Sample: ESJ282

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-8-SS5

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

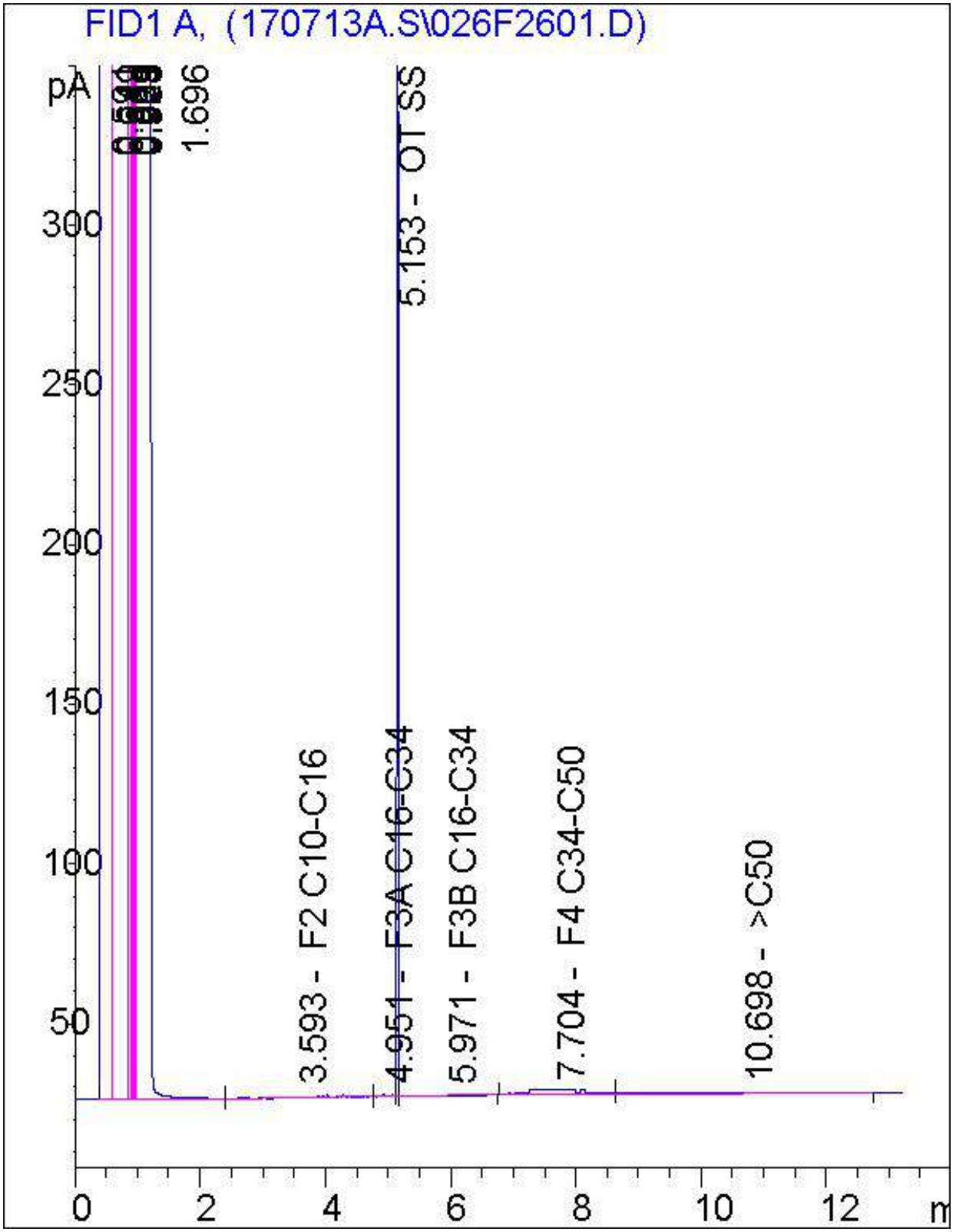


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B7E5306
Report Date: 2017/07/14
Maxxam Sample: ESJ283

DST Consulting Engineers Inc
Client Project #: TS-SO-29563
Client ID: BH2017-8-SS12

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your P.O. #: TSSO-29563
Your Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your C.O.C. #: 620405-01-01

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/26
Report #: R4615860
Version: 2 - Partial

CERTIFICATE OF ANALYSIS – PARTIAL RESULTS

MAXXAM JOB #: B7F4125
Received: 2017/07/19, 09:30

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum	9	N/A	2017/07/26		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (1)	9	2017/07/24	2017/07/25	CAM SOP-00316	CCME PHC-CWS m
Dissolved Metals by ICPMS	6	N/A	2017/07/25	CAM SOP-00447	EPA 6020B m
Volatile Organic Compounds and F1 PHCs	9	N/A	2017/07/25	CAM SOP-00230	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

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

Your P.O. #: TSSO-29563
Your Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your C.O.C. #: 620405-01-01

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/26
Report #: R4615860
Version: 2 - Partial

CERTIFICATE OF ANALYSIS – PARTIAL RESULTS

MAXXAM JOB #: B7F4125
Received: 2017/07/19, 09:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alison Cameron, Project Manager
Email: ACameron@maxxam.ca
Phone# (905) 817-5700

==========

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

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EUA316	EUA317	EUA318		EUA319		EUA321		
Sampling Date		2017/07/18 13:00	2017/07/18 15:15	2017/07/18 17:00		2017/07/18 19:00		2017/07/18 11:20		
COC Number		620405-01-01	620405-01-01	620405-01-01		620405-01-01		620405-01-01		
	UNITS	BH2017-9	BH2017-4	BH2017-6	RDL	BH2017-2	RDL	BH2017-7	RDL	QC Batch
Metals										
Dissolved Antimony (Sb)	ug/L	<0.50	<0.50	0.71	0.50	<0.50	0.50	<0.50	0.50	5084735
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	5084735
Dissolved Barium (Ba)	ug/L	140	130	370	2.0	3800	2.0	110	2.0	5084735
Dissolved Beryllium (Be)	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5084735
Dissolved Boron (B)	ug/L	150	69	180	10	74	10	76	10	5084735
Dissolved Cadmium (Cd)	ug/L	<0.10	<0.10	<0.10	0.10	<0.10	0.10	<0.10	0.10	5084735
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	5084735
Dissolved Cobalt (Co)	ug/L	0.78	1.4	<0.50	0.50	6.6	0.50	0.59	0.50	5084735
Dissolved Copper (Cu)	ug/L	4.3	<1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	5084735
Dissolved Lead (Pb)	ug/L	0.52	<0.50	<0.50	0.50	13	0.50	<0.50	0.50	5084735
Dissolved Molybdenum (Mo)	ug/L	1.1	1.6	4.5	0.50	0.56	0.50	9.6	0.50	5084735
Dissolved Nickel (Ni)	ug/L	11	4.9	4.4	1.0	11	1.0	3.1	1.0	5084735
Dissolved Selenium (Se)	ug/L	<2.0	<2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	5084735
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	0.10	<0.10	0.10	<0.10	0.10	5084735
Dissolved Sodium (Na)	ug/L	500000	250000	98000	100	680000	500	460000	100	5084735
Dissolved Thallium (Tl)	ug/L	<0.050	<0.050	<0.050	0.050	<0.050	0.050	<0.050	0.050	5084735
Dissolved Uranium (U)	ug/L	0.44	3.9	0.38	0.10	1.2	0.10	1.5	0.10	5084735
Dissolved Vanadium (V)	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5084735
Dissolved Zinc (Zn)	ug/L	6.0	<5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	5084735

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EUA322		
Sampling Date		2017/07/18 17:00		
COC Number		620405-01-01		
	UNITS	**BHMW-D**	**RDL**	**QC Batch**
Metals				
Dissolved Antimony (Sb)	ug/L	0.67	0.50	5084735
Dissolved Arsenic (As)	ug/L	<1.0	1.0	5084735
Dissolved Barium (Ba)	ug/L	370	2.0	5084735
Dissolved Beryllium (Be)	ug/L	<0.50	0.50	5084735
Dissolved Boron (B)	ug/L	180	10	5084735
Dissolved Cadmium (Cd)	ug/L	<0.10	0.10	5084735
Dissolved Chromium (Cr)	ug/L	<5.0	5.0	5084735
Dissolved Cobalt (Co)	ug/L	<0.50	0.50	5084735
Dissolved Copper (Cu)	ug/L	<1.0	1.0	5084735
Dissolved Lead (Pb)	ug/L	<0.50	0.50	5084735
Dissolved Molybdenum (Mo)	ug/L	4.4	0.50	5084735
Dissolved Nickel (Ni)	ug/L	4.2	1.0	5084735
Dissolved Selenium (Se)	ug/L	<2.0	2.0	5084735
Dissolved Silver (Ag)	ug/L	<0.10	0.10	5084735
Dissolved Sodium (Na)	ug/L	97000	100	5084735
Dissolved Thallium (Tl)	ug/L	<0.050	0.050	5084735
Dissolved Uranium (U)	ug/L	0.37	0.10	5084735
Dissolved Vanadium (V)	ug/L	<0.50	0.50	5084735
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	5084735

