Phase Two Environmental Site Assessment - Part of 2164 Old Prescott Road, Greely, Ontario

Final Report

November 8, 2021

Prepared for:

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Executive Summary

Stantec Consulting Ltd. (“Stantec”) was retained by Justice Construction Limited (Justice Construction) to conduct a Phase Two Environmental Site Assessment (ESA) for part of the southwestern portion of 2164 Old Prescott Road, Greely, Ontario, herein referred to as the "Phase Two Property” or the “Site”. The Phase Two ESA was conducted for Justice Construction in response to the findings of a Phase One ESA conducted on a larger property, as they relate to the Phase Two Property, and to address other requirements of Ontario Regulation (O.Reg. 153/04) to support the filing of a Record of Site Condition (RSC) with the Ministry of Environment, Conservation and Parks (MECP).

Stantec understands that the filing of the RSC is required under O.Reg. 153/4 based on a change in land use to a more sensitive use, given that the current land use is industrial (Sand and Gravel Resource Area), and the future land use is anticipated to be residential. Therefore, the purpose of the Phase Two ESA is to evaluate the environmental condition of the Phase Two Property in support of the filing of an RSC for future residential development. The Phase Two ESA characterized soil and ground water at areas of potential environmental concern (APECs) identified in the Phase One ESA report.

The Phase Two Property use generally consisted of a former sand and gravel pit which is currently a vacant lot with low-lying vegetation and some trees. The Phase Two ESA investigated the single APEC identified in the Phase One ESA, consisting of fill of unknown quality, and also investigated ground water flow direction and quality as required for industrial properties, according to O.Reg. 153/04. The Phase Two ESA included the advancement of boreholes and test pits, installation of monitoring wells and a soil and ground water sampling program. Soil and ground water samples were collected for analysis of one or more of volatile organic compounds (VOCs), benzene, toluene, ethylbenzene and xylenes (BTEX), polychlorinated biphenyls (PCBs), petroleum hydrocarbons (PHCs), polycyclic aromatic hydrocarbons (PAHs), metals, and inorganics.

Stantec offers the following conclusions with respect to the results of the Phase Two ESA:

- The MECP (2011) Table 8 SCS for residential/parkland/institutional/industrial/commercial/community land use in a potable ground water condition were considered the standards applicable at the Phase Two Property.
- The soil profile at the Phase Two Property generally consisted of fill from surface to maximum of 2.30 m BGS overlying native soils up to a maximum investigated depth of 10.67 m BGS. The fill soil comprised medium-grained sand, with some gravel, and contained debris such as brick, plastic bags and metal scraps. Native soils comprised coarse-grained sand.
- Bedrock geology in the study area was mapped dolostone with minor shale and sandstone as part of the Lower Ordovician aged, Oxford Formation. Bedrock was not encountered during Phase Two ESA to the maximum investigated depth of approximately 10.67 m BGS.

- On June 4, 2021, ground water was encountered in the monitoring wells between 8.85 m BGS (at MW20-2) to 9.49 m BGS (at MW20-6) with ground water elevations ranging from 88.14 m AMSL (MW20-4) and 88.31 m AMSL (MW20-2) at the Phase Two Property. At the time of monitoring on June 4, 2021, ground water flow direction was generally towards the north to northwest.
- The horizontal hydraulic gradient at the Phase Two Property was calculated to be approximately 0.004 m/m in the shallow ground water, based on the ground water flow contours on June 4, 2021.
- The vertical hydraulic gradient between monitoring wells MW20-4 and MW20-6 was calculated to be approximately 0.30 m/m downwards based on ground water monitoring on June 4, 2021.
- The measured concentrations of VOCs, PHC F1 to F4, PAHs, PCBs, inorganics and metals were less than the Table 8 SCS in soil and ground water samples analyzed for the Phase Two Property, with the following exceptions, which were addressed as indicated and contaminants of concern (COCs) were therefore not identified in APEC #1 or in ground water:
  - Free cyanide in soil at one location (SS18-4) exceeded the Table 8 SCS in June 2018. In December 2018, free cyanide was sampled at SS18-9 in the vicinity of SS18-4 and the average of the two samples was less than the Table 8 SCS.
  - Molybdenum in soil at two locations (MW20-4 and MW20-6) exceeded the Table 8 SCS in March 2021. The average of the molybdenum concentration at MW20-4 between the parent and duplicate soil samples collected at the same location and depth was less than the Table 8 SCS. Similarly, the average of the molybdenum concentration of soil collected at MW20-6 and at each of four test pits TP21-1 to TP21-4 (advanced within 1 m from MW20-6 and sampled at the same depth) was less than the Table 8 SCS.
  - Cobalt in ground water at one location (MW20-2) during the June 2020 sampling event. As ground water samples collected in December 2020 and June 2021 from MW20-2 had cobalt concentrations below the Table 8 SCS, the original concentration was considered anomalous and cobalt was not considered a COC.
- Sediment was not present at the Phase Two Property.
- The results of the quality assurance and quality control (QA/QC) procedures indicated that the data quality objectives (DQOs) for the soil and ground water data were met, and that the data were of acceptable quality and adequate for their intended use.

Based on the results of the Phase Two ESA, the MECP (2011) Table 8 SCS were met at the Phase Two Property at the time of the assessment within APEC 1.

The statements made in this Executive Summary are subject to the limitations included in **Section 6.2** and are to be read in conjunction with the remainder of this report.

1.0 INTRODUCTION

Stantec Consulting Ltd. (“Stantec”) was retained by Justice Construction Limited (Justice Construction) to conduct a Phase Two Environmental Site Assessment (ESA) for part of the southwestern portion of 2164 Old Prescott Road, Greely, Ontario, herein referred to as the "Phase Two Property” or the “Site”. The Phase Two ESA was conducted for Justice Construction in response to the findings of a Phase One ESA conducted on a larger property, as they relate to the Phase Two Property, and to address other requirements of Ontario Regulation (O.Reg. 153/04) to support the filing of a Record of Site Condition (RSC) with the Ministry of Environment, Conservation and Parks (MECP).

Stantec understands that the filing of the RSC is required under O.Reg. 153/04 based on a change in land use to a more sensitive use, given that the most recent land use is industrial (Sand and Gravel Resource Area), and the future land use is anticipated to be residential. Therefore, the purpose of the Phase Two ESA is to evaluate the environmental condition of the Phase Two Property in support of the filing of an RSC for future residential development.

The Phase Two ESA characterized soil and ground water at areas of potential environmental concern (APECs) identified in a Phase One ESA Update report (Stantec, 2021).

Stantec understands the filing of an RSC is mandatory under O.Reg.153/04 to change the intended land use to residential land. Therefore, the scope of this project was developed to meet the requirements of O.Reg.153/04. Figures presenting the Site location and the Phase Two Property are included on **Figure Nos. 1 and 2**.

The completed Phase Two ESA was consistent with the requirements of O.Reg.153/04 and was conducted under the supervision of a Qualified Person for Environmental Site Assessment (QP_{ESA}). The report headings, format, and content follow the requirements of O.Reg.153/04. Additional report sections were included as appropriate to improve report clarity and completeness.

1.1 SITE DESCRIPTION

The Phase Two Property encompasses part of the property at 2164 Old Prescott Road in Greely, Ontario. The Phase Two Property comprises a 1.08-hectare parcel of vacant land that is bounded by a residential/commercial property to the west, residential properties to the south, and the remaining, undeveloped portion of 2164 Old Prescott Road to the north and east.

The Phase Two Property is legally described as Part of Lot 15, Concession 4, Geographic Township of Osgoode, part of Part 1 on Plan 5R-684 save and except Parts 1 to 10 on 4R-18771, City of Ottawa with provincial Property Identification Number (PIN) 04319-2026 (LT). The Phase Two Property has an area of approximately 1.08 hectares (2.66 acres) with 96.0 m of frontage on Stagecoach Road and 165.5 m of frontage on Old Prescott Road.

Figure No. 1 presents the site location. **Figure No. 2** presents a site plan showing the site features including the APECs, PCAs as well as the adjacent properties. **Appendix E** presents a Plan of Survey for the Site.

1.2 PROPERTY OWNERSHIP

Contact information for the Client and the Phase Two Property owner is as follows:

Table 1-1: Contact Information

Name	Organization	Address
Mr. Paul Justice, Owner	Justice Construction Limited	2160 Old Prescott Road, Greely, Ontario K4P 1L4

1.3 CURRENT AND PROPOSED FUTURE USES

The Phase Two Property use generally consisted of a former sand and gravel pit which is currently a vacant lot with low-lying vegetation and some trees.

It is understood that the Client is currently considering the possible redevelopment of a portion of the Phase Two Property for residential land use as defined in O.Reg. 153/04.

1.4 APPLICABLE SITE CONDITION STANDARDS

To evaluate the soil and ground water quality at the Phase Two Property, data were compared with the site condition standards (SCSs) established in the MECP document *Soil, Ground water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011a) (the O.Reg.153/04 SCS). Generic standards listed in Table 8 of the O.Reg.153/04 SCS for potable ground water conditions within 30 m of a water body were considered to apply to the Phase Two Property. Based on the intended land use, The Table 8 SCS for residential/parkland/institutional/industrial/commercial/community property use were applicable.

The following sections identify and provide additional rationale for the use of the Table 8 SCS.

1.4.1 Section 35

Under Section 35 of O.Reg.153/04, the non-potable ground water SCS may be applied only under certain circumstances.

A search of the Ontario Water Well Database was completed for the Phase Two Property and properties within 250 m as part of the Phase One ESA (Stantec, 2018). The search results identified several water wells in the vicinity of the Phase Two Property. Given that the Phase Two Property is situated within an area that uses ground water as a potable water source, the potable ground water SCS were considered to apply.

1.4.2 Section 41

Stantec completed a review of the following site-specific characteristics to confirm the appropriate Table of applicable SCS:

Environmental Sensitivity

Under Section 41 of O.Reg.153/04, as amended, the Phase Two Property is to be considered environmentally sensitive if any of the following circumstances exist:

(1), (a) the property is,

(i) within an area of natural significance,

(ii) includes or is adjacent to an area of natural significance or part of such an area, or

(iii) includes land that is within 30 metres of an area of natural significance or part of such an area;

(b) the soil at the property has a pH value as follows:

(i) for surface soil, less than 5 or greater than 9,

(ii) for sub-surface soil, less than 5 or greater than 11; or

(e) a qualified person is of the opinion that, given the characteristics of the property and the certifications the qualified person would be required to make in a record of site condition in relation to the property as specified in Schedule A, it is appropriate to apply this section to the property.

Based on a review of the surrounding land use, the Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Areas mapping website, and the City of Ottawa's geoOttawa mapping website, as described in the Phase One ESA (Stantec, 2018), the Phase Two Property did not include and was not within 30 m of an area of natural significance.

Soil samples collected from the Phase Two Property were submitted for laboratory analysis of pH. As described below, the laboratory results indicate that surface soil pH ranged between 6.93 and 7.64. Given these findings, the Phase Two Property is not considered sensitive with respect to pH.

Considering the above observations, the QP_{ESA} did not consider the Phase Two Property to be environmentally sensitive.

1.4.3 Section 43.1

Under Section 43.1 of O.Reg.153/04, specific sets of SCS are to be used if any of the following circumstances exist:

> *(a) the property is a shallow soil property; or*
>
> *(b) the property includes all or part of a water body or is adjacent to a water body or includes land that is within 30 metres of a water body.*

Under O.Reg.153/04 Section 43.1, a shallow soil property "means a property of which 1/3 or more of the area consists of soil equal to or less than 2 m in depth beneath the soil surface".

Based on the Phase One ESA (Stantec, 2018), the depth to bedrock on the Phase Two Property is estimated to be variable, ranging from approximately 1.8 m to 32.3 m below ground surface (BGS). Since most of the records reviewed indicated that bedrock was present between 1.8 m and 9.8 m BGS, a shallow soil condition may be present at the Phase Two Property; however, as discussed further in this report, shallow soil conditions were not encountered at the boreholes advanced within the Phase Two Property to depths of up to 10.67 m BGS.

Based on the findings of the Phase One ESA (Stantec, 2018), a man-made pond is present on the Phase Two Property. Therefore, the O.Reg.153/04 Table 8 SCS were considered the applicable SCS for the Phase Two Property.

1.4.4 Current and Proposed Future Use

As described in **Section 1.3**, above, the land use is anticipated to change from commercial/industrial to residential. The Table 8 SCS for residential/parkland/institutional/ industrial/commercial/community land use were considered appropriate for the Phase Two Property.

1.4.5 Soil Texture

Section 42.1 of O.Reg.153/04 identifies specific generic SCS for coarse and medium/fine textured soil for some parameters. During the Phase Two ESA, two soil samples, representative of the soil encountered at the Phase Two Property, were submitted for grain size distribution analysis (one from the fill soil and one from the native soil). The fill soil sample had greater than 51% by mass of particles that were less than 75 micrometers in mean diameter and would therefore be considered medium to fine textured. The native soil sample had greater than 88% by mass of particles that were greater than 75 micrometers in mean diameter and would there be considered a coarse texture. The grain size distribution analysis results are summarized in **Appendix B**.

Given that the Table 8 SCS do not list different values according to soil texture, further assessment of soil texture was not required.

2.0 BACKGROUND INFORMATION

2.1 PHYSICAL SETTING

The Phase Two Property is an undeveloped parcel of land. Storm water is anticipated to drain primarily by infiltration or overland flow toward an adjacent pond to the northeast of the Phase Two Property. Based on a review of topographic mapping and observations made during the Phase One ESA Update (Stantec, 2021) regional surface drainage (and anticipated shallow ground water flow) appears to be to the southeast. It should be noted that the direction of the shallow ground water flow in limited areas can also be influenced by the presence of underground utility corridors and other underground infrastructure and is not necessarily a reflection of regional or local ground water flow or a replica of the Site or area topography. Localized shallow ground water flow was expected to be toward the adjacent pond to the northeast of the Phase Two Property.

As indicated above, according to the Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Areas mapping website and the City of Ottawa's geoOttawa mapping website, there are no areas of natural significance (ANSI) within 250 m of the Phase Two Property.

2.2 PAST INVESTIGATIONS

2.2.1 2018 and 2020 Phase One ESA

Stantec originally completed a Phase One ESA at 2164 Old Prescott Road in 2018 and a subsequent update in 2020 (Stantec, 2018 and 2020). As shown on **Figure No. 2 and Appendix A** one APEC was identified at the Phase Two Property:

- APEC #1 (Southern and western portions, along the banks of the pond): PCA 30 – Importation of Fill Material of Unknown Quality

The Phase One ESA was completed by Stantec in support of the planned redevelopment of a property that included the Phase One Property, and was prepared according to the requirements of O.Reg. 153/04. The Phase One ESA update completed in 2020 was conducted to update the findings of the 2018 Phase One ESA prior to filing of an RSC.

2.2.2 2019 Phase Two ESA

Stantec completed a Phase Two ESA at 2164 Old Prescott Road based on the findings of the original Phase One ESA (Stantec, 2018) to support the filing of an RSC (Stantec, 2019). The Phase Two ESA comprised the collection of twelve soil samples from the surficial fill material along the western and southern banks of the pond. The fieldwork for the Phase Two ESA was completed in June 2018 and December 2018. Surficial soil samples were collected for analysis of one or more of the following: petroleum hydrocarbons (PHCs), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene, xylenes (BTEX), polychlorinated biphenyls (PCBs), selected metals and inorganics including free cyanide, and pH.

The findings of the Phase Two ESA were as follows:

- The Table 8 SCS were considered applicable at the Phase Two Property.
- The soil profile at the Phase Two Property generally consisted of fine-grained sand to sandy silt (up to the maximum investigated depth of 0.75 m BGS).
- Bedrock geology in the study area was mapped as dolostone with minor shale and sandstone. Bedrock was not encountered during the Phase Two ESA to the maximum investigated depth of approximately 0.75 m BGS.
- Although ground water was not encountered during the Phase Two ESA, localized ground water flow was anticipated to be towards the on-site pond and regional ground water flow direction was anticipated to be to the southeast.
- No contaminants of concern (COCs) were identified in the soil in APEC #1.
- The results of the quality assurance and quality control (QA/QC) procedures indicated that the data quality objectives (DQOs) for the soil data were met, and that the data were of acceptable quality and adequate for their intended use.

Based on the results of this investigation, Stantec concluded that the Table 8 SCS were met at the Phase Two Property.

2.2.3 2021 Phase One ESA Update

Stantec conducted a Phase One ESA Update for part of 2164 Old Prescott Road (the “Phase Two Property”) in 2021 (Stantec, 2021). The Phase One ESA Update provided the basis for this Phase Two investigation. The update was conducted to provide updated information prior to RSC filing, and to identify the findings of the Phase One ESA that are specific to the Phase Two Property described herein, since the original assessment was conducted on a larger property. The objective of the Phase One ESA Update was to determine if APECs exist at the Phase Two Property, which may be present as a result of current and/or past activities on the Phase Two Property or adjacent/neighbouring properties within 250 m of the perimeter of the Phase Two Property (“Phase One Study Area”).

The following environmental reports were reviewed as part of the Phase One ESA Update:

- *Phase One Environmental Site Assessment, 2164 Old Prescott Road, Greely, Ontario*, prepared by Stantec Consulting Ltd. for Justice Construction Limited, final report dated June 29, 2018 (the Phase One ESA).
- *Update to Phase One Environmental Site Assessment, 2164 Old Prescott Road, Greely, Ontario,* prepared by Stantec Consulting Ltd. for Justice Construction Limited, final report dated July 15, 2020 (the Phase One ESA Update)

The information gathered and observations made during the Phase One ESA Update revealed no evidence of significant changes to the Phase Two Property or additional PCAs that would contribute to an APEC since the Phase One ESA and Phase One ESA Update were conducted (Stantec, 2018 and 2020). The area of on-site APEC #1 (fill material along the southern and western banks of the pond) identified during the Phase One ESA and Phase One ESA Update was identified within the Phase Two Property boundaries.

A summary of the PCAs and APECs for the Phase Two Property is listed in table below.

Table 2-1: Areas of Potential Environmental Concern

Area of Potential Environmental Concern (APEC)	Location of APEC	Potentially Contaminating Activity (PCA)	Location of PCA	Contaminants of Potential Concern (COPC)	Media Potentially Impacted
1	Along the southern and western banks of the pond	PCA 30 – Importation of Fill Material of Unknown Quality	On-site	• VOCs • Metals • General Inorganics • PHCs • PCBs • PAHs	Soil

Note(s):
VOCs – Volatile organic compounds.
PHCs – Petroleum hydrocarbons F1 to F4.
PAHs – Polycyclic aromatic hydrocarbons.
PCBs – Polychlorinated biphenyls.

The above-referenced Phase One ESA Update was completed by Stantec in support of the planned redevelopment of the Phase Two Property, and was prepared according to the requirements of O.Reg.153/04.

3.0 SCOPE OF THE INVESTIGATION

This section presents an overview of the investigations undertaken at the Phase Two Property, a summary of the media investigated, the investigation methods utilized, description of the Phase One ESA Conceptual Site Model (CSM), a discussion of deviations from the Sampling and Analysis Plan (SAP), and a description of impediments encountered during the investigation.

3.1 OVERVIEW OF SITE INVESTIGATION

The Phase Two ESA was conducted in accordance with the requirements of O.Reg.153/04 to support the filing of an RSC. The objectives of the soil and ground water sampling program were to:

- Assess soil and ground water quality within APECs at the Phase Two Property.
- Identify and assess the lateral and vertical extent of COCs identified at the Phase Two Property, if identified.

In accordance with O.Reg.153/04 requirements, Stantec prepared a SAP (**Appendix A**) to describe the location of sampling points intended to identify the presence, location, and distribution of COPCs in soil and ground water on, in or under the Phase Two Property. The scope of the Phase Two ESA was based on the APEC identified in the Phase One ESA Update (Stantec, 2021), in consideration of the sampling previously completed in 2018 (Stantec, 2019), and the requirement under O.Reg. 153/04 to sample ground water, because of the most recent property use being industrial.

The Phase Two ESA included the advancement of four boreholes and five test pits, installation of three monitoring wells, and soil and ground water sampling on the Phase Two Property. Stantec staff observed the drilling work completed during the update to the Phase Two ESA on June 2, 2020 (MW20-2) and March 5, 2021 (MW20-4, BH20-5 and MW20-6). Stantec staff observed the advancement of five test pits on March 30, 2021 (TP21-1 to TP21-5). The rationale for selection of borehole locations and test pit locations is presented within the Phase Two ESA scope of work table within the SAP in **Appendix A**. Ground water sampling was completed on June 8, 2020, December 17, 2020 and June 4, 2021.

Figure No. 2 presents the borehole and monitoring well locations at the Phase Two Property.

3.2 MEDIA INVESTIGATED

The media investigated during the Phase Two ESA were soil and ground water. No surface water was present on the Phase Two Property, and sediment sampling was therefore not conducted.

Soil samples were analyzed as summarized below.

Table 3-1: Soil Sample Parameters and Number of Soil Samples Analyzed

Parameter	No. of Soil Samples Analyzed*
PHC	4
VOCs and BTEX	4
PAHs	4
Metals & Inorganics	4
PCBs	4
Grain Size	2
Molybdenum	9

Note(s):

* Not including quality assurance/quality control (QA/QC) samples or surface soil samples from 2018.

Ground water samples were analyzed as summarized below.

Table 3-2: Ground Water Sample Parameters and Number of Ground Water Samples Analyzed

Parameter	No. of Samples Analyzed*
PHCs	4
PCBs	3
VOCs and BTEX	4
PAHs	4
Dissolved Metals** & Inorganics	5

Note(s):

* Not including QA/QC samples.