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		EUA316	EUA317	EUA318		EUA319		EUA320		
Sampling Date		2017/07/18 13:00	2017/07/18 15:15	2017/07/18 17:00		2017/07/18 19:00		2017/07/18 09:30		
COC Number		620405-01-01	620405-01-01	620405-01-01		620405-01-01		620405-01-01		
	UNITS	BH2017-9	BH2017-4	BH2017-6	RDL	BH2017-2	RDL	BH2017-11	RDL	QC Batch
Calculated Parameters										
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5082801
Volatile Organics										
Acetone (2-Propanone)	ug/L	<10	<10	<10	10	<500	500	<10	10	5084462
Benzene	ug/L	<0.20	0.23	0.34	0.20	11	10	<0.20	0.20	5084462
Bromodichloromethane	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5084462
Bromoform	ug/L	<1.0	<1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	5084462
Bromomethane	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5084462
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5084462
Chlorobenzene	ug/L	<0.20	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5084462
Chloroform	ug/L	<0.20	<0.20	0.70	0.20	<0.20	0.20	<0.20	0.20	5084462
Dibromochloromethane	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5084462
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5084462
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5084462
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5084462
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	1.0	<50	50	<1.0	1.0	5084462
1,1-Dichloroethane	ug/L	0.49	<0.20	0.24	0.20	<0.20	0.20	<0.20	0.20	5084462
1,2-Dichloroethane	ug/L	20	<0.50	6.6	0.50	<0.50	0.50	1.3	0.50	5084462
1,1-Dichloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5084462
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5084462
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5084462
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5084462
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	0.30	<0.30	0.30	<0.30	0.30	5084462
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	0.40	<0.40	0.40	<0.40	0.40	5084462
Ethylbenzene	ug/L	<0.20	0.25	<0.20	0.20	1500	10	<0.20	0.20	5084462
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5084462
Hexane	ug/L	<1.0	<1.0	<1.0	1.0	280	50	<1.0	1.0	5084462
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	2.0	<2.0	2.0	<2.0	2.0	5084462
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	<10	10	<10	10	<10	10	5084462
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	5.0	<250	250	<5.0	5.0	5084462
Methyl t-butyl ether (MTBE)	ug/L	110	24	240	0.50	<0.50	0.50	16	0.50	5084462
Styrene	ug/L	<0.50	<0.50	<0.50	0.50	<2.1 (1)	2.1	<0.50	0.50	5084462
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5084462

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) VOCF1 Analysis: Detection limit was raised due to matrix interferences.

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		EUA316	EUA317	EUA318		EUA319		EUA320		
Sampling Date		2017/07/18 13:00	2017/07/18 15:15	2017/07/18 17:00		2017/07/18 19:00		2017/07/18 09:30		
COC Number		620405-01-01	620405-01-01	620405-01-01		620405-01-01		620405-01-01		
	UNITS	BH2017-9	BH2017-4	BH2017-6	RDL	BH2017-2	RDL	BH2017-11	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5084462
Tetrachloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5084462
Toluene	ug/L	<0.20	<0.20	<0.20	0.20	41	10	<0.20	0.20	5084462
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5084462
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5084462
Trichloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5084462
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	0.50	<25	25	<0.50	0.50	5084462
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5084462
p+m-Xylene	ug/L	0.22	0.22	<0.20	0.20	5900	10	<0.20	0.20	5084462
o-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	680	10	<0.20	0.20	5084462
Total Xylenes	ug/L	0.22	0.22	<0.20	0.20	6600	10	<0.20	0.20	5084462
F1 (C6-C10)	ug/L	28	<25	<25	25	21000	1300	<25	25	5084462
F1 (C6-C10) - BTEX	ug/L	28	<25	<25	25	12000	1300	<25	25	5084462
Surrogate Recovery (%)										
4-Bromofluorobenzene	%	94	94	93		98		94		5084462
D4-1,2-Dichloroethane	%	110	108	107		100		105		5084462
D8-Toluene	%	92	93	94		96		93		5084462

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		EUA321		EUA322	EUA323	EUA324		
Sampling Date		2017/07/18 11:20		2017/07/18 17:00	2017/07/18 17:00	2017/07/18 17:00		
COC Number		620405-01-01		620405-01-01	620405-01-01	620405-01-01		
	UNITS	BH2017-7	RDL	BHMW-D	FIELD BLANK	TRIP BLANK	RDL	QC Batch
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50	5082801
Volatile Organics								
Acetone (2-Propanone)	ug/L	<10	10	<10	<10	<10	10	5084462
Benzene	ug/L	<0.20	0.20	0.25	<0.20	<0.20	0.20	5084462
Bromodichloromethane	ug/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50	5084462
Bromoform	ug/L	<1.0	1.0	<1.0	<1.0	<1.0	1.0	5084462
Bromomethane	ug/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50	5084462
Carbon Tetrachloride	ug/L	<0.20	0.20	<0.20	<0.20	<0.20	0.20	5084462
Chlorobenzene	ug/L	<0.20	0.20	<0.20	<0.20	<0.20	0.20	5084462
Chloroform	ug/L	<0.20	0.20	0.60	<0.20	<0.20	0.20	5084462
Dibromochloromethane	ug/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50	5084462
1,2-Dichlorobenzene	ug/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50	5084462
1,3-Dichlorobenzene	ug/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50	5084462
1,4-Dichlorobenzene	ug/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50	5084462
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	<1.0	<1.0	<1.0	1.0	5084462
1,1-Dichloroethane	ug/L	<0.20	0.20	0.23	<0.20	<0.20	0.20	5084462
1,2-Dichloroethane	ug/L	<0.50	0.50	7.0	<0.50	<0.50	0.50	5084462
1,1-Dichloroethylene	ug/L	<0.20	0.20	<0.20	<0.20	<0.20	0.20	5084462
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50	5084462
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50	5084462
1,2-Dichloropropane	ug/L	<0.20	0.20	<0.20	<0.20	<0.20	0.20	5084462
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	<0.30	<0.30	<0.30	0.30	5084462
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	<0.40	<0.40	<0.40	0.40	5084462
Ethylbenzene	ug/L	<0.20	0.20	<0.20	<0.20	<0.20	0.20	5084462
Ethylene Dibromide	ug/L	<0.20	0.20	<0.20	<0.20	<0.20	0.20	5084462
Hexane	ug/L	<1.0	1.0	<1.0	<1.0	<1.0	1.0	5084462
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	<2.0	<2.0	<2.0	2.0	5084462
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	<10	<10	<10	10	5084462
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	<5.0	<5.0	<5.0	5.0	5084462
Methyl t-butyl ether (MTBE)	ug/L	<2.5 (1)	2.5	240	<0.50	<0.50	0.50	5084462
Styrene	ug/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50	5084462
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50	5084462

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) VOCF1 Analysis: Detection limit was raised due to matrix interferences.

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

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		EUA321		EUA322	EUA323	EUA324		
Sampling Date		2017/07/18 11:20		2017/07/18 17:00	2017/07/18 17:00	2017/07/18 17:00		
COC Number		620405-01-01		620405-01-01	620405-01-01	620405-01-01		
	UNITS	BH2017-7	RDL	BHMW-D	FIELD BLANK	TRIP BLANK	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50	5084462
Tetrachloroethylene	ug/L	<0.20	0.20	<0.20	<0.20	<0.20	0.20	5084462
Toluene	ug/L	0.53	0.20	<0.20	<0.20	<0.20	0.20	5084462
1,1,1-Trichloroethane	ug/L	<0.20	0.20	<0.20	<0.20	<0.20	0.20	5084462
1,1,2-Trichloroethane	ug/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50	5084462
Trichloroethylene	ug/L	<0.20	0.20	<0.20	<0.20	<0.20	0.20	5084462
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	<0.50	<0.50	<0.50	0.50	5084462
Vinyl Chloride	ug/L	<0.20	0.20	<0.20	<0.20	<0.20	0.20	5084462
p+m-Xylene	ug/L	0.49	0.20	<0.20	<0.20	<0.20	0.20	5084462
o-Xylene	ug/L	<0.20	0.20	<0.20	<0.20	<0.20	0.20	5084462
Total Xylenes	ug/L	0.49	0.20	<0.20	<0.20	<0.20	0.20	5084462
F1 (C6-C10)	ug/L	<25	25	<25	<25	<25	25	5084462
F1 (C6-C10) - BTEX	ug/L	<25	25	<25	<25	<25	25	5084462
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	93		93	93	94		5084462
D4-1,2-Dichloroethane	%	104		105	107	108		5084462
D8-Toluene	%	94		94	95	92		5084462

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		EUA316	EUA317		EUA318	EUA319	EUA320	EUA321		
Sampling Date		2017/07/18 13:00	2017/07/18 15:15		2017/07/18 17:00	2017/07/18 19:00	2017/07/18 09:30	2017/07/18 11:20		
COC Number		620405-01-01	620405-01-01		620405-01-01	620405-01-01	620405-01-01	620405-01-01		
	UNITS	BH2017-9	BH2017-4	RDL	BH2017-6	BH2017-2	BH2017-11	BH2017-7	RDL	QC Batch
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	100		6100	<100	<100	100	5087699
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	200		<200	<200	<200	200	5087699
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	200		<200	<200	<200	200	5087699
Reached Baseline at C50	ug/L	Yes	Yes			Yes	Yes	Yes		5087699
Surrogate Recovery (%)										
o-Terphenyl	%	90	90		93	89	89	90		5087699

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		EUA322	EUA323	EUA324		
Sampling Date		2017/07/18 17:00	2017/07/18 17:00	2017/07/18 17:00		
COC Number		620405-01-01	620405-01-01	620405-01-01		
	UNITS	BHMW-D	FIELD BLANK	TRIP BLANK	RDL	QC Batch
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/L		<100	<100	100	5087699
F3 (C16-C34 Hydrocarbons)	ug/L		<200	<200	200	5087699
F4 (C34-C50 Hydrocarbons)	ug/L		<200	<200	200	5087699
Reached Baseline at C50	ug/L		Yes	Yes		5087699
Surrogate Recovery (%)						
o-Terphenyl	%	90	91	91		5087699

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

GENERAL COMMENTS

Sample EUA319 [BH2017-2] : VOCF1 Analysis: Due to high concentrations of target analytes, sample required dilution. Detection limits were adjusted accordingly. In order to meet required regulatory criteria, results for selected compounds (obtained by a separate analysis using an appropriate low dilution) are included in the report.