** Only cobalt was sampled in December 2020.

The locations and sampling details for each soil and ground water sample collected during the Phase Two ESA, and the parameters tested based on the SAP, are provided in **Appendix A**. Additional sampling details are provided on the borehole logs in **Appendix B**.

3.3 PHASE ONE CONCEPTUAL SITE MODEL

A CSM is a site-specific description of how contaminants enter the environment, how they are transported and distributed within the environment, and pathways through which exposure to humans and the environment can occur. The CSM provides the basis and framework for designing sampling programs, assessing risks from contaminants, addressing uncertainties, determining source control requirements, and identifying risk management/remedial strategies. Some of the key elements required in the CSM are the location and type of contaminant sources, transport/migration factors, contaminant fate/behavior, exposure mechanism/pathways, and potential receptors (human health and ecological).

In assessing and developing the CSM for the Phase Two Property at the time of the Phase One ESA, the site-specific physical characteristics/pathways were evaluated to assess whether or not the PCAs identified by the Phase One ESA could contribute to one or more APECs at the Phase One Property. The APEC identified at the Phase Two Property are summarized in **Section 2.2.3**, above.

The following physical characteristics/pathways were evaluated in order to assess whether PCAs have contributed to an APEC at the Phase One Property, and formed the Phase One CSM:

Table 3-3: Phase One Conceptual Site Model

Physical Characteristics/ Pathways	Description
Subsurface Soils	Based on information obtained from the Ontario Geological Survey layer in Google EarthPro, entitled Surficial Geology of Ontario, the native surficial soils in the assessment area consist primarily of coarse-textured glaciomarine deposits, including sand, gravel, and minor silt and clay. According to borehole/monitoring well logs provided in the ERIS report, subsurface stratigraphy encountered during the installation of the on-site water supply wells included sand and clay overlying limestone bedrock (encountered at 1.8 m to 9.8 m BGS).
Bedrock	Based on information obtained from the Ontario Geological Survey layer in Google EarthPro, entitled map MRD129 Paleozoic Bedrock Geology of Ontario, the assessment area is underlain by dolostone with minor shale and sandstone of the Oxford Formation, Beekmantown Group. Based on the stratigraphic descriptions provided in the ERIS report for boreholes and water wells advanced on the Phase Two Property, the depth to bedrock is estimated to be variable, ranging from approximately 1.8 m to 32.3 m BGS, with most records indicating that bedrock was present between 1.8 m and 9.8 m BGS.
Ground water Flow Direction	Based on a review of topographic information from Map 31G/4 (Energy, Mines, and Resources Canada) 1:50,000 scale, the City of Ottawa geoOttawa web page, and on the observed conditions during the site visit, regional surface drainage (and anticipated shallow ground water flow) appears to be to the southeast, although localized ground water flow is expected to be toward the on-site pond.
Underground Utilities	No underground utilities were documented on the Phase One Property during the site reconnaissance.

3.3.1 Discussion of Uncertainty or Absence of Information

The past use of the Phase Two Property is well understood based on historical information sources obtained and reviewed during the Phase One ESA. The physical characteristics of the land area comprising the Site are inferred from the historical documentation reviewed during the Phase One ESA.

The presence of former and current subsurface utilities near the Site are not expected to represent significant contaminant migration pathways within the Phase Two Property. No other potential uncertainties or missing information were encountered during completion of the Phase One ESA.

3.3.2 Contaminating Activity and Contaminant Distribution

The following provides a summary of the PCAs and APECs that were identified during the Phase One ESA and previous Phase Two ESA.

3.3.2.1 Potentially Contaminating Activities

The Phase One ESA identified one PCA that was currently or historically present at the Phase Two Property. No PCAs were determined to be off-site within the 250 m study area. The identified PCA was as follows:

#	Potentially Contaminating Activity	Location	Description
1	PCA – 30 Importation of Fill Material of Unknown Quantity	On-site	Fill of unknown quality was imported to the Site during development of the Phase Two Property and the adjacent man-made pond. This is considered a PCA which contributes to APEC #1 at the Site.

3.3.2.2 Areas of Potential Environmental Concern

One APEC associated with the current or historical on-site PCA was identified at the Phase Two Property. The location of the identified APEC is shown on **Figure No. 2** and is summarized below:

Area of Potential Environmental Concern (APEC)	Location of APEC	Potentially Contaminating Activity (PCA)	Location of PCA	Contaminants of Potential Concern (COPC)[1]	Media Potentially Impacted
1	The Phase One Property	PCA 58 – Importation of Fill Material of Unknown Quality	On-site	• PHCs • VOCs • BTEX • PAHs • Metals • General Inorganics	Soil

Note(s):

[1] COPC include petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), benzene, toluene, ethylbenzene, xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), various metals and general inorganics including electrical conductivity (EC), sodium adsorption ratio (SAR), free cyanide and pH.

3.4 DEVIATIONS FROM SAMPLING AND ANALYSIS PLAN

Due to the depth of the water table at monitoring wells MW20-4 and MW20-6 on June 4, 2021, ground water recovery was poor using a peristaltic pump for the low-flow sampling methodology outlined in the SAP. The two monitoring wells were purged and sampled instead using a bladder pump and low-flow collection methods.

Note that although only soil was considered potentially impacted from the identified APEC, because the most recent use of the property was industrial, it was considered an Enhanced Investigation Property and under O.Reg. 153/04 ground water flow direction and quality were also included in the SAP.

No other deviations from the SAP were identified that would affect the findings of the Phase Two ESA. The Sampling and Analysis Plan is provided in **Appendix A**.

3.5 IMPEDIMENTS

There was no denial of access or other impediment during the Phase Two ESA. The overall objectives of the investigation and assessment of APEC #1 and ground water conditions were reviewed and met.

4.0 INVESTIGATION METHOD

4.1 GENERAL

The investigation methodology was completed in accordance with the requirements of O.Reg.153/04.

Prior to commencing any field activities, soil sampling locations were cleared of underground services through consultation with a private utility locate company, USL-1, and public utility locate services.

The soil and ground water at the Phase Two Property were investigated between June 2018 and June 2021 at the locations shown on **Figure No. 2**.

The following sub-sections provide brief descriptions of the investigation methods, equipment used, sub-contractor information, and details/rationale for departures from standard operating procedures, where applicable. Detailed investigation methodologies are presented in the SAP in **Appendix A**.

4.2 DRILLING AND EXCAVATING

Strata Drilling Group (Strata) was retained to undertake drilling and well installation programs completed in June 2020 and March 2021, and Justice Construction Limited provided and operated a backhoe for test pit excavation in March 2021 at the Phase Two Property. Strata is a licensed well contractor under Reg. 903 of the *Ontario Water Resources Act*. Contact information for Strata is listed below.

Mr. Brian Beatty
Strata Drilling Group
129 Ringwood Drive
Stouffville ON L4A 8C1
Tel: 1-905-940-7919
bbeatty@stratasoil.com

The borehole drilling undertaken by Strata in June 2020 (borehole MW20-2) utilized a track-mounted Geoprobe 7822DT direct-push drilling system equipped with hollow stem augers and split spoon sampling equipment. The borehole drilling undertaken by Strata utilized in March 2021 (boreholes MW20-4, BH20-5 and MW20-6) utilized a track-mounted GM100 GT drilling system equipped with hollow stem augers and split spoon sampling equipment. The test pit excavation undertaken by Justice Construction Limited in March 2021 (TP21-1 to TP21-5) utilized a standard backhoe with a 16-inch bucket.

Stantec staff was present during the drilling and excavation activities at the Phase Two Property. Boreholes were advanced to a maximum depth of approximately 10.67 m BGS. Test pits were advanced to a maximum depth of approximately 5.0 m BGS.

4.3 SOIL: SAMPLING

Borehole soil samples were collected from 0.76 m intervals during the March 2021 drilling programs using split spoon samplers at boreholes completed by Strata (MW20-4, BH20-5, MW20-6). Soil samples were collected from test pits (TP21-1 to TP21-5) using a shovel and backhoe bucket during the March 2021 field program. Stratigraphic descriptions of the sampling points are provided on the borehole and monitoring well logs provided in **Appendix B**. Soil was sampled for the COPCs identified to be associated with the APEC at the Phase Two Property.

Surface soil samples were collected from 0.25 m to 0.75 m in June 2018 and December 2018 using a shovel during the previous Phase Two ESA completed by Stantec. Descriptions of these samples are provided in **Appendix B** and are discussed in further detail in the Phase Two ESA report (Stantec, 2019).

4.4 FIELD SCREENING MEASUREMENTS

During the soil and ground water sampling events, samples were analyzed in the field for combustible vapour concentrations (CVC) and total organic vapour (TOV) using a RKI Eagle 2, calibrated to hexane (CVC) and isobutylene (TOV), respectively, as described in the SAP (**Appendix A**)**.** Field screening measurements for soil and ground water samples are presented in the borehole logs in **Appendix B** and on **Table 1**, respectively.

Using the RKI Eagle 2, “worst-case” soil samples were generally selected as those samples with the highest measured CVC/TOV concentrations. In some cases, however, professional judgment is required to select samples for analysis that are more consistent with the potential mode of contaminant release or contaminant type (e.g., location of the water table or when the COC are not volatile, such as for metals). Because contamination extent is defined by the distance (laterally and vertically) to the nearest sample that meets the applicable standards, samples to determine the extent of soil impact (through comparison of SCS) were also collected, in addition to the anticipated “worst-case” sample.

During the ground water sampling events, monitoring wells on the Phase Two Property were monitored to determine the depth to the ground water table, presence/absence of light and dense non-aqueous phase liquids (NAPL) within the monitoring well and subsurface vapour concentrations. The depth to ground water and the presence of NAPL (if present) were measured in each monitoring well using an interface probe, as described in the SAP (**Appendix A**)**.**

The field screening methods used for the Phase Two ESA were consistent with Schedule E of O.Reg.153/04.

4.5 GROUND WATER: MONITORING WELL INSTALLATION

4.5.1 Monitoring Well Construction

Three monitoring wells were installed by Strata at their respective borehole locations (MW20-2, MW20-4 and MW20-6) following soil sample collection during the environmental drilling program (with exception of MW20-2 where soil samples were not collected). As indicated above, Strata is a licensed well contractor under Reg. 903 of the *Ontario Water Resources Act*.

The ground water monitoring wells were placed to intersect the overburden aquifer. Stantec staff was present during the well construction activities at the Phase Two Property. The construction details for the monitoring well are presented in **Table 2** and within the borehole logs in **Appendix B** and described in **Appendix A**.

4.5.2 Monitoring Well Development

Stantec developed the wells (MW20-2, MW20-4 and MW20-6) using Waterra® tubing and foot valves following the installation of the well. The wells were purged until a minimum of 10 casing volumes of water were removed from the wells, or the wells were purged dry at least twice.

4.6 GROUND WATER: FIELD MEASUREMENT OF WATER QUALITY PARAMETERS

Water quality parameters were measured during the ground water sampling events conducted on June 8, 2020, December 17, 2020 and June 4, 2021. Water quality parameters measured included temperature, electric conductivity, pH, oxidation/redox potential, turbidity and dissolved oxygen content. Water samples were collected from each monitoring well location following stabilization of at least three water quality parameters after at least three consecutive readings.

4.7 GROUND WATER: MONITORING

During the monitoring events conducted on June 8, 2020, December 17, 2020 and June 4, 2021 activities included measuring depth to the water table, headspace CVC/TOV, and the presence/absence of phase-separated liquids in the newly installed and existing monitoring wells. The ground water monitoring data are summarized in **Table 1**.

4.8 GROUND WATER: SAMPLING

Monitoring well MW20-2 was sampled on June 8, 2020 and December 17, 2020. Monitoring wells MW20-4 and MW20-6 and the previously sampled monitoring well MW20-2 were sampled on June 4, 2021. The wells were sampled for the COPCs identified to be associated with the APEC at the Phase Two Property. Ground water sampling methods are detailed in **Appendix A**.

4.9 SEDIMENT: SAMPLING

Sediment was not present at the Phase Two Property; consequently, sediment was not sampled as part of the Phase Two ESA.

4.10 ANALYTICAL TESTING

Stantec submitted soil and ground water samples to Bureau Veritas North America Inc. (BV). BV is accredited to ISO/IEC 17025, the International Quality Standard for laboratories for the required analytical methods and employs in-house QA/QC programs to govern sample analysis, including the analyses of method blanks, spiked blanks, and the analyses of duplicates (10%) for each sample batch. BV's Mississauga laboratory is accredited by the Standards Council of Canada (SCC). BV meets the accreditation requirements outlined in Section 47 of O.Reg.153/04.

The soil and ground water analytical results are summarized in **Tables 3** and **4,** respectively, and were compared to the Table 8 SCS. The soil and ground water maximum concentrations for each analyzed parameter are summarized in **Tables 5** and **6,** respectively.

All certificates of analysis or analytical reports received pursuant to Subsection 47 (2) (b) of O.Reg.153/04 comply with Subsection 47(3) of O.Reg.153/04. A certificate of analysis was received for each sample submitted for analysis. Laboratory certificates of analysis and chain-of-custody forms are included in **Appendix C**. Included with the laboratory reports are the analytical methods used and the laboratory reporting limits (RLs).

4.11 RESIDUE MANAGEMENT PROCEDURES

As discussed in the SAP in **Appendix A**, based on the proposed redevelopment of the Phase Two Property, soil cuttings and purge fluids were placed in sealed drums and left on-site for future removal.

4.12 ELEVATION SURVEYING

The ground surface elevations and top of pipe of all monitoring wells were surveyed relative to mean sea level. Elevations were provided in metres, which permitted an assessment of relative ground water elevations between monitoring wells across the Phase Two Property.

4.13 QUALITY ASSURANCE AND QUALITY CONTROL MEASURES

Data quality objectives (DQO) establish the overall quality of data that will be appropriate to meet the investigation requirements. DQO are established so that the number and types of samples taken represent the soil (or other media) conditions and to facilitate the acquisition of analytical data of an acceptable quality to allow comparison with regulatory or other quality criteria. The DQOs and QA/QC procedures incorporated into both field and laboratory methods are described in detail in **Appendix A**.

As a component of the field and laboratory QA/QC program, one blind field duplicate soil sample and one blind field duplicate ground water sample were selected per every ten samples per parameter during the Phase Two ESA. QC sample analytical data are presented with the soil and ground water results in **Tables 3** and **4**, and with the laboratory certificates of analysis in **Appendix C**. A total of two blind field duplicate soil samples and two blind field duplicate ground water samples were submitted for analysis throughout the field program. One trip blank ground water sample was also submitted for VOCs and PHC F1 analysis in water during each of the June 8, 2020 and June 4, 2021 sampling events.

The Relative Percent Difference (RPD) of the regular and duplicate samples were calculated to evaluate the precision of the analytical results, as described in the SAP in **Appendix A**.

In addition to the field QC samples identified above for soil and ground water, laboratory QC measures included analysis of laboratory replicates, matrix spikes, spiked blanks, and method blanks.

There were no deviations from the SAP with regard to the field QA/QC procedures employed during the Phase Two ESA.

5.0 REVIEW AND EVALUATION

5.1 GEOLOGY

5.1.1 Surficial Geology

Based on information obtained from Ontario Geological Survey layer in Google EarthPro, entitled Surficial Geology of Ontario, native surficial soils across the Phase Two Property are reported to consist primarily of coarse-textured glaciomarine deposits, including sand, gravel and minor silt and clay.

The soil profile observed by Stantec during the Phase Two ESA generally consisted of medium to coarse grained sand or silty sand to a maximum investigation depth of up to approximately 10.67 m BGS with trace gravel.

The main overburden units encountered in boreholes and test pits completed during the Phase Two ESA are summarized as follows:

- **Fill:** Silty sand with gravel and minor debris, including plastic bags, brick, and metal scraps up to a maximum depth of approximately 2.3 m BGS.
- **Native:** Fine to coarse sand with infrequent gravel and cobbles, underlying the topsoil or fill (where present) to the maximum depth of investigation of approximately 10.7 m BGS during drilling of MW20-2, MW20-4, BH20-5 and MW20-6.

Borehole logs are presented in **Appendix B**.

5.1.2 Bedrock Geology

Based on information obtained from Ontario Geological Survey layer in Google EarthPro, entitled map MRD129 Paleozoic Bedrock Geology of Ontario, bedrock in the area of the Phase Two Property is reported to consist of dolostone with minor shale and sandstone of the Oxford Formation, Beekmantown Group. The depth to bedrock was not indicated on the map.

Based on the Phase One ESA (Stantec, 2018), the depth to bedrock in the area of the Phase Two Property is variable, ranging from approximately 1.6 m to 32.3 m BGS. Bedrock was not encountered during the drilling or installation of wells MW20-2, MW20-4, BH20-5 or MW20-6 which were drilled to a maximum investigation depth of 10.67 m BGS.

5.2 GROUND WATER: ELEVATIONS AND FLOW DIRECTION

The depth to ground water, presence/absence of liquid petroleum hydrocarbons (LPH) and well headspace CVC and TOV were monitored at wells on the Phase Two Property on June 8, 2020 (MW20-2 only), December 7, 2020 (MW20-2 only), and June 4, 2021 (MW20-2, MW20-4 and MW20-6).

Monitoring data are summarized in **Table 2**. The depth to ground water on June 8, 2020 was 8.37 m BGS at MW20-2. On December 17, 2020, the depth to ground water was 9.04 m BGS at MW20-2. As only one well was monitored on each of these events, the ground water flow direction could not be inferred.

On June 4, 2021, the depth to ground water ranged from 9.49 m BGS (MW20-6) to 8.85 m BGS (MW20-2), with ground water elevations ranging from 88.14 m AMSL (MW20-4) and 88.31 m AMSL (MW20-2). The shallow ground water flow direction at the Phase Two Property was inferred to be generally to the north, as presented on **Figure No. 3**.

Neither light NAPL nor dense NAPL were observed in the monitoring wells during the June 2020, December 2020 or June 2021 sampling events.

Well headspace CVC and TOV concentrations were measured in the monitoring wells sampled at the Phase Two Property in June 2020, December 2020 and June 2021. The measured CVC in the monitoring wells were below the detection limit of 5 parts per million by volume (ppm_v) during the monitoring events, with the exception of MW20-6 on June 4, 2021 that had a CVC of 25 of ppm_v. The measured TOV concentrations in the monitoring wells were below the detection limit (0.02 ppm_v) during the monitoring events, with exception of MW20-6 on June 4, 2021 that had a TOV of 9 ppm_v.

5.3 GROUND WATER: HYDRAULIC GRADIENTS

The horizontal hydraulic gradient at the Phase Two Property was calculated to be approximately 0.004 m/m in the shallow ground water, based on the ground water flow contours on June 4, 2021.

The vertical hydraulic gradient was not calculated at the Phase Two Property since the three wells were each installed at the water table.

5.4 SOIL TEXTURE

Although the Table 8 SCS do not distinguish between fine-medium textured soils and coarse textured soils and a determination of soil texture at the Phase Two property was not required, one sample for grain size analysis was submitted from the fill soil at the Site and one sample for grain size analysis was submitted from the native soil at the Site. The constituents of the soil are described in **Table 3**.

Fill: A grain size sample was collected from 0 to 0.76 m BGS where 51% by mass of particles were less than 75 micrometers in mean diameter and would therefore be considered medium to fine textured.

Native: A grain size sample was collected from 7.62 m BGS to 9.14 m BGS where 88% by mass of particles were greater than 75 micrometers in mean diameter and would therefore be considered coarse textured.

5.5 SOIL: FIELD SCREENING

As summarized in **Section 4.4**, soil field screening for potential impacts was completed using visual and olfactory observation and by measuring headspace CVC and TOV using an RKI Eagle 2 equipped with a photoionization detector (PID).

CVC measurements in soil samples collected during the drilling activities ranged from less than 5 ppm_v (various locations) to 10 ppm_v (TP21-5, 0 to 2.3 m BGS). TOV measurements were recorded as less than 0.02 ppm_v at the screened locations. Soil screening CVC and TOV readings are presented on the borehole logs in **Appendix B**. Soil sampling locations are shown on **Figure No. 2**.

The following environmentally significant observations were made during the soil field screening:

- Fill material with some brick, plastic bags, and metal scrap debris was observed at test pit TP21-5 from ground surface to approximately 2.3 m BGS.
- Concrete fragments were observed at BH20-4 and BH20-5 at depths ranging from ground surface to approximately 1.5 m BGS.
- No staining or odours were noted at any of the sampling locations.

No other environmentally significant observations were made during the soil field screening activities. Borehole logs are presented in **Appendix B.**

5.6 SOIL QUALITY

The laboratory analytical results for VOCs, BTEX, PHCs, PAHs, metals, and inorganic parameters in the soil samples recovered from SS18-3, SS18-4, SS18-5, SS18-8, SS18-9, SS18-10, SS18-11, SS18-12, MW20-4, BH20-5, MW20-6, and TP21-1 to TP21-5 are presented in **Table 3** along with the respective Table 8 SCS. A summary of maximum soil concentrations for each analyzed parameter is presented in **Table 5**. A summary of soil analytical results compared to the Table 8 SCS is illustrated on **Figure Nos. 4a** to **4c**.

The laboratory certificates of analysis for soil samples are provided in **Appendix C**.

5.6.1 Contaminants of Concern - Soil

Contaminants of concern (COCs) in soil at the Phase Two Property were assessed using the following rationale:

1. If an analyzed parameter was not detected at concentrations greater than the laboratory RLs in all of the soil samples analyzed for that parameter, the parameter was assumed absent from the investigated areas of the Phase Two Property.
2. A parameter was considered a COC if it was detected at a concentration greater than the Table 8 SCS.
3. A parameter was considered a COC if the RL for the parameter was greater than the Table 8 SCS.