Results relate only to the items tested.

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

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
5084462	DR1	Matrix Spike	4-Bromofluorobenzene	2017/07/25		103	%	70 - 130
			D4-1,2-Dichloroethane	2017/07/25		102	%	70 - 130
			D8-Toluene	2017/07/25		100	%	70 - 130
			Acetone (2-Propanone)	2017/07/25		99	%	60 - 140
			Benzene	2017/07/25		98	%	70 - 130
			Bromodichloromethane	2017/07/25		94	%	70 - 130
			Bromoform	2017/07/25		103	%	70 - 130
			Bromomethane	2017/07/25		95	%	60 - 140
			Carbon Tetrachloride	2017/07/25		92	%	70 - 130
			Chlorobenzene	2017/07/25		95	%	70 - 130
			Chloroform	2017/07/25		91	%	70 - 130
			Dibromochloromethane	2017/07/25		99	%	70 - 130
			1,2-Dichlorobenzene	2017/07/25		92	%	70 - 130
			1,3-Dichlorobenzene	2017/07/25		95	%	70 - 130
			1,4-Dichlorobenzene	2017/07/25		94	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2017/07/25		86	%	60 - 140
			1,1-Dichloroethane	2017/07/25		97	%	70 - 130
			1,2-Dichloroethane	2017/07/25		98	%	70 - 130
			1,1-Dichloroethylene	2017/07/25		101	%	70 - 130
			cis-1,2-Dichloroethylene	2017/07/25		95	%	70 - 130
			trans-1,2-Dichloroethylene	2017/07/25		95	%	70 - 130
			1,2-Dichloropropane	2017/07/25		89	%	70 - 130
			cis-1,3-Dichloropropene	2017/07/25		93	%	70 - 130
			trans-1,3-Dichloropropene	2017/07/25		99	%	70 - 130
			Ethylbenzene	2017/07/25		93	%	70 - 130
			Ethylene Dibromide	2017/07/25		101	%	70 - 130
			Hexane	2017/07/25		98	%	70 - 130
			Methylene Chloride(Dichloromethane)	2017/07/25		100	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2017/07/25		101	%	60 - 140
			Methyl Isobutyl Ketone	2017/07/25		96	%	70 - 130
			Methyl t-butyl ether (MTBE)	2017/07/25		93	%	70 - 130
			Styrene	2017/07/25		93	%	70 - 130
			1,1,1,2-Tetrachloroethane	2017/07/25		100	%	70 - 130
			1,1,2,2-Tetrachloroethane	2017/07/25		99	%	70 - 130
			Tetrachloroethylene	2017/07/25		91	%	70 - 130
			Toluene	2017/07/25		89	%	70 - 130
			1,1,1-Trichloroethane	2017/07/25		91	%	70 - 130
			1,1,2-Trichloroethane	2017/07/25		98	%	70 - 130
			Trichloroethylene	2017/07/25		93	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2017/07/25		93	%	70 - 130
			Vinyl Chloride	2017/07/25		91	%	70 - 130
			p+m-Xylene	2017/07/25		94	%	70 - 130
			o-Xylene	2017/07/25		94	%	70 - 130
			F1 (C6-C10)	2017/07/25		100	%	60 - 140
5084462	DR1	Spiked Blank	4-Bromofluorobenzene	2017/07/25		102	%	70 - 130
			D4-1,2-Dichloroethane	2017/07/25		101	%	70 - 130
			D8-Toluene	2017/07/25		102	%	70 - 130
			Acetone (2-Propanone)	2017/07/25		96	%	60 - 140
			Benzene	2017/07/25		99	%	70 - 130
			Bromodichloromethane	2017/07/25		95	%	70 - 130
			Bromoform	2017/07/25		104	%	70 - 130

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

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Bromomethane	2017/07/25		99	%	60 - 140
			Carbon Tetrachloride	2017/07/25		93	%	70 - 130
			Chlorobenzene	2017/07/25		97	%	70 - 130
			Chloroform	2017/07/25		92	%	70 - 130
			Dibromochloromethane	2017/07/25		101	%	70 - 130
			1,2-Dichlorobenzene	2017/07/25		93	%	70 - 130
			1,3-Dichlorobenzene	2017/07/25		97	%	70 - 130
			1,4-Dichlorobenzene	2017/07/25		96	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2017/07/25		89	%	60 - 140
			1,1-Dichloroethane	2017/07/25		98	%	70 - 130
			1,2-Dichloroethane	2017/07/25		99	%	70 - 130
			1,1-Dichloroethylene	2017/07/25		103	%	70 - 130
			cis-1,2-Dichloroethylene	2017/07/25		96	%	70 - 130
			trans-1,2-Dichloroethylene	2017/07/25		96	%	70 - 130
			1,2-Dichloropropane	2017/07/25		90	%	70 - 130
			cis-1,3-Dichloropropene	2017/07/25		96	%	70 - 130
			trans-1,3-Dichloropropene	2017/07/25		104	%	70 - 130
			Ethylbenzene	2017/07/25		95	%	70 - 130
			Ethylene Dibromide	2017/07/25		103	%	70 - 130
			Hexane	2017/07/25		101	%	70 - 130
			Methylene Chloride(Dichloromethane)	2017/07/25		102	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2017/07/25		100	%	60 - 140
			Methyl Isobutyl Ketone	2017/07/25		98	%	70 - 130
			Methyl t-butyl ether (MTBE)	2017/07/25		94	%	70 - 130
			Styrene	2017/07/25		97	%	70 - 130
			1,1,1,2-Tetrachloroethane	2017/07/25		101	%	70 - 130
			1,1,2,2-Tetrachloroethane	2017/07/25		99	%	70 - 130
			Tetrachloroethylene	2017/07/25		93	%	70 - 130
			Toluene	2017/07/25		93	%	70 - 130
			1,1,1-Trichloroethane	2017/07/25		93	%	70 - 130
			1,1,2-Trichloroethane	2017/07/25		99	%	70 - 130
			Trichloroethylene	2017/07/25		94	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2017/07/25		95	%	70 - 130
			Vinyl Chloride	2017/07/25		93	%	70 - 130
			p+m-Xylene	2017/07/25		97	%	70 - 130
			o-Xylene	2017/07/25		97	%	70 - 130
			F1 (C6-C10)	2017/07/25		93	%	60 - 140
5084462	DR1	Method Blank	4-Bromofluorobenzene	2017/07/25		96	%	70 - 130
			D4-1,2-Dichloroethane	2017/07/25		103	%	70 - 130
			D8-Toluene	2017/07/25		95	%	70 - 130
			Acetone (2-Propanone)	2017/07/25	<10		ug/L	
			Benzene	2017/07/25	<0.20		ug/L	
			Bromodichloromethane	2017/07/25	<0.50		ug/L	
			Bromoform	2017/07/25	<1.0		ug/L	
			Bromomethane	2017/07/25	<0.50		ug/L	
			Carbon Tetrachloride	2017/07/25	<0.20		ug/L	
			Chlorobenzene	2017/07/25	<0.20		ug/L	
			Chloroform	2017/07/25	<0.20		ug/L	
			Dibromochloromethane	2017/07/25	<0.50		ug/L	
			1,2-Dichlorobenzene	2017/07/25	<0.50		ug/L	
			1,3-Dichlorobenzene	2017/07/25	<0.50		ug/L	

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

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,4-Dichlorobenzene	2017/07/25	<0.50		ug/L	
			Dichlorodifluoromethane (FREON 12)	2017/07/25	<1.0		ug/L	
			1,1-Dichloroethane	2017/07/25	<0.20		ug/L	
			1,2-Dichloroethane	2017/07/25	<0.50		ug/L	
			1,1-Dichloroethylene	2017/07/25	<0.20		ug/L	
			cis-1,2-Dichloroethylene	2017/07/25	<0.50		ug/L	
			trans-1,2-Dichloroethylene	2017/07/25	<0.50		ug/L	
			1,2-Dichloropropane	2017/07/25	<0.20		ug/L	
			cis-1,3-Dichloropropene	2017/07/25	<0.30		ug/L	
			trans-1,3-Dichloropropene	2017/07/25	<0.40		ug/L	
			Ethylbenzene	2017/07/25	<0.20		ug/L	
			Ethylene Dibromide	2017/07/25	<0.20		ug/L	
			Hexane	2017/07/25	<1.0		ug/L	
			Methylene Chloride(Dichloromethane)	2017/07/25	<2.0		ug/L	
			Methyl Ethyl Ketone (2-Butanone)	2017/07/25	<10		ug/L	
			Methyl Isobutyl Ketone	2017/07/25	<5.0		ug/L	
			Methyl t-butyl ether (MTBE)	2017/07/25	<0.50		ug/L	
			Styrene	2017/07/25	<0.50		ug/L	
			1,1,1,2-Tetrachloroethane	2017/07/25	<0.50		ug/L	
			1,1,2,2-Tetrachloroethane	2017/07/25	<0.50		ug/L	
			Tetrachloroethylene	2017/07/25	<0.20		ug/L	
			Toluene	2017/07/25	<0.20		ug/L	
			1,1,1-Trichloroethane	2017/07/25	<0.20		ug/L	
			1,1,2-Trichloroethane	2017/07/25	<0.50		ug/L	
			Trichloroethylene	2017/07/25	<0.20		ug/L	
			Trichlorofluoromethane (FREON 11)	2017/07/25	<0.50		ug/L	
			Vinyl Chloride	2017/07/25	<0.20		ug/L	
			p+m-Xylene	2017/07/25	<0.20		ug/L	
			o-Xylene	2017/07/25	<0.20		ug/L	
			Total Xylenes	2017/07/25	<0.20		ug/L	
			F1 (C6-C10)	2017/07/25	<25		ug/L	
			F1 (C6-C10) - BTEX	2017/07/25	<25		ug/L	
5084462	DR1	RPD	Acetone (2-Propanone)	2017/07/25	NC		%	30
			Benzene	2017/07/25	NC		%	30
			Bromodichloromethane	2017/07/25	NC		%	30
			Bromoform	2017/07/25	NC		%	30
			Bromomethane	2017/07/25	NC		%	30
			Carbon Tetrachloride	2017/07/25	NC		%	30
			Chlorobenzene	2017/07/25	NC		%	30
			Chloroform	2017/07/25	NC		%	30
			Dibromochloromethane	2017/07/25	NC		%	30
			1,2-Dichlorobenzene	2017/07/25	NC		%	30
			1,3-Dichlorobenzene	2017/07/25	NC		%	30
			1,4-Dichlorobenzene	2017/07/25	NC		%	30
			Dichlorodifluoromethane (FREON 12)	2017/07/25	NC		%	30
			1,1-Dichloroethane	2017/07/25	NC		%	30
			1,2-Dichloroethane	2017/07/25	NC		%	30
			1,1-Dichloroethylene	2017/07/25	NC		%	30
			cis-1,2-Dichloroethylene	2017/07/25	NC		%	30
			trans-1,2-Dichloroethylene	2017/07/25	NC		%	30
			1,2-Dichloropropane	2017/07/25	NC		%	30

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

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			cis-1,3-Dichloropropene	2017/07/25	NC		%	30
			trans-1,3-Dichloropropene	2017/07/25	NC		%	30
			Ethylbenzene	2017/07/25	NC		%	30
			Ethylene Dibromide	2017/07/25	NC		%	30
			Hexane	2017/07/25	NC		%	30
			Methylene Chloride(Dichloromethane)	2017/07/25	NC		%	30
			Methyl Ethyl Ketone (2-Butanone)	2017/07/25	NC		%	30
			Methyl Isobutyl Ketone	2017/07/25	NC		%	30
			Methyl t-butyl ether (MTBE)	2017/07/25	NC		%	30
			Styrene	2017/07/25	NC		%	30
			1,1,1,2-Tetrachloroethane	2017/07/25	NC		%	30
			1,1,2,2-Tetrachloroethane	2017/07/25	NC		%	30
			Tetrachloroethylene	2017/07/25	NC		%	30
			Toluene	2017/07/25	NC		%	30
			1,1,1-Trichloroethane	2017/07/25	NC		%	30
			1,1,2-Trichloroethane	2017/07/25	NC		%	30
			Trichloroethylene	2017/07/25	NC		%	30
			Trichlorofluoromethane (FREON 11)	2017/07/25	NC		%	30
			Vinyl Chloride	2017/07/25	NC		%	30
			p+m-Xylene	2017/07/25	NC		%	30
			o-Xylene	2017/07/25	NC		%	30
			Total Xylenes	2017/07/25	NC		%	30
			F1 (C6-C10)	2017/07/25	NC		%	30
			F1 (C6-C10) - BTEX	2017/07/25	NC		%	30
5084735	TNG	Matrix Spike	Dissolved Antimony (Sb)	2017/07/25		108	%	80 - 120
			Dissolved Arsenic (As)	2017/07/25		104	%	80 - 120
			Dissolved Barium (Ba)	2017/07/25		99	%	80 - 120
			Dissolved Beryllium (Be)	2017/07/25		104	%	80 - 120
			Dissolved Boron (B)	2017/07/25		99	%	80 - 120
			Dissolved Cadmium (Cd)	2017/07/25		103	%	80 - 120
			Dissolved Chromium (Cr)	2017/07/25		101	%	80 - 120
			Dissolved Cobalt (Co)	2017/07/25		99	%	80 - 120
			Dissolved Copper (Cu)	2017/07/25		101	%	80 - 120
			Dissolved Lead (Pb)	2017/07/25		95	%	80 - 120
			Dissolved Molybdenum (Mo)	2017/07/25		105	%	80 - 120
			Dissolved Nickel (Ni)	2017/07/25		99	%	80 - 120
			Dissolved Selenium (Se)	2017/07/25		103	%	80 - 120
			Dissolved Silver (Ag)	2017/07/25		96	%	80 - 120
			Dissolved Sodium (Na)	2017/07/25		NC	%	80 - 120
			Dissolved Thallium (Tl)	2017/07/25		95	%	80 - 120
			Dissolved Uranium (U)	2017/07/25		104	%	80 - 120
			Dissolved Vanadium (V)	2017/07/25		102	%	80 - 120
			Dissolved Zinc (Zn)	2017/07/25		99	%	80 - 120
5084735	TNG	Spiked Blank	Dissolved Antimony (Sb)	2017/07/25		101	%	80 - 120
			Dissolved Arsenic (As)	2017/07/25		97	%	80 - 120
			Dissolved Barium (Ba)	2017/07/25		99	%	80 - 120
			Dissolved Beryllium (Be)	2017/07/25		98	%	80 - 120
			Dissolved Boron (B)	2017/07/25		94	%	80 - 120
			Dissolved Cadmium (Cd)	2017/07/25		98	%	80 - 120
			Dissolved Chromium (Cr)	2017/07/25		96	%	80 - 120
			Dissolved Cobalt (Co)	2017/07/25		96	%	80 - 120

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

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Copper (Cu)	2017/07/25		99	%	80 - 120
			Dissolved Lead (Pb)	2017/07/25		94	%	80 - 120
			Dissolved Molybdenum (Mo)	2017/07/25		98	%	80 - 120
			Dissolved Nickel (Ni)	2017/07/25		96	%	80 - 120
			Dissolved Selenium (Se)	2017/07/25		97	%	80 - 120
			Dissolved Silver (Ag)	2017/07/25		97	%	80 - 120
			Dissolved Sodium (Na)	2017/07/25		99	%	80 - 120
			Dissolved Thallium (Tl)	2017/07/25		94	%	80 - 120
			Dissolved Uranium (U)	2017/07/25		101	%	80 - 120
			Dissolved Vanadium (V)	2017/07/25		96	%	80 - 120
			Dissolved Zinc (Zn)	2017/07/25		97	%	80 - 120
5084735	TNG	Method Blank	Dissolved Antimony (Sb)	2017/07/25	<0.50		ug/L	
			Dissolved Arsenic (As)	2017/07/25	<1.0		ug/L	
			Dissolved Barium (Ba)	2017/07/25	<2.0		ug/L	
			Dissolved Beryllium (Be)	2017/07/25	<0.50		ug/L	
			Dissolved Boron (B)	2017/07/25	<10		ug/L	
			Dissolved Cadmium (Cd)	2017/07/25	<0.10		ug/L	
			Dissolved Chromium (Cr)	2017/07/25	<5.0		ug/L	
			Dissolved Cobalt (Co)	2017/07/25	<0.50		ug/L	
			Dissolved Copper (Cu)	2017/07/25	<1.0		ug/L	
			Dissolved Lead (Pb)	2017/07/25	<0.50		ug/L	
			Dissolved Molybdenum (Mo)	2017/07/25	<0.50		ug/L	
			Dissolved Nickel (Ni)	2017/07/25	<1.0		ug/L	
			Dissolved Selenium (Se)	2017/07/25	<2.0		ug/L	
			Dissolved Silver (Ag)	2017/07/25	<0.10		ug/L	
			Dissolved Sodium (Na)	2017/07/25	<100		ug/L	
			Dissolved Thallium (Tl)	2017/07/25	<0.050		ug/L	
			Dissolved Uranium (U)	2017/07/25	<0.10		ug/L	
			Dissolved Vanadium (V)	2017/07/25	<0.50		ug/L	
			Dissolved Zinc (Zn)	2017/07/25	<5.0		ug/L	
5084735	TNG	RPD	Dissolved Antimony (Sb)	2017/07/25	2.6		%	20
			Dissolved Arsenic (As)	2017/07/25	1.7		%	20
			Dissolved Barium (Ba)	2017/07/25	2.2		%	20
			Dissolved Beryllium (Be)	2017/07/25	NC		%	20
			Dissolved Boron (B)	2017/07/25	1.1		%	20
			Dissolved Cadmium (Cd)	2017/07/25	NC		%	20
			Dissolved Chromium (Cr)	2017/07/25	NC		%	20
			Dissolved Cobalt (Co)	2017/07/25	7.5		%	20
			Dissolved Copper (Cu)	2017/07/25	4.2		%	20
			Dissolved Lead (Pb)	2017/07/25	NC		%	20
			Dissolved Molybdenum (Mo)	2017/07/25	0.72		%	20
			Dissolved Nickel (Ni)	2017/07/25	3.7		%	20
			Dissolved Selenium (Se)	2017/07/25	NC		%	20
			Dissolved Silver (Ag)	2017/07/25	NC		%	20
			Dissolved Thallium (Tl)	2017/07/25	NC		%	20
			Dissolved Uranium (U)	2017/07/25	0.29		%	20
			Dissolved Vanadium (V)	2017/07/25	4.8		%	20
			Dissolved Zinc (Zn)	2017/07/25	NC		%	20
5087699	MKS	Matrix Spike	o-Terphenyl	2017/07/25		100	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2017/07/25		106	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2017/07/25		NC	%	50 - 130

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

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			F4 (C34-C50 Hydrocarbons)	2017/07/25		100	%	50 - 130
5087699	MKS	Spiked Blank	o-Terphenyl	2017/07/25		98	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2017/07/25		104	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2017/07/25		101	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2017/07/25		98	%	60 - 130
5087699	MKS	Method Blank	o-Terphenyl	2017/07/25		97	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2017/07/25	<100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2017/07/25	<200		ug/L	
			F4 (C34-C50 Hydrocarbons)	2017/07/25	<200		ug/L	
5087699	MKS	RPD	F2 (C10-C16 Hydrocarbons)	2017/07/25	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2017/07/25	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2017/07/25	NC		%	30