The following parameters exceeded Table 8 SCS but were not considered COC in soil:

- Free cyanide (SS18-4 collected on June 27, 2018)
- Molybdenum (MW20-4 and MW20-6 collected on March 5, 2021)

As indicated on **Table 3 and Figure No. 4b**, the free cyanide concentration in soil sample SS18-9 was less than Table 8 SCS, and the average of SS18-4 and SS18-9 was less than the Table 8 SCS. As soil sample SS18-9 was collected at approximately the same depth and location as SS18-4, it was considered to be a duplicate of SS18-4.

In December 2018, free cyanide was resampled in the vicinity of SS18-4. Surface soil samples were collected from SS18-10 which was approximately 5 m south of SS18-4, SS18-11 which was approximately 5 m west if SS18-4, and SS18-12 which was approximately 2 m north of SS18-4. As indicated on **Table 3** and **Figure No. 4b**, each of the surface soil samples had free cyanide concentrations which were less than the Table 8 SCS.

As indicated on **Table 3** and **Figure No. 4b**, the molybdenum concentration in the duplicate sample collected at MW20-4 was less than the Table 8 SCS, and the average of the parent and duplicate samples was less than the Table 8 SCS.

Test pits TP21-1 to TP21-4 were advanced within 1 m of MW20-6 and soil samples were collected and submitted for the analysis of molybdenum at the same depth interval as the MW20-6 sample. As indicated on **Table 3** and **Figure No. 4b**, each of the four test pits had molybdenum concentrations below the laboratory reporting limit (RL) and the average molybdenum concentration of any given test pit result and MW20-6 was less than the Table 8 SCS.

Given the above, the free cyanide concentration observed in SS18-4 and the molybdenum concentrations observed at MW20-4 and MW20-6 were not considered to exceed the Table 8 SCS and were therefore not identified as COCs.

5.7 GROUND WATER QUALITY

The laboratory analytical results for VOCs, BTEX, PHCs, PAHs, PCBs, metals and inorganic parameters in the ground water samples recovered from MW20-2, MW20-4 and MW20-6 are presented in **Table 4** along with the respective Table 8 SCS**.** A summary of maximum ground water concentrations for each analyzed parameter is presented in **Table 6**. A summary of ground water analytical results compared to Table 8 SCS is illustrated on **Figure Nos. 5a** to **5c**. The laboratory certificates of analysis are provided in **Appendix C**.

5.7.1 Contaminants of Concern - Ground Water

COCs in ground water at the Phase Two Property were identified using the following rationale:

1. If an analyzed parameter was not detected at concentrations greater than the laboratory RLs in all of the ground water samples analyzed for that parameter, the parameter was assumed absent from the Phase Two Property.
2. A parameter was considered a COC if it was detected at a concentration greater than the Table 8 SCS.
3. A parameter was considered a COC if the RL for the parameter was greater than the Table 8 SCS.

The following parameter exceeded Table 8 SCS but was not considered a COC in ground water:

- Cobalt (MW20-2 and its duplicate sample DUP-1 during the June 2020 sampling event).

Subsequent sampling of cobalt in ground water at MW20-2 in December 2020 and June 2021 (as well as a duplicate) indicated that cobalt did not exceed the Table 8 SCS; therefore, the cobalt concentration in ground water was not considered to exceed the Table 8 SCS and was not identified as a COC.

5.8 SEDIMENT QUALITY

Sediment sampling was not required as per the sampling and analysis plan for the Phase Two ESA.

5.9 QUALITY ASSURANCE AND QUALITY CONTROL RESULTS

The objective of the investigation was to collect data that were precise, accurate, reproducible, complete, and suitable for comparison with the Table 8 SCS. DQOs used to assess the precision of the soil sample analyses are listed in **Section 4.13**.

Soil and ground water samples collected by Stantec were handled consistent with the requirements of O.Reg.153/04. A laboratory certificate of analysis was received for each soil and ground water sample submitted for analysis and each parameter for which analysis was requested. Copies of the laboratory Certificates of Analysis are included in **Appendix C**.

5.9.1 Field QA/QC Program

The calculated RPD values for the field duplicate soil and ground water samples are presented in **Tables 3** and **4**.

The RPDs were not calculated for PHCs, PCBs, PAHs, BTEX or VOCs in soil samples because the concentrations were less than the RLs or were less than five times the RLs, and the samples were therefore considered to be similar. The RPDs for metals and inorganics parameters calculated for soil samples MW20-4 and their respective field duplicate ranged from not calculable (one or both sample concentrations were less than the RL) to 102%. Seven metals and inorganics parameters had RPD values greater than the screening criterion of 30%. For these parameters, the concentrations in both the parent and duplicate samples were less than the Table 8 SCS; therefore, the decreased precision was not considered to affect the interpretation of soil data quality at the Phase Two Property.

The RPDs were not calculated for PHCs, PCBs, BTEX or PAHs in ground water samples because the concentrations were less than the RLs or were less than five times the RLs. The RPDs for VOCs, metals, and inorganics parameters calculated for the ground water sample recovered at MW20-2 and its respective field duplicates (during the June 2020 and June 2021 sampling events) ranged from 0% to 8% and were less than the respective screening criteria.

The results of trip blank analyses from the ground water sampling programs indicated that concentrations of PHCs and VOCs were less than the laboratory RLs, suggesting that no contaminants were introduced during sampling activities or during transportation from the Phase Two Property to the laboratory.

5.9.2 Laboratory QA/QC Program

In addition to the assessment of field duplicates, the analytical laboratory followed internal QA/QC protocols, which included method blank, matrix spike, spiked blank, QC standard, and laboratory duplicate analyses.

Based on the above, BV did not indicate any significant quality concerns that would be considered to affect the interpretation of soil and ground water quality at the Phase Two Property.

5.9.3 Summary

Based on the above assessment, it is Stantec's opinion that the results of the QA/QC procedures indicated that the DQO for the soil and ground water data were met, and that the data were of acceptable quality and adequate for their intended use.

5.10 PHASE TWO CONCEPTUAL SITE MODEL

Stantec has prepared the following CSM in accordance with Section 43 of Schedule E to O.Reg.153/04. The CSM builds on the Phase One CSM that was prepared for the Phase One ESA report for the Phase Two Property (Stantec, 2021).

The following is a summary of the environmental conditions at the Phase Two Property:

Table 5-1: Phase Two Conceptual Site Model

Phase Two Conceptual Site Model Requirements		Description
1.	Provide a narrative description and assessment of,	
i.	Areas where potentially contaminating activity has occurred,	**One on-site potentially contaminating activity (PCA) was identified** (i.e., Importation of Fill Material of Unknown Quality (PCA 30)) given the identified potential importation of fill for pond reconstruction along the southern and western banks of the pond adjacent to the Phase Two Property. No off-site PCAs were identified.
ii.	Areas of potential environmental concern, and	As a result of the on-site PCA identified above, one area of potential environmental concern (APEC #1) was identified along the southern and southwestern edges of the pond, as illustrated on **Figure No. 2**.
iii.	Any subsurface structure and utilities on, in or under the Phase Two Property that may affect contamination distribution transport.	Based on private and public locates from USL-1 in May 2020 and March 2021, there are no subsurface structures and/or utilities at the Phase Two Property, therefore underground utility placement is not anticipated to significantly affect contamination distribution transport.
2.	Provide a narrative description of and, as appropriate, figures illustrating, the physical setting of the phase two property and any areas under it including,	
i.	Stratigraphy from ground surface to the deepest aquifer or aquitard investigated,	The soil profile at the Phase Two Property generally consisted of brown medium to coarse-grained sand with some gravel (up to a maximum depth of approximately 10.67 m BGS). Silty sand fill was identified at some locations, extending to a maximum depth of approximately 2.3 m BGS. Bedrock was not encountered to the maximum investigation depth of 10.67 m BGS (drilled at MW20-2, MW20-4 and MW20-6) during the Phase Two ESA. Borehole and test pit locations are illustrated on **Figure No. 2**, and borehole logs are provided in **Appendix B**.
ii.	Hydrogeological characteristics, including aquifers, aquitards, and in each hydrostratigraphic unit where one or more contaminants is present at concentrations above the applicable standards, lateral and vertical gradients,	The interpreted shallow ground water flow direction in the unconfined aquifer at the Phase Two Property is generally toward the north as shown on **Figure No. 3**. Based on regional data and topographic features, the regional ground water flow direction is assumed to be toward the southeast. The horizontal hydraulic gradient was calculated to be approximately 0.004 m/m in the shallow ground water, based on the ground water flow contours on June 4, 2021. It is noted that shallow ground water flow may be influenced by current and/or abandoned utilities or other features present on the Phase Two Property. Although no utilities have been identified, the presence of the

Phase Two Conceptual Site Model Requirements		Description
		adjacent man-made pond is expected to influence shallow ground water flow direction.
iii.	Approximate depth to bedrock,	Bedrock was not encountered during the Phase Two ESA to depths of 10.7 m BGS; however, limestone bedrock was encountered in local water well records at depths ranging from 1.9 m to 32.3 m BGS.
iv.	Approximate depth to water table,	Three ground water monitoring events were completed during the Phase Two ESA. The depth to ground water was found to range from 8.37 m BGS (MW20-2 in June 2020) to 9.49 m BGS (MW20-6 in June 2021).
v.	Any respect in which section 35, 41 or 43.1 of the regulation applies to the property,	The Phase Two property is not considered environmentally sensitive as defined by Sections 41 of O.Reg.153/04. Bedrock was not encountered up to 10.7 m BGS during the Phase Two ESA. A man-made pond is present on the Phase Two Property, as illustrated on **Figure 2**. Section 43.1 (b) of O.Reg.153/04 would therefore be considered applicable to the Phase Two property. Concentrations of COPCs were compared with the Table 8 site condition standards (SCS) in the Phase Two ESA.
vi.	Areas on, in, or under the Phase Two Property where excess soil is finally placed, and	No soil was imported to the Phase Two property during the Phase Two ESA completed by Stantec.
vii.	Approximate locations if known, of any proposed building or other structures.	The Phase Two property is a former sand and gravel pit that has reportedly been vacant since 1995. Redevelopment for residential and/or commercial land use is being considered; however, the exact locations of proposed buildings or structures within the Phase Two Property are not currently known.
3.	Provide, where a contaminant is present on, in or under the phase two property at a concentration greater than the applicable site condition standard, identification of,	
i.	Each area where a contaminant is present on, in or under the Phase Two Property at a concentration greater than the applicable site condition standard,	**Soil:** The analyzed soil samples met the applicable Table 8 SCS for all COPCs analysed, as illustrated on **Figures Nos. 4a to 4c**. Although free cyanide was detected at soil sample SS18-4, and molybdenum was detected in soil samples collected at MW20-4 and MW20-6 at concentrations greater than the Table 8 SCS, based on the following rationale, these were not considered to exceed the Table 8 SCS (see **Figure No. 4b**): • SS18-4: The average of the free cyanide concentrations reported for soil samples SS18-4 and SS18-9, which was collected in the same location and depth as SS18-4, was less than the Table 8 SCS. Furthermore, the free cyanide concentrations reported for nearby soil samples SS18-10, SS18-11 and SS18-12 were less than the Table 8 SCS.