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

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

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

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

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

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

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

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

Maxxam Job #: B7F4125
Report Date: 2017/07/26

DST Consulting Engineers Inc
Client Project #: TSSO-29563/ TRINITY
Site Location: 951 GLADSTON
Your P.O. #: TSSO-29563
Sampler Initials: ES

VALIDATION SIGNATURE PAGE

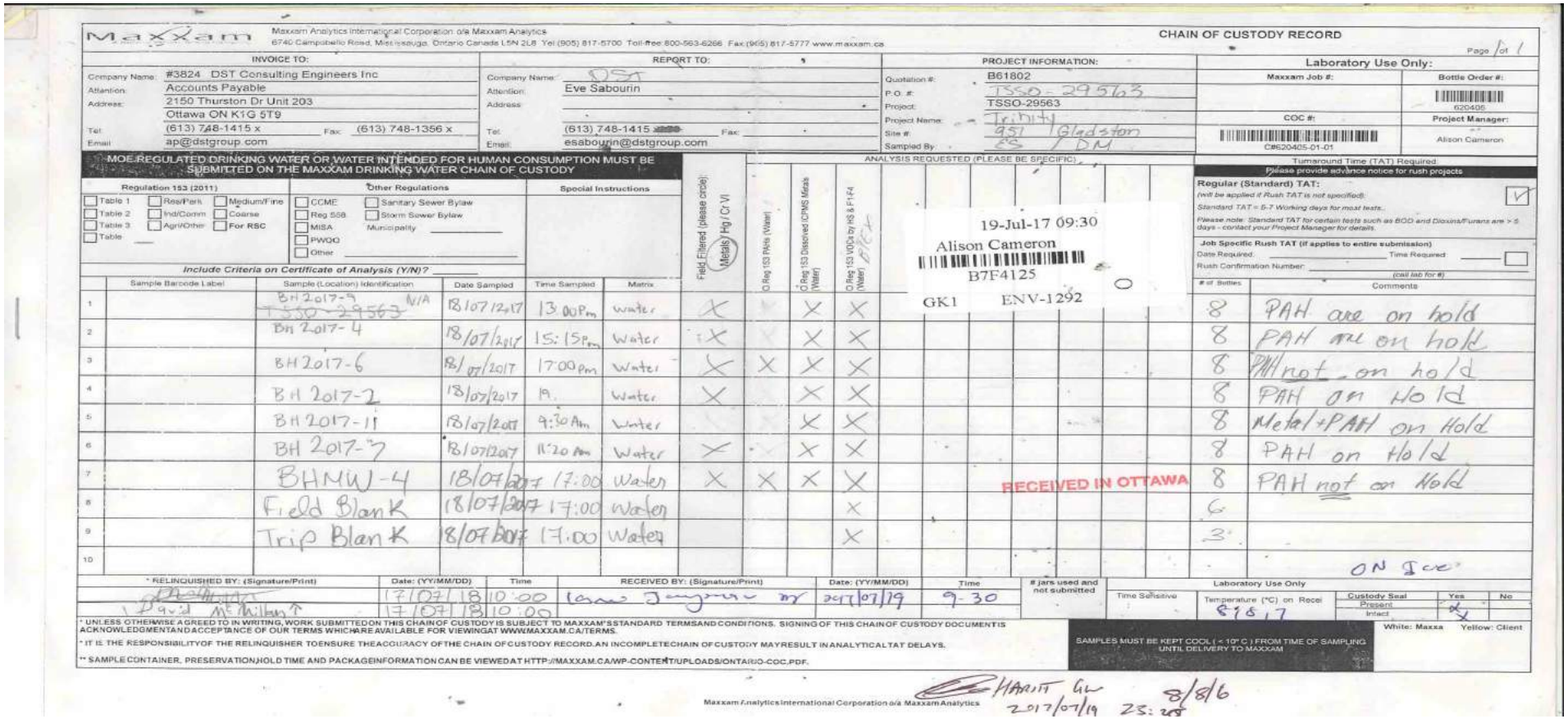
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

Cristina Carriere, Scientific Services

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

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



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

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:
Company Name: #3824 DST Consulting Engineers Inc
Attention: Accounts Payable
Address: 2150 Thurston Dr Unit 203, Ottawa ON K1G 5T9
Tel: (613) 748-1415 x Fax: (613) 748-1356 x
Email: ap@dstgroup.com

REPORT TO:
Company Name: DST
Attention: Eve Sabourin
Address:
Tel: (613) 748-1415 x Fax:
Email: esabourin@dstgroup.com

PROJECT INFORMATION:
Quotation #: B61802
P.O. #: TSSO-29563
Project: TSSO-29563
Project Name: Trinity
Site #: 951 Gladstone
Sampled By: EB / DM

Laboratory Use Only:
Maxxam Job #:
Bottle Order #: 620405
COC #: C#620405-01-01
Project Manager: Alison Cameron

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011): ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Table ___ ☐ Res/Park ☐ Ind/Comm ☐ Agri/Other ☐ Medium/Fine ☐ Coarse ☐ For RSC
Other Regulations: ☐ CCME ☐ Reg 558 ☐ MISA ☐ PWQO ☐ Other ☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw Municipality ___
Special Instructions:
Include Criteria on Certificate of Analysis (Y/N)? ___

ANALYSIS REQUESTED (PLEASE BE SPECIFIC):

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	O.Reg 153 PAHs (Water)	O.Reg 153 Dissolved (CrVI/HG Metals (Water)	O.Reg 153 VOCs by HS & F1-F4 (Water)	# of Bottles	Comments
1		~~BH2017-9 TSSO-29563~~ N/A	18/07/12/17	13:00 Pm	Water	X		X	X	8	PAH are on hold
2		BH 2017-4	18/07/2017	15:15 Pm	Water	X		X	X	8	PAH are on hold
3		BH2017-6	18/07/2017	17:00 Pm	Water	X	X	X	X	8	PAH not on hold
4		BH 2017-2	18/07/2017	19:	Water	X		X	X	8	PAH on Hold
5		BH 2017-11	18/07/2017	9:30 Am	Water			X	X	8	Metal+PAH on Hold
6		BH 2017-7	18/07/2017	11:20 Am	Water	X		X	X	8	PAH on Hold
7		BHMW-4	18/07/2017	17:00	Water	X	X	X	X	8	PAH not on Hold
8		Field Blank	18/07/2017	17:00	Water				X	6	
9		Trip Blank	18/07/2017	17:00	Water				X	3	
10											ON Ice

19-Jul-17 09:30
Alison Cameron
B7F4125
GK1 ENV-1292

RECEIVED IN OTTAWA

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.
Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ (call lab for #)

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time
David McMillan	17/07/18	10:00	Isaac Jongerius MP	2017/07/19	9:30
David McMillan	17/07/18	10:00			

jars used and not submitted: ___
Time Sensitive: ___
Laboratory Use Only: Temperature (°C) on Recei: 8 1 5 1 7
Custody Seal Present: Yes ☑ No ☐ Intact: Yes ☑ No ☐

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxa Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

HARJIT GW 8/8/6 2017/07/19 23:28

Maxxam
A Bureau Veritas Group Company

Your P.O. #: TSSO-29563
Your Project #: TSSO-29563
Site Location: TRINITY ,851,GLODSTONE
Your C.O.C. #: 98145

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/27
Report #: R4617667
Version: 2 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7F8005
Received: 2017/07/25, 15:45

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum (1)	1	N/A	2017/07/27		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (2)	1	2017/07/26	2017/07/26	OTT SOP-00001	CCME Hydrocarbons
Dissolved Metals by ICPMS (1)	1	N/A	2017/07/26	CAM SOP-00447	EPA 6020B m
Volatile Organic Compounds and F1 PHCs (1)	1	N/A	2017/07/26	CAM SOP-00230	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

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

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Your P.O. #: TSSO-29563
Your Project #: TSSO-29563
Site Location: TRINITY ,851,GLODSTONE
Your C.O.C. #: 98145

Attention:Eve Sabourin

DST Consulting Engineers Inc
Ottawa - Standing Offer
2150 Thurston Dr
Unit 203
Ottawa, ON
K1G 5T9

Report Date: 2017/07/27
Report #: R4617667
Version: 2 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7F8005
Received: 2017/07/25, 15:45

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alison Cameron, Project Manager
Email: ACameron@maxxam.ca
Phone# (613) 274-0573

==========

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7F8005
Report Date: 2017/07/27

DST Consulting Engineers Inc
Client Project #: TSSO-29563
Site Location: TRINITY ,851,GLODSTONE
Your P.O. #: TSSO-29563
Sampler Initials: ES

O.REG 153 DISSOLVED ICPMS METALS (WATER)

Maxxam ID		EUU373	EUU373		
Sampling Date		2017/07/25 14:30	2017/07/25 14:30		
COC Number		98145	98145		
	UNITS	UNKNOWN-1	UNKNOWN-1 Lab-Dup	RDL	QC Batch
Metals					
Dissolved Antimony (Sb)	ug/L	<0.50	<0.50	0.50	5090588
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	1.0	5090588
Dissolved Barium (Ba)	ug/L	120	120	2.0	5090588
Dissolved Beryllium (Be)	ug/L	<0.50	<0.50	0.50	5090588
Dissolved Boron (B)	ug/L	56	58	10	5090588
Dissolved Cadmium (Cd)	ug/L	<0.10	<0.10	0.10	5090588
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	5.0	5090588
Dissolved Cobalt (Co)	ug/L	<0.50	<0.50	0.50	5090588
Dissolved Copper (Cu)	ug/L	1.4	1.3	1.0	5090588
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	0.50	5090588
Dissolved Molybdenum (Mo)	ug/L	11	11	0.50	5090588
Dissolved Nickel (Ni)	ug/L	1.5	1.6	1.0	5090588
Dissolved Selenium (Se)	ug/L	<2.0	<2.0	2.0	5090588
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	0.10	5090588
Dissolved Sodium (Na)	ug/L	540000	530000	100	5090588
Dissolved Thallium (Tl)	ug/L	<0.050	<0.050	0.050	5090588
Dissolved Uranium (U)	ug/L	1.2	1.2	0.10	5090588
Dissolved Vanadium (V)	ug/L	<0.50	<0.50	0.50	5090588
Dissolved Zinc (Zn)	ug/L	6.3	5.6	5.0	5090588

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7F8005
Report Date: 2017/07/27

DST Consulting Engineers Inc
Client Project #: TSSO-29563
Site Location: TRINITY ,851,GLODSTONE
Your P.O. #: TSSO-29563
Sampler Initials: ES

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Maxxam ID		EUU373		
Sampling Date		2017/07/25 14:30		
COC Number		98145		
	UNITS	UNKNOWN-1	RDL	QC Batch
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	5088890
Volatile Organics				
Acetone (2-Propanone)	ug/L	<10	10	5084914
Benzene	ug/L	<0.20	0.20	5084914
Bromodichloromethane	ug/L	<0.50	0.50	5084914
Bromoform	ug/L	<1.0	1.0	5084914
Bromomethane	ug/L	<0.50	0.50	5084914
Carbon Tetrachloride	ug/L	<0.20	0.20	5084914
Chlorobenzene	ug/L	<0.20	0.20	5084914
Chloroform	ug/L	<0.20	0.20	5084914
Dibromochloromethane	ug/L	<0.50	0.50	5084914
1,2-Dichlorobenzene	ug/L	<0.50	0.50	5084914
1,3-Dichlorobenzene	ug/L	<0.50	0.50	5084914
1,4-Dichlorobenzene	ug/L	<0.50	0.50	5084914
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	5084914
1,1-Dichloroethane	ug/L	<0.20	0.20	5084914
1,2-Dichloroethane	ug/L	<0.50	0.50	5084914
1,1-Dichloroethylene	ug/L	<0.20	0.20	5084914
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	5084914
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	5084914
1,2-Dichloropropane	ug/L	<0.20	0.20	5084914
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	5084914
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	5084914
Ethylbenzene	ug/L	<0.20	0.20	5084914
Ethylene Dibromide	ug/L	<0.20	0.20	5084914
Hexane	ug/L	<1.0	1.0	5084914
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	5084914
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	5084914
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	5084914
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	5084914
Styrene	ug/L	<0.50	0.50	5084914
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	5084914
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	5084914

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7F8005
Report Date: 2017/07/27

DST Consulting Engineers Inc
Client Project #: TSSO-29563
Site Location: TRINITY ,851,GLODSTONE
Your P.O. #: TSSO-29563
Sampler Initials: ES

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Maxxam ID		EUU373		
Sampling Date		2017/07/25 14:30		
COC Number		98145		
	UNITS	**UNKNOWN-1**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	<0.20	0.20	5084914
Toluene	ug/L	<0.20	0.20	5084914
1,1,1-Trichloroethane	ug/L	<0.20	0.20	5084914
1,1,2-Trichloroethane	ug/L	<0.50	0.50	5084914
Trichloroethylene	ug/L	<0.20	0.20	5084914
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	5084914
Vinyl Chloride	ug/L	<0.20	0.20	5084914
p+m-Xylene	ug/L	<0.20	0.20	5084914
o-Xylene	ug/L	<0.20	0.20	5084914
Total Xylenes	ug/L	<0.20	0.20	5084914
F1 (C6-C10)	ug/L	<25	25	5084914
F1 (C6-C10) - BTEX	ug/L	<25	25	5084914
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	5090847
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	5090847
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	5090847
Reached Baseline at C50	ug/L	Yes		5090847
Surrogate Recovery (%)				
o-Terphenyl	%	92		5090847
4-Bromofluorobenzene	%	91		5084914
D4-1,2-Dichloroethane	%	104		5084914
D8-Toluene	%	94		5084914

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7F8005
Report Date: 2017/07/27

DST Consulting Engineers Inc
Client Project #: TSSO-29563
Site Location: TRINITY ,851,GLODSTONE
Your P.O. #: TSSO-29563
Sampler Initials: ES

TEST SUMMARY

Maxxam ID: EUU373
Sample ID: UNKNOWN-1
Matrix: Water

Collected: 2017/07/25
Shipped:
Received: 2017/07/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5088890	N/A	2017/07/27	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5090847	2017/07/26	2017/07/26	Liliana Gaburici
Dissolved Metals by ICPMS	ICP/MS	5090588	N/A	2017/07/26	Thao Nguyen
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5084914	N/A	2017/07/26	Yang (Philip) Yu

Maxxam ID: EUU373 Dup
Sample ID: UNKNOWN-1
Matrix: Water

Collected: 2017/07/25
Shipped:
Received: 2017/07/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	5090588	N/A	2017/07/26	Thao Nguyen

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7F8005
Report Date: 2017/07/27

DST Consulting Engineers Inc
Client Project #: TSSO-29563
Site Location: TRINITY ,851,GLODSTONE
Your P.O. #: TSSO-29563
Sampler Initials: ES

GENERAL COMMENTS

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

Package 1	16.7°C

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7F8005
Report Date: 2017/07/27

QUALITY ASSURANCE REPORT

DST Consulting Engineers Inc
Client Project #: TSSO-29563
Site Location: TRINITY ,851,GLODSTONE
Your P.O. #: TSSO-29563
Sampler Initials: ES

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5084914	4-Bromofluorobenzene	2017/07/26	101	70 - 130	101	70 - 130	92	%		
5084914	D4-1,2-Dichloroethane	2017/07/26	101	70 - 130	103	70 - 130	105	%		
5084914	D8-Toluene	2017/07/26	100	70 - 130	101	70 - 130	94	%		
5090847	o-Terphenyl	2017/07/26	88	30 - 130	92	30 - 130	90	%		
5084914	1,1,1,2-Tetrachloroethane	2017/07/26	113	70 - 130	109	70 - 130	<0.50	ug/L	NC	30
5084914	1,1,1-Trichloroethane	2017/07/26	101	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5084914	1,1,2,2-Tetrachloroethane	2017/07/26	110	70 - 130	106	70 - 130	<0.50	ug/L	NC	30
5084914	1,1,2-Trichloroethane	2017/07/26	104	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
5084914	1,1-Dichloroethane	2017/07/26	110	70 - 130	106	70 - 130	<0.20	ug/L	NC	30
5084914	1,1-Dichloroethylene	2017/07/26	109	70 - 130	106	70 - 130	<0.20	ug/L	NC	30
5084914	1,2-Dichlorobenzene	2017/07/26	102	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5084914	1,2-Dichloroethane	2017/07/26	101	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5084914	1,2-Dichloropropane	2017/07/26	102	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5084914	1,3-Dichlorobenzene	2017/07/26	104	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
5084914	1,4-Dichlorobenzene	2017/07/26	105	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5084914	Acetone (2-Propanone)	2017/07/26	97	60 - 140	96	60 - 140	<10	ug/L	NC	30
5084914	Benzene	2017/07/26	107	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
5084914	Bromodichloromethane	2017/07/26	104	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5084914	Bromoform	2017/07/26	117	70 - 130	113	70 - 130	<1.0	ug/L	NC	30
5084914	Bromomethane	2017/07/26	111	60 - 140	109	60 - 140	<0.50	ug/L	NC	30
5084914	Carbon Tetrachloride	2017/07/26	104	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
5084914	Chlorobenzene	2017/07/26	103	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
5084914	Chloroform	2017/07/26	103	70 - 130	99	70 - 130	<0.20	ug/L	2.0	30
5084914	cis-1,2-Dichloroethylene	2017/07/26	102	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5084914	cis-1,3-Dichloropropene	2017/07/26	103	70 - 130	98	70 - 130	<0.30	ug/L	NC	30
5084914	Dibromochloromethane	2017/07/26	113	70 - 130	109	70 - 130	<0.50	ug/L	NC	30
5084914	Dichlorodifluoromethane (FREON 12)	2017/07/26	91	60 - 140	89	60 - 140	<1.0	ug/L	NC	30
5084914	Ethylbenzene	2017/07/26	96	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5084914	Ethylene Dibromide	2017/07/26	111	70 - 130	107	70 - 130	<0.20	ug/L	NC	30
5084914	F1 (C6-C10) - BTEX	2017/07/26					<25	ug/L	NC	30

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7F8005
Report Date: 2017/07/27

QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: TSSO-29563
Site Location: TRINITY ,851,GLODSTONE
Your P.O. #: TSSO-29563
Sampler Initials: ES