Phase Two Conceptual Site Model Requirements		Description
ii.		• MW20-4: A duplicate sample was taken along with the parent sample from the same soil depth. The average molybdenum concentration of the parent and duplicate sample was less than the Table 8 SCS. • MW20-6: Four test pits (TP21-1 to TP21-4) were advanced within 1 m of MW20-6 and soil samples were analyzed at the same depth that the molybdenum exceedance in MW20-6 was observed. Samples collected from the four test pits reported molybdenum concentrations below the laboratory reporting limit and were less than the Table 8 SCS. The average molybdenum concentration of MW20-6 and each of the test pit samples TP21-1 to TP21-4 was less than the Table 8 SCS.
		Ground Water: The analyzed ground water samples met the applicable Table 8 SCS for all COPCs analysed, as illustrated on **Figures Nos. 5a to 5c**. Although cobalt was detected in MW20-2 at a concentration greater than the Table 8 SCS on June 8, 2020, based on the following rationale, this was not considered to exceed the Table 8 SCS: • Ground water samples collected from MW20-2 on December 17, 2020 and June 4, 2021 (including a duplicate) were less than the Table 8 SCS. **Sediment:** Sediment was not present at the Phase Two Property and was therefore not sampled.
iii.	The contaminants associated with each of the areas referred to in subparagraph i.	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.
iv.	Each medium in which a contaminant associated with an area referred to in subparagraph i is present.	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS in soil or ground water. No COCs were identified in sediment as sediment is not present at the Phase Two Property.
v.	A description and assessment of what is known about each of the areas referred to in subparagraph i.	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.
vi.	For each parameter group as defined in the Analytical Protocol for which a contaminant has been analyzed, the distribution, in each of the areas referred to in subparagraph i, of each contaminant present in the area at a concentration greater than the applicable site condition standard, for each medium in which	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.

Phase Two Conceptual Site Model Requirements		Description
	the contaminant is present, together with figures showing the distribution,	
vii.	Anything known about the reason for the discharge into the natural environment of the contaminants present on, in or under the Phase Two Property at a concentration greater than the applicable site condition standard	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.
viii.	Anything known about the migration away from any area of potential environmental concern of the contaminants present on, in or under the Phase Two Property at a concentration greater than the applicable site condition standard, including the identification of any preferential pathways,	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.
ix.	Climatic or meteorological conditions that may have influenced distribution and migration of the contaminants, such as temporal fluctuations in ground water levels, and	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.
x.	If applicable, information concerning soil and vapour intrusion of contaminants into buildings, including, A. Relevant construction features of a building, such as a basement or crawl space, B. Building heating, ventilating and air conditioning design and operation, and C. Subsurface utilities.	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.
4.	Provide, where contaminants on, in or under the phase two property are present at concentrations greater than the applicable site condition standard, two or more cross-sections showing, by parameter group as defined in the Analytical Protocol for which a contaminant has been analyzed.	
i.	The lateral and vertical distribution of each contaminant in each area where the contaminant is present at a concentration greater than the applicable site condition standard in soil, ground water and sediment,	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.
ii.	Approximate depth to water table in each area referred to in subparagraph i,	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.
iii.	Stratigraphy from ground surface to the deepest aquifer or aquitard investigated, and	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.

Phase Two Conceptual Site Model Requirements		Description
iv.	Any subsurface structures and utilities that may affect contaminant distribution and transport in each area referred to in subparagraph i.	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS. Furthermore, no subsurface structures or underground utilities were identified at the Phase Two property.
5.	Provide, for each area where a contaminant is present on, in or under the property at a concentration greater than the applicable site condition standard for the contaminant, a diagram identifying, with narrative explanatory notes,	
i.	The release mechanisms,	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.
ii.	Contaminant transport pathway,	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.
iii.	The human and ecological receptors located on, in or under the phase two property,	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.
iv.	Receptor exposure points, and	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.
v.	Routes of exposure	Not Applicable - No contaminants were identified at the Phase Two property at concentrations greater than the Table 8 SCS.
6.	If a non-standard delineation was conducted in accordance with Section 7.1 of this Schedule as part of preparing the Phase Two Environmental Site Assessment report, provide a narrative description of how the non-standard delineation satisfies the requirements in that section.	
i.	Non-standard delineation	Not Applicable - No non-standard delineation was conducted for this update to the Phase Two ESA
7.	If the exemption set out in paragraph 1, 1.1 or 2 of Section 49.1 of the regulation is being relied upon, provide a statement as to the reliance upon the exemption and a narrative description of the rationale for relying upon the exemption, which may be based on information gathered during the site investigation.	
i.	A statement as to the reliance upon the exemption,	This exemption was not relied upon for this update to the Phase Two ESA.
ii.	A narrative description of the rationale for relying upon the exemption, which may be based on information gathered during the site investigation	This exemption was not relied upon for this update to the Phase Two ESA.

Phase Two Conceptual Site Model Requirements		Description
8.	If the exemption set out in paragraph 3 of Section 49.1 of the regulation is being relied upon, provide,	
i.	A statement as to the reliance upon the exemption,	This exemption was not relied upon for this update to the Phase Two ESA.
ii.	A narrative description of the rationale for relying upon the exemption, which may be based on information gathered during the site investigation, and	This exemption was not relied upon for this update to the Phase Two ESA.
iii.	One or more cross-sections and one or more figures in plan view of the Phase Two Property that demonstrate, through identification of sample locations, sample depths and contaminant concentrations, the distribution of the contaminant in question laterally and vertically and the range of concentrations of that contaminant on, in or under the phase two property	This exemption was not relied upon for this update to the Phase Two ESA.

6.0 CONCLUSIONS

At the request of Justice Construction Limited, Stantec conducted a Phase Two ESA for part of 2164 Old Prescott Road in Greely, Ontario. The Phase Two ESA was conducted for the Justice Construction Limited in response to the findings of a Phase One ESA conducted on a larger property, as they relate to the Phase Two Property, and to address other requirements of Ontario Regulation (O.Reg. 153/04) to support the filing of a Record of Site Condition with the MECP.

The Phase Two ESA investigated the APEC identified in a Phase One ESA Update completed in August 2021, through the characterization of soil and ground water at the Phase Two Property. The Phase Two ESA included the advancement of boreholes, advancement of test pits, installation of monitoring wells, and a soil and ground water sampling program. Soil and ground water samples were collected for analysis of one or more of VOCs, BTEX, PCBs, PHCs, PAHs, metals, and inorganics.

Stantec offers the following conclusions with respect to the results of the Phase Two ESA:

- The MECP (2011) Table 8 SCS for residential/parkland/institutional/industrial/commercial/community land use in a potable ground water condition were considered the standards applicable at the Phase Two Property.
- The soil profile at the Phase Two Property generally consisted of fill from surface to maximum of 2.30 m BGS overlying native soils up to a maximum investigated depth of 10.67 m BGS. The fill soil comprised medium-grained sand, with some gravel, and contained debris such as brick, plastic bags and metal scraps. Native soils comprised coarse-grained sand.
- Bedrock geology in the study area was mapped as dolostone and was not encountered during the Phase Two ESA to the maximum investigated depth of approximately 10.67 m BGS.
- On June 4, 2021, ground water was encountered in the monitoring wells between 8.85 m BGS (at MW20-2) to 9.49 m BGS (at MW20-6) with ground water elevations ranging from 88.14 m AMSL (MW20-4) and 88.31 m AMSL (MW20-2) at the Phase Two Property. At the time of monitoring on June 4, 2021, ground water flow direction was generally towards the north.
- The horizontal hydraulic gradient at the Phase Two Property was calculated to be approximately 0.004 m/m in the shallow ground water, based on the ground water flow contours on June 4, 2021.
- The measured concentrations of VOCs, PHC F1 to F4, PAHs, PCBs, inorganics and metals were less than the Table 8 SCS in soil samples analyzed for the Phase Two Property, with the exception of free cyanide at one location in the May 2018 sampling event and molybdenum at two locations in the March 2021 sampling event. In accordance with Section 48.2 of O.Reg. 153/04, further sampling was conducted in at the same location as depths as the soils with exceedances and the average free cyanide and molybdenum concentrations were less than the Table 8 SCS; therefore, these exceedances were no longer considered COCs. Consequently, no contaminants of concern (COCs) were identified in the soil sampled to investigate APEC #1.

- The measured concentrations of VOCs, PHC F1 to F4, PAHs, PCBs, inorganics and metals were less than the Table 8 SCS in ground water samples analyzed for the Phase Two Property, with the exception of cobalt at MW20-2 during the June 2020 sampling event. As ground water samples collected in December 2020 and June 2021 from MW20-2 had cobalt concentrations below the Table 8 SCS, this was no longer considered a COC. Consequently, no contaminants of concern (COCs) were identified in the ground water sampled at the Phase Two Property.
- Sediment was not present at the Phase Two Property.
- The results of the QA/QC procedures indicated that the DQOs for the soil and ground water data were met, and that the data were of acceptable quality and adequate for their intended use.

Based on the results of the Phase Two ESA, the Table 8 SCS were met at the Phase Two Property at the time of the assessment within APEC 1, and no soil or ground water COCs were identified.

6.1 SIGNATURES

This document entitled Phase Two Environmental Site Assessment – Part of 2164 Old Prescott Road, Greely, Ontario was prepared by Stantec Consulting Ltd. (Stantec) for Justice Construction Limited (the Client). This document was prepared by Romeet Gonsalves, B.Sc., G.I.T. Quality review was completed by Grace Ferguson, M.Sc., P.Eng., QP_{ESA}.

All of which is respectfully submitted,

STANTEC CONSULTING LTD.

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6.2 LIMITATIONS

This report documents work that was performed in accordance with generally accepted professional standards at the time and location in which the services were provided. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no assurance that this work has uncovered all potential liabilities associated with the identified property.

This report provides an evaluation of selected environmental conditions associated with the identified portion of the property that was assessed at the time the work was conducted and is based on information obtained by and/or provided to Stantec at that time. There are no assurances regarding the accuracy and completeness of this information. All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

The opinions in this report can only be relied upon as they relate to the condition of the portion of the identified property that was assessed at the time the work was conducted. Activities at the property subsequent to Stantec's assessment may have significantly altered the property's condition. Stantec cannot comment on other areas of the property that were not assessed.

Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report and are based solely on the scope of work described in the report, the limited data available and the results of the work. They are not a certification of the property's environmental condition. This report should not be construed as legal advice.

This report has been prepared for the exclusive use of the client identified herein and any use by any third party is prohibited. Stantec assumes no responsibility for losses, damages, liabilities or claims, howsoever arising, from third party use of this report.

The locations of any utilities, buildings and structures, and property boundaries illustrated in or described within this report, if any, including pole lines, conduits, water mains, sewers and other surface or sub-surface utilities and structures are not guaranteed. Before starting work, the exact location of all such utilities and structures should be confirmed and Stantec assumes no liability for damage to them.