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5084914	F1 (C6-C10)	2017/07/26	105	60 - 140	94	60 - 140	<25	ug/L	NC	30
5084914	Hexane	2017/07/26	110	70 - 130	105	70 - 130	<1.0	ug/L	NC	30
5084914	Methyl Ethyl Ketone (2-Butanone)	2017/07/26	105	60 - 140	103	60 - 140	<10	ug/L	NC	30
5084914	Methyl Isobutyl Ketone	2017/07/26	103	70 - 130	102	70 - 130	<5.0	ug/L	NC	30
5084914	Methyl t-butyl ether (MTBE)	2017/07/26	94	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
5084914	Methylene Chloride(Dichloromethane)	2017/07/26	106	70 - 130	103	70 - 130	<2.0	ug/L	NC	30
5084914	o-Xylene	2017/07/26	96	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5084914	p+m-Xylene	2017/07/26	99	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5084914	Styrene	2017/07/26	99	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5084914	Tetrachloroethylene	2017/07/26	103	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
5084914	Toluene	2017/07/26	98	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5084914	Total Xylenes	2017/07/26					<0.20	ug/L	NC	30
5084914	trans-1,2-Dichloroethylene	2017/07/26	111	70 - 130	107	70 - 130	<0.50	ug/L	NC	30
5084914	trans-1,3-Dichloropropene	2017/07/26	114	70 - 130	106	70 - 130	<0.40	ug/L	NC	30
5084914	Trichloroethylene	2017/07/26	104	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5084914	Trichlorofluoromethane (FREON 11)	2017/07/26	104	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5084914	Vinyl Chloride	2017/07/26	102	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5090588	Dissolved Antimony (Sb)	2017/07/26	110	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
5090588	Dissolved Arsenic (As)	2017/07/26	105	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
5090588	Dissolved Barium (Ba)	2017/07/26	101	80 - 120	97	80 - 120	<2.0	ug/L	1.4	20
5090588	Dissolved Beryllium (Be)	2017/07/26	107	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
5090588	Dissolved Boron (B)	2017/07/26	104	80 - 120	97	80 - 120	<10	ug/L	2.7	20
5090588	Dissolved Cadmium (Cd)	2017/07/26	103	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
5090588	Dissolved Chromium (Cr)	2017/07/26	105	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
5090588	Dissolved Cobalt (Co)	2017/07/26	101	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
5090588	Dissolved Copper (Cu)	2017/07/26	104	80 - 120	101	80 - 120	<1.0	ug/L	4.4	20
5090588	Dissolved Lead (Pb)	2017/07/26	95	80 - 120	95	80 - 120	<0.50	ug/L	NC	20
5090588	Dissolved Molybdenum (Mo)	2017/07/26	109	80 - 120	99	80 - 120	<0.50	ug/L	3.6	20
5090588	Dissolved Nickel (Ni)	2017/07/26	99	80 - 120	100	80 - 120	<1.0	ug/L	5.3	20
5090588	Dissolved Selenium (Se)	2017/07/26	100	80 - 120	99	80 - 120	<2.0	ug/L	NC	20

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7F8005
Report Date: 2017/07/27

QUALITY ASSURANCE REPORT(CONT'D)

DST Consulting Engineers Inc
Client Project #: TSSO-29563
Site Location: TRINITY ,851,GLODSTONE
Your P.O. #: TSSO-29563
Sampler Initials: ES

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5090588	Dissolved Silver (Ag)	2017/07/26	99	80 - 120	96	80 - 120	<0.10	ug/L	NC	20
5090588	Dissolved Sodium (Na)	2017/07/26	NC	80 - 120	101	80 - 120	<100	ug/L	1.2	20
5090588	Dissolved Thallium (Tl)	2017/07/26	94	80 - 120	95	80 - 120	<0.050	ug/L	NC	20
5090588	Dissolved Uranium (U)	2017/07/26	103	80 - 120	100	80 - 120	<0.10	ug/L	1.4	20
5090588	Dissolved Vanadium (V)	2017/07/26	106	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
5090588	Dissolved Zinc (Zn)	2017/07/26	101	80 - 120	100	80 - 120	<5.0	ug/L	12	20
5090847	F2 (C10-C16 Hydrocarbons)	2017/07/26	95	50 - 130	97	80 - 120	<100	ug/L	3.1	50
5090847	F3 (C16-C34 Hydrocarbons)	2017/07/26	95	50 - 130	97	80 - 120	<200	ug/L	3.1	50
5090847	F4 (C34-C50 Hydrocarbons)	2017/07/26	95	50 - 130	96	80 - 120	<200	ug/L	2.3	50

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

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

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

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

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

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

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B7F8005
Report Date: 2017/07/27

DST Consulting Engineers Inc
Client Project #: TSSO-29563
Site Location: TRINITY ,851,GLODSTONE
Your P.O. #: TSSO-29563
Sampler Initials: ES

VALIDATION SIGNATURE PAGE

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

Cristina Carriere, Scientific Services

Paul Rubinato, Analyst, Maxxam Analytics

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

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam
A Bureau Veritas Group Company

6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/3

CHAIN OF CUSTODY RECORD 098145 Page 1 of 1

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: DST Consulting Eng.	Company Name:	Quotation #:	☐ Regular TAT (5-7 days) Most analyses
Contact Name: Eve Sabourin	Contact Name:	P.O. #/ AFE#: TSSO-29563	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 2150 Thurston dr Suite 203 K1G 5T9	Address:	Project #: TSSO-29563	Rush TAT (Surcharges will be applied)
Phone: 613-697-4225 Fax:	Phone: Fax:	Site Location: Trinity, 951 Gladstone	☑ 1 Day ☐ 2 Days ☐ 3-4 Days
Email: esabourin@dstgroup.com	Email:	Site #:	Date Required:
		Sampled By: ES	Rush Confirmation #:

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153	Other Regulations
☐ Table 1 ☐ Res/Park ☐ Med/ Fine	☐ CCME ☐ Sanitary Sewer Bylaw
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ MISA ☐ Storm Sewer Bylaw
☐ Table 3 ☐ Agri/ Other	☐ PWQO Region
☐ Table ____	☐ Other (Specify)
FOR RSC (PLEASE CIRCLE) Y / N	☐ REG 558 (MIN. 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)									HOLD- DO NOT ANALYZE	
1	Unknown - 1	2017/07/25	14:30	Water		X	X	X	X		X											Hold on PAH
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

25-Jul-17 15:45
Alison Cameron
B7F8005
KIV OTT-001

RECEIVED IN OTTAWA

LABORATORY USE ONLY

CUSTODY SEAL Y / N Present	Intact	COOLER TEMPERATURES
N	N	17, 16, 17

COOLING MEDIA PRESENT: (Y) / N

COMMENTS

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
[signature]	2017/07/25	15:42	Lauri Jaymond	2017/07/25	15:45	ON the Sue Pack
Eve Sabourin	2017/07/25	15:42				

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms. Sample container, preservation, hold time and packages information can be viewed at http://maxxam.ca/wp-content/uploads/Ontario-COC.pdf.

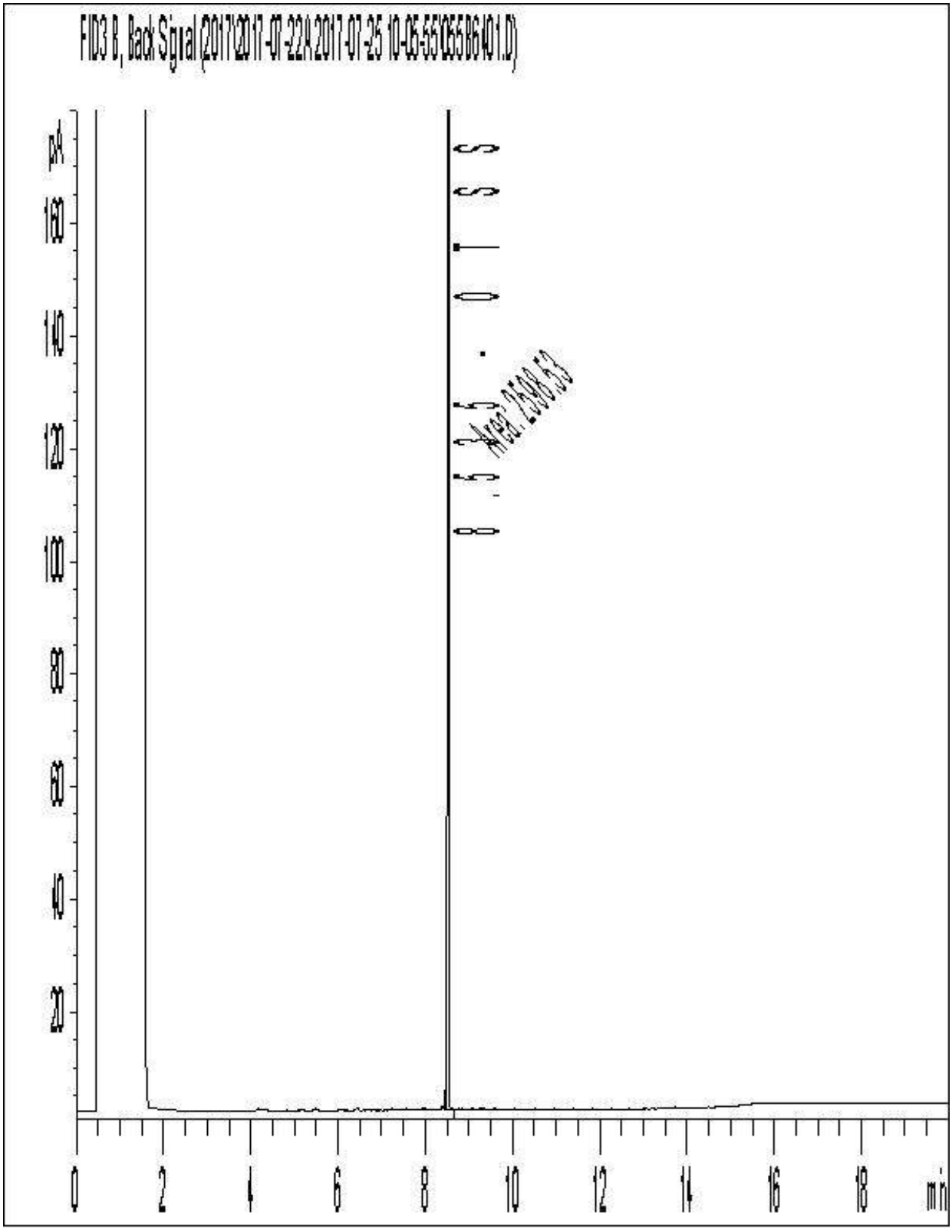
COC-1004 (03/17)

White: Maxxam – Yellow: Client

Maxxam Job #: B7F8005
Report Date: 2017/07/27
Maxxam Sample: EUU373

DST Consulting Engineers Inc
Client Project #: TSSO-29563
Project name: TRINITY ,851,GLODSTONE
Client ID: UNKNOWN-1

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

PARACEL LABORATORIES LTD.
TRUSTED. RESPONSIVE. RELIABLE.