The conclusions are based on the site conditions encountered by Stantec at the time the work was performed at the specific testing and/or sampling locations, and conditions may vary among sampling locations. Factors such as areas of potential concern identified in previous studies, site conditions (e.g., utilities) and cost may have constrained the sampling locations used in this assessment. In addition, analysis has been carried out for only a limited number of chemical parameters, and it should not be inferred that other chemical species are not present. Due to the nature of the investigation and the limited data available, Stantec does not warrant against undiscovered environmental liabilities nor that the sampling results are indicative of the condition of the entire site.

Conclusions
November 8, 2021

As the purpose of this report is to identify site conditions which may pose an environmental risk; the identification of non-environmental risks to structures or people on the site is beyond the scope of this assessment.

Should additional information become available which differs significantly from our understanding of conditions presented in this report, Stantec specifically disclaims any responsibility to update the conclusions in this report.

7.0 REFERENCES

Bureau Veritas Analytics North America (BV), 2016. Ontario QA/QC Interpretation Guide-Environmental Services.

Ontario Ministry of the Environment, 1996. *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario. Ministry of Environment and Energy*. December 1996.

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Ontario Ministry of the Environment (MOE), 2011b. *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.* March 9, 2004, amended as of July 1, 2011.

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Stantec Consulting Ltd. (Stantec), 2021. *Update to Phase One Environmetal Site Assessment, Part of 2164 Old Prescott Road*, Greely, Ontario, prepared for Justice Construction Limited, dated August 11, 2021.

TABLES

Table 1
Summary of Ground Water Field Results
Phase Two Environmental Site Assessment
2164 Old Prescott Road, Greely, Ontario
P.W. Justice Holdings Ltd.

Monitoring Location	Monitoring Date (dd-mmm-yy)	Ground Surface Elevation (m AMSL)	Top of Pipe Elevation (m AMSL)	Water Level Elevation (m AMSL)	Water Level Depth (m BTOC)	Water Level Depth (m BGS)	Liquid-Phase Petroleum Hydrocarbon Apparent Thickness (mm)	Well Headspace Combustible Vapour Concentration (ppm_v)	Well Headspace Total Organic Vapour Concentration (ppm_v)
MW20-2	17-Dec-20	97.16	97.96	88.12	9.84	9.04	0	<5	<0.02
MW20-2	04-Jun-21	97.16	97.96	88.31	9.65	8.85	0	<5	<0.02
MW20-4	04-Jun-21	97.35	98.30	88.14	10.16	9.21	0	<5	<0.02
MW20-6	04-Jun-21	97.75	98.74	88.26	10.48	9.49	0	25	9

Notes:

m AMSL	Metres relative to datum
m BTOC	Metres below top of casing
m BGS	Metres below ground surface
mm	Millimetres
ppm_v	Parts per million by volume unless otherwise noted

Table 2
Monitoring Well Installation Details
Phase Two Environmental Site Assessment
2164 Old Prescott Road, Greely, Ontario
P.W. Justice Holdings Ltd.

Monitoring Location	Ground Surface Elevation (m AMSL)	Top of Pipe Elevation (m AMSL)	Well Stickup (m from GS)	Well Depth (m BGS)	Well Diameter (m)	Top of Screen		Bottom of Screen		Top of Sand Pack		Bottom of Sand Pack		Protective Casing
						(m BGS)	(m AMSL)	(m BGS)	(m AMSL)	(m BGS)	(m AMSL)	(m BGS)	(m AMSL)	
MW20-2	97.16	97.96	0.80	10.67	2	7.01	90.15	10.06	87.10	6.71	90.45	10.06	87.10	SU
MW20-4	97.35	98.30	0.95	10.67	2	7.62	89.73	10.67	86.68	7.32	90.03	10.67	86.68	SU
MW20-6	97.75	98.74	0.99	10.67	2	7.62	90.13	10.67	87.08	7.32	90.43	10.67	87.08	SU

Notes:

m AMSL	Metres above mean sea level
m BGS	Metres below ground surface
m	Metres
GS	Ground surface
SU	Stickup

Table 3
Summary of Soil Analytical Results
Phase Two Environmental Site Assessment
2164 Old Prescott Road, Greely, Ontario
P.W. Justice Holdings Ltd.

Sample Location			SS18-3	SS18-4/SS18-9		SS18-5	SS18-8			SS18-10	SS18-11	SS18-12	MW20-4						BH20-5	
Sample Date			27-Jun-18	27-Jun-18	5-Dec-18	27-Jun-18	5-Dec-18	5-Dec-18		5-Dec-18	5-Dec-18	5-Dec-18	5-Mar-21	5-Mar-21		5-Mar-21	5-Mar-21		5-Mar-21	5-Mar-21
Sample ID			SS18-3	SS18-4	SS18-9	SS18-5	SS18-8	QC-01		SS18-10	SS18-11	SS18-12	MW20-4-SS3	DUP-2		MW20-4-SS10	DUP-1		MW20-5-SS1	MW20-5-SS9
Sample Depth			0.25 - 0.75 m	0.25 - 0.75 m	0.25 - 0.5 m	0.25 - 0.75 m	0.25 - 0.5 m	0.25 - 0.5 m		0.25 - 0.5 m	0.25 - 0.5 m	0.25 - 0.5 m	1.5 - 2.3 m	1.5 - 2.3 m		8.4 - 9.1 m	8.4 - 9.1 m		0 - 0.8 m	6.1 - 7.6 m
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC
Laboratory			MAXX	MAXX	MAXX	MAXX	MAXX	MAXX		MAXX	MAXX	MAXX	BV	BV		BV	BV		BV	BV
Laboratory Work Order			B8F8535	B8F8535	B8W5985	B8F8535	B8W5985	B8W5985		B8W5985	B8W5985	B8W5985	C161488	C161488		C161488	C161488		C161488	C161488
Laboratory Sample ID			HBL773	HBL774	IMC279	HBL775	IMC283	IMC284		IMC280	IMC281	IMC282	PAE313	PAE323		PAE315	PAE316		PAE317	PAE319
Sample Type	Units	Ontario SCS						Field Duplicate	RPD (%)					Field Duplicate	RPD (%)		Field Duplicate	RPD (%)		
Physical Properties																				
Grain Size	%	n/v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sieve - #200 (<0.075mm)	%	n/v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sieve - #200 (>0.075mm)	%	n/v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Chemistry																				
Available (CaCl2) pH	S.U.	n/v	7.15	7.21	-	6.93	7.42	7.51	nc	-	-	-	7.59	7.33	nc	-	-	-	7.50	-
Cyanide (Free)	µg/g	0.051[A]	0.05	**0.06[A]**	<0.01	0.05	<0.01	<0.01	nc	<0.01	<0.01	0.01	0.01	0.02	nc	-	-	-	<0.01	-
Electrical Conductivity, Lab	mS/cm	0.7[A]	0.19	0.18	-	0.17	0.21	0.20	5%	-	-	-	0.24	0.35	**37%**	-	-	-	0.17	-
Fluoride	µg/g	n/v	8	8	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Moisture Content	%	n/v	17	14	21	17	16	19	17%	17	19	20	11	20	**58%**	6.4	14	**75%**	13	2.7
Sodium Adsorption Ratio (SAR)	none	5[A]	0.22	0.22	-	0.23	0.21	0.20	nc	-	-	-	0.56	0.38	nc	-	-	-	0.23 SDC	-
Petroleum Hydrocarbons																				
PHC F1 (C6-C10 range)	µg/g	$_{s7}$[A]	<10	<10	-	<10	<10	<10	nc	-	-	-	-	-	-	<10	<10	nc	-	<10
PHC F1 (C6-C10 range) minus BTEX	µg/g	25_{s7}[A]	<10	<10	-	<10	<10	<10	nc	-	-	-	-	-	-	<10	<10	nc	-	<10
PHC F2 (>C10-C16 range)	µg/g	10_{s15}[A]	<10	<10	-	<10	<10	<10	nc	-	-	-	-	-	-	<10	<10	nc	-	<10
PHC F3 (>C16-C34 range)	µg/g	240_{s8}[A]	<50	<50	-	<50	<50	<50	nc	-	-	-	-	-	-	<50	<50	nc	-	<50
PHC F4 (>C34-C50 range)	µg/g	120_{s10}[A]	<50	<50	-	<50	<50	<50	nc	-	-	-	-	-	-	<50	<50	nc	-	<50
Chromatogram to baseline at C50	none	n/v	YES	YES	-	YES	YES	YES	nc	-	-	-	-	-	-	YES	YES	nc	-	YES
Metals																				
Antimony	µg/g	1.3[A]	<0.20	<0.20	-	<0.20	<0.20	<0.20	nc	-	-	-	<0.20	<0.20	nc	-	-	-	<0.20	-
Arsenic	µg/g	18[A]	1.9	1.6	-	1.7	1.9	1.9	nc	-	-	-	2.7	2.4	nc	-	-	-	2.3	-
Barium	µg/g	220[A]	120	110	-	120	100	100	0%	-	-	-	140	110	24%	-	-	-	120	-
Beryllium	µg/g	2.5[A]	0.56	0.51	-	0.54	0.49	0.48	nc	-	-	-	0.50	0.37	nc	-	-	-	0.46	-
Boron	µg/g	36_{s16}[A]	<5.0	<5.0	-	<5.0	5.2	5.2	nc	-	-	-	6.5	<5.0	nc	-	-	-	5.1	-
Boron (Available)	µg/g	1.5_{s16}[A]	0.27	0.32	-	0.31	0.34	0.33	3%	-	-	-	0.27	0.47	**54%**	-	-	-	0.15	-
Cadmium	µg/g	1.2[A]	0.16	<0.10	-	0.15	0.13	0.11	nc	-	-	-	0.17	0.39	nc	-	-	-	0.12	-
Chromium	µg/g	70[A]	43	39	-	45	37	35	6%	-	-	-	39	22	**56%**	-	-	-	32	-
Chromium (Hexavalent)	µg/g	0.66[A]	<0.2	<0.2	-	<0.2	<0.2	<0.2	nc	-	-	-	<0.18	<0.18	nc	-	-	-	<0.18	-
Cobalt	µg/g	22[A]	9.3	8.3	-	10	9.0	8.8	2%	-	-	-	8.4	6.5	26%	-	-	-	8.6	-
Copper	µg/g	92[A]	16	14	-	17	18	19	5%	-	-	-	22	15	**38%**	-	-	-	20	-
Lead	µg/g	120[A]	10	11	-	11	14	14	0%	-	-	-	13	40	**102%**	-	-	-	11	-
Manganese	µg/g	n/v	390	350	-	440	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	µg/g	0.27[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	0.050	0.078	nc	-	-	-	<0.050	-
Molybdenum	µg/g	2[A]	0.54	0.51	-	0.75	0.71	0.79	nc	-	-	-	**2.9[A]**	1.1	nc	-	-	-	1.1	-
Nickel	µg/g	82[A]	22	21	-	24	22	22	0%	-	-	-	21	14	**40%**	-	-	-	20	-
Selenium	µg/g	1.5[A]	<0.50	<0.50	-	<0.50	<0.50	<0.50	nc	-	-	-	<0.50	<0.50	nc	-	-	-	<0.50	-
Silver	µg/g	0.5[A]	<0.20	<0.20	-	<0.20	<0.20	<0.20	nc	-	-	-	<0.20	<0.20	nc	-	-	-	<0.20	-
Thallium	µg/g	1[A]	0.16	0.15	-	0.17	0.16	0.15	nc	-	-	-	0.16	0.10	nc	-	-	-	0.16	-
Tin	µg/g	n/v	<1.0	<1.0	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	µg/g	2.5[A]	1.0	0.91	-	0.79	0.87	0.83	5%	-	-	-	0.87	1.0	14%	-	-	-	0.79	-
Vanadium	µg/g	86[A]	48	43	-	47	40	38	5%	-	-	-	41	35	16%	-	-	-	40	-
Zinc	µg/g	290[A]	72	64	-	70	59	54	9%	-	-	-	55	57	4%	-	-	-	52	-
Polycyclic Aromatic Hydrocarbons																				
Acenaphthene	µg/g	0.072[A]	<0.0050	0.0068	-	<0.0050	<0.0050	0.0051	nc	-	-	-	<0.0050	<0.0050	nc	-	-	-	0.015	-
Acenaphthylene	µg/g	0.093[A]	<0.0050	<0.0050	-	<0.0050	0.029	0.016	nc	-	-	-	<0.0050	<0.0050	nc	-	-	-	<0.0050	-
Anthracene	µg/g	0.22[A]	<0.0050	0.018	-	0.0084	0.028	0.021	nc	-	-	-	<0.0050	<0.0050	nc	-	-	-	0.051	-
Benzo(a)anthracene	µg/g	0.36[A]	0.010	0.046	-	0.027	0.096	0.090	6%	-	-	-	<0.0050	0.015	nc	-	-	-	0.14	-
Benzo(a)pyrene	µg/g	0.3[A]	0.010	0.036	-	0.021	0.11	0.083	28%	-	-	-	<0.0050	0.017	nc	-	-	-	0.096	-
Benzo(b/j)fluoranthene	µg/g	0.47_{s2}[A]	0.016	0.048	-	0.027	0.12	0.098	20%	-	-	-	<0.0050	0.024	nc	-	-	-	0.14	-
Benzo(g,h,i)perylene	µg/g	0.68[A]	0.0073	0.022	-	0.013	0.056	0.043	26%	-	-	-	<0.0050	0.013	nc	-	-	-	0.057	-
Benzo(k)fluoranthene	µg/g	0.48[A]	<0.0050	0.015	-	0.0081	0.044	0.036	20%	-	-	-	<0.0050	0.0070	nc	-	-	-	0.045	-
Chrysene	µg/g	2.8[A]	0.0099	0.039	-	0.023	0.070	0.066	6%	-	-	-	<0.0050	0.015	nc	-	-	-	0.11	-
Dibenzo(a,h)anthracene	µg/g	0.1[A]	<0.0050	0.0052	-	<0.0050	0.014	0.011	nc	-	-	-	<0.0050	<0.0050	nc	-	-	-	0.014	-
Fluoranthene	µg/g	0.69[A]	0.020	0.11	-	0.056	0.15	0.15	0%	-	-	-	<0.0050	0.039	nc	-	-	-	0.27	-
Fluorene	µg/g	0.19[A]	<0.0050	0.0087	-	<0.0050	0.0058	0.0063	nc	-	-	-	<0.0050	<0.0050	nc	-	-	-	0.019	-
Indeno(1,2,3-cd)pyrene	µg/g	0.23[A]	0.0080	0.024	-	0.014	0.062	0.050	21%	-	-	-	<0.0050	0.013	nc	-	-	-	0.066	-
Methylnaphthalene (Total)	µg/g	0.59_{s3}[A]	<0.0071	<0.0071	-	<0.0071	<0.0071	<0.0071	nc	-	-	-	<0.0071	<0.0071	nc	-	-	-	<0.0071	-
Methylnaphthalene, 1-	µg/g	$_{s3}$[A]	<0.0050	<0.0050	-	<0.0050	<0.0050	<0.0050	nc	-	-	-	<0.0050	<0.0050	nc	-	-	-	<0.0050	-
Methylnaphthalene, 2-	µg/g	$_{s3}$[A]	<0.0050	<0.0050	-	<0.0050	<0.0050	<0.0050	nc	-	-	-	<0.0050	<0.0050	nc	-	-	-	<0.0050	-
Naphthalene	µg/g	0.09[A]	<0.0050	<0.0050	-	<0.0050	<0.0050	<0.0050	nc	-	-	-	<0.0050	<0.0050	nc	-	-	-	<0.0050	-
Phenanthrene	µg/g	0.69[A]	0.0085	0.074	-	0.034	0.055	0.066	18%	-	-	-	<0.0050	0.022	nc	-	-	-	0.17	-
Pyrene	µg/g	1[A]	0.017	0.083	-	0.045	0.12	0.12	0%	-	-	-	<0.0050	0.032	nc	-	-	-	0.20	-
Polychlorinated Biphenyls																				
Aroclor 1242	µg/g	$_{s14}$[A]	<0.010	<0.010	-	<0.010	<0.010	<0.010	nc	-	-	-	<0.010	<0.010	nc	-	-	-	<0.010	-
Aroclor 1248	µg/g	$_{s14}$[A]	<0.010	<0.010	-	<0.010	<0.010	<0.010	nc	-	-	-	0.22	0.010	nc	-	-	-	<0.010	-
Aroclor 1254	µg/g	$_{s14}$[A]	<0.010	<0.010	-	<0.010	<0.010	<0.010	nc	-	-	-	<0.010	<0.010	nc	-	-	-	<0.010	-
Aroclor 1260	µg/g	$_{s14}$[A]	<0.010	<0.010	-	<0.010	<0.010	<0.010	nc	-	-	-	<0.010	<0.010	nc	-	-	-	<0.010	-
Polychlorinated Biphenyls (PCBs)	µg/g	0.3_{s14}[A]	<0.010	<0.010	-	<0.010	<0.010	<0.010	nc	-	-	-	0.22	0.010	nc	-	-	-	<0.010	-