300 - 2319 St. Laurent Blvd
Ottawa, ON, K1G 4J8
1-800-749-1947
www.paracellabs.com

Certificate of Analysis

DST Consulting Engineers Inc. (Ottawa)

203-2150 Thurston Dr.
Ottawa, ON K1G 5T9
Attn: Sam Voore

Client PO: TS SO 29563
Project: TS SO 29563
Custody: 38417

Report Date: 3-Aug-2017
Order Date: 2-Aug-2017

Order #: 1731304

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1731304-01	TCLP-01 BH11 SS4 - BH13-SS3

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis
Client: DST Consulting Engineers Inc. (Ottawa)
Client PO: TS SO 29563

Report Date: 03-Aug-2017
Order Date: 2-Aug-2017
Project Description: TS SO 29563

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-MS	EPA 6020 - Digestion - ICP-MS	3-Aug-17	3-Aug-17
REG 558 - Mercury by CVAA	EPA 7470A - Cold Vapour AA	3-Aug-17	3-Aug-17
REG 558 - PAHs	EPA 625 - GC-MS	3-Aug-17	3-Aug-17
Solids, %	Gravimetric, calculation	3-Aug-17	3-Aug-17

Certificate of Analysis
Client: DST Consulting Engineers Inc. (Ottawa)
Client PO: TS SO 29563

Report Date: 03-Aug-2017
Order Date: 2-Aug-2017
Project Description: TS SO 29563

	Client ID:	TCLP-01 BH11 SS4 - BH13-SS3	-	-	-
	Sample Date:	02-Aug-17	-	-	-
	Sample ID:	1731304-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	88.7	-	-	-
EPA 1311 - TCLP Leachate Inorganics					
Arsenic	0.05 mg/L	<0.05	-	-	-
Barium	0.05 mg/L	0.88	-	-	-
Boron	0.05 mg/L	0.09	-	-	-
Cadmium	0.01 mg/L	<0.01	-	-	-
Chromium	0.05 mg/L	<0.05	-	-	-
Lead	0.05 mg/L	<0.05	-	-	-
Mercury	0.005 mg/L	<0.005	-	-	-
Selenium	0.05 mg/L	<0.05	-	-	-
Silver	0.05 mg/L	<0.05	-	-	-
Uranium	0.05 mg/L	<0.05	-	-	-
EPA 1311 - TCLP Leachate Organics					
Benzo [a] pyrene	0.0001 mg/L	<0.0001	-	-	-
Terphenyl-d14	Surrogate	106%	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Arsenic	ND	0.05	mg/L						
Barium	ND	0.05	mg/L						
Boron	ND	0.05	mg/L						
Cadmium	ND	0.01	mg/L						
Chromium	ND	0.05	mg/L						
Lead	ND	0.05	mg/L						
Mercury	ND	0.005	mg/L						
Selenium	ND	0.05	mg/L						
Silver	ND	0.05	mg/L						
Uranium	ND	0.05	mg/L						
EPA 1311 - TCLP Leachate Organics									
Benzo [a] pyrene	ND	0.0001	mg/L						
Surrogate: Terphenyl-d14	*0.197*		*mg/L*		*98.7*	*37.1-155.6*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Arsenic	ND	0.05	mg/L	ND			0.0	29	
Barium	0.916	0.05	mg/L	0.880			4.1	34	
Boron	0.107	0.05	mg/L	0.095			12.5	33	
Cadmium	ND	0.01	mg/L	ND			0.0	33	
Chromium	ND	0.05	mg/L	ND			0.0	32	
Lead	ND	0.05	mg/L	ND			0.0	32	
Mercury	ND	0.005	mg/L	ND				30	
Selenium	ND	0.05	mg/L	ND			0.0	28	
Silver	ND	0.05	mg/L	ND			0.0	28	
Uranium	ND	0.05	mg/L	ND			0.0	27	
EPA 1311 - TCLP Leachate Organics									
Benzo [a] pyrene	ND	0.0001	mg/L	ND				50	
Surrogate: Terphenyl-d14	*0.144*		*mg/L*		*71.8*	*37.1-155.6*			
Physical Characteristics									
% Solids	91.4	0.1	% by Wt.	91.1			0.4	25	

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
EPA 1311 - TCLP Leachate Inorganics									
Arsenic	53.2		ug/L	0.290	106	83-119			
Barium	140		ug/L	88.0	105	83-116			
Boron	59.7		ug/L	9.45	101	71-128			
Cadmium	49.2		ug/L	0.190	98.1	78-119			
Chromium	53.6		ug/L	1.70	104	80-124			
Lead	54.7		ug/L	2.35	105	77-126			
Mercury	0.0293	0.005	mg/L	ND	97.5	70-130			
Selenium	48.1		ug/L	0.223	95.7	81-125			
Silver	46.1		ug/L	ND	92.1	70-128			
Uranium	53.6		ug/L	0.232	107	70-131			
EPA 1311 - TCLP Leachate Organics									
Benzo [a] pyrene	0.0516	0.0001	mg/L		103	39-123			
Surrogate: Terphenyl-d14	*0.240*		*mg/L*		*120*	*37.1-155.6*			

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

Paracel ID: 1731304

PARACEL LABORATORIES LTD. | TRU: RESI RELIABLE .

ent Blvd.
C1G 4J8
7
e: paracel@paracellabs.com

Chain of Custody
(Lab Use Only)
№ 38417

Page 1 of 1

Client Name: Sam Voore DST	Project Reference: TSSO-29563
Contact Name: Sam Voore / Eve Sabourin	Quote #
Address: 2150 Thurston Dr suite 203 Ottawa ON K1G 5T9	PO # TSSO-29563
Telephone: 613-694-4225	Email Address: svoore@dstgroup.com esabourin@dstgroup.com

Turnaround Time:
☑ 1 Day ☐ 3 Day
☐ 2 Day ☐ Regular
Date Required: 3/08/2017

Criteria: ☐ O. Reg. 153/04 (As Amended) Table __ ☐ RSC Filing ☑ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: _____ ☐ Other: _____

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Paracel Order Number: 1731304.

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	Required Analyses: TCLP (VOCs, ...)	Required Analyses: TCLP PAH									
1	TCLP-01 BH11 SS4 - BH13-SS3	S	NA	1	2017/08/02	4:15	x	x				250mL					
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Comments:

Method of Delivery: Walk in

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By: Rachel Subpoot
Relinquished By (Print): Eve Sabourin	Date/Time:	Date/Time: Aug 2/17	Date/Time: Aug 2/17
Date/Time: 2017/08/02	Temperature: °C	Temperature: 24.4 °C Hep	pH Verified: ☐ By: N/A 4:24

Chain of Custody (Blank) - Rev 0.4 Feb 2016

APPENDIX G
LIMITATIONS OF REPORT AND QUALIFICATIONS OF ASSESSORS

LIMITATIONS

The information, conclusions and recommendations given herein are specifically for this project and this Client only, and for the scope of work described herein. It may not be sufficient for other uses. DST does not accept responsibility for use by third parties.

The data, conclusions and recommendations which are presented in this report, and the quality thereof, are based on a scope of work authorized by the Client. Note, however, that no scope of work, no matter how exhaustive, can identify all contaminants or all conditions above and below ground. For example, conditions between test holes may differ from those encountered in the investigation and observed or measured conditions may change with time. This report therefore cannot warranty that all conditions on or off the Site are represented by those identified at specific locations.

Any recommendations and conclusions provided that are based on conditions or assumptions reported herein will inherently include any uncertainty associated with those conditions or assumptions. In fact many aspects involving professional judgement such as subsurface models and remediation criteria contain a degree of uncertainty which cannot be eliminated. This uncertainty should be managed by periodic review and refinement as additional information becomes available.

Note also that standards, guidelines and practices related to environmental investigations may change with time. Those which were applied at the time of this investigation may be obsolete or unacceptable at a later date.

Any topographic benchmarks and elevations documented in this report are primarily to establish relative elevation differences between test locations and should not be used for other purposes such as grading, excavation, planning, development, etc.

Any comments given in this report on potential remediation problems and possible methods are intended only for the guidance of the designer. The scope of work may not be sufficient to determine all of the factors that may affect construction or clean-up methods and costs. Contractors bidding on this project or undertaking clean-ups should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the conditions may affect their work.

Any results from an analytical laboratory, title searcher or other subcontractor reported herein have been carried out by others, and DST Consulting Engineers Inc. cannot warranty their accuracy. Similarly, DST cannot warranty the accuracy of information supplied by the client.

QUALIFICATIONS OF ASSESSORS

Kevin Bailey, M.A.Sc., EIT: Mr. Bailey is a Project Manager with DST. Mr. Bailey has 2 years of experience in the environmental industry. He has been involved in many Phase I/II Environmental Site Assessments, site remediation, and water quality and monitoring programs.

Sam Voore, M.Eng., P.Eng.: Mr. Voore has worked in the environmental industry for over 20 years and has served both the public and private sectors. Mr. Voore has extensive experience in contaminated site investigations, human health risk assessments, quality assurance sampling, remediation, and post-remediation long-term monitoring activities. Mr. Voore also has significant project management, onsite contractor supervision and contract management experience. Mr. Voore has participated in managing and conducting numerous environmental site assessments for federal and provincial government departments. Site included abandoned mine sites, former military sites, exploration camps and hunting and fishing lodges. Mr. Voore has also managed large remediation projects for both private and public sector clients in Ontario including Mid-Canada Line Site 500 Remediation Project and the remediation of a large brownfield project in Toronto.