See notes on last page.

Table 3
Summary of Soil Analytical Results
Phase Two Environmental Site Assessment
2164 Old Prescott Road, Greely, Ontario
P.W. Justice Holdings Ltd.

Sample Location			SS18-3	SS18-4/SS18-9		SS18-5	SS18-8			SS18-10	SS18-11	SS18-12	MW20-4						BH20-5	
Sample Date			27-Jun-18	27-Jun-18	5-Dec-18	27-Jun-18	5-Dec-18	5-Dec-18		5-Dec-18	5-Dec-18	5-Dec-18	5-Mar-21	5-Mar-21		5-Mar-21	5-Mar-21		5-Mar-21	5-Mar-21
Sample ID			SS18-3	SS18-4	SS18-9	SS18-5	SS18-8	QC-01		SS18-10	SS18-11	SS18-12	MW20-4-SS3	DUP-2		MW20-4-SS10	DUP-1		MW20-5-SS1	MW20-5-SS9
Sample Depth			0.25 - 0.75 m	0.25 - 0.75 m	0.25 - 0.5 m	0.25 - 0.75 m	0.25 - 0.5 m	0.25 - 0.5 m		0.25 - 0.5 m	0.25 - 0.5 m	0.25 - 0.5 m	1.5 - 2.3 m	1.5 - 2.3 m		8.4 - 9.1 m	8.4 - 9.1 m		0 - 0.8 m	6.1 - 7.6 m
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC	STANTEC		STANTEC	STANTEC		STANTEC	STANTEC
Laboratory			MAXX	MAXX	MAXX	MAXX	MAXX	MAXX		MAXX	MAXX	MAXX	BV	BV		BV	BV		BV	BV
Laboratory Work Order			B8F8535	B8F8535	B8W5985	B8F8535	B8W5985	B8W5985		B8W5985	B8W5985	B8W5985	C161488	C161488		C161488	C161488		C161488	C161488
Laboratory Sample ID			HBL773	HBL774	IMC279	HBL775	IMC283	IMC284		IMC280	IMC281	IMC282	PAE313	PAE323		PAE315	PAE316		PAE317	PAE319
Sample Type	Units	Ontario SCS						Field Duplicate	RPD (%)					Field Duplicate	RPD (%)		Field Duplicate	RPD (%)		
Volatile Organic Compounds																				
Acetone	µg/g	0.5[A]	<0.50	<0.50	-	<0.50	<0.50	<0.50	nc	-	-	-	-	-	-	<0.50	<0.50	nc	-	<0.50
Benzene	µg/g	0.02[A]	<0.0060	<0.0060	-	<0.0060	<0.020	<0.020	nc	-	-	-	-	-	-	<0.020	<0.020	nc	-	<0.020
Bromodichloromethane	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Bromoform (Tribromomethane)	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Bromomethane (Methyl bromide)	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Carbon Tetrachloride (Tetrachloromethane)	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Chlorobenzene (Monochlorobenzene)	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Chloroform (Trichloromethane)	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Dibromochloromethane	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Dichlorobenzene, 1,2-	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Dichlorobenzene, 1,3-	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Dichlorobenzene, 1,4-	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Dichlorodifluoromethane (Freon 12)	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Dichloroethane, 1,1-	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Dichloroethane, 1,2-	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Dichloroethene, 1,1-	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Dichloroethene, cis-1,2-	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Dichloroethene, trans-1,2-	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Dichloropropane, 1,2-	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/g	0.05_{s11}[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Dichloropropene, cis-1,3-	µg/g	$_{s11}$[A]	<0.030	<0.030	-	<0.030	<0.030	<0.030	nc	-	-	-	-	-	-	<0.030	<0.030	nc	-	<0.030
Dichloropropene, trans-1,3-	µg/g	$_{s11}$[A]	<0.040	<0.040	-	<0.040	<0.040	<0.040	nc	-	-	-	-	-	-	<0.040	<0.040	nc	-	<0.040
Ethylbenzene	µg/g	0.05[A]	<0.010	<0.010	-	<0.010	<0.020	<0.020	nc	-	-	-	-	-	-	<0.020	<0.020	nc	-	<0.020
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Hexane (n-Hexane)	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/g	0.5[A]	<0.50	<0.50	-	<0.50	<0.50	<0.50	nc	-	-	-	-	-	-	<0.50	<0.50	nc	-	<0.50
Methyl Isobutyl Ketone (MIBK)	µg/g	0.5[A]	<0.50	<0.50	-	<0.50	<0.50	<0.50	nc	-	-	-	-	-	-	<0.50	<0.50	nc	-	<0.50
Methyl tert-butyl ether (MTBE)	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Methylene Chloride (Dichloromethane)	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Styrene	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Tetrachloroethane, 1,1,1,2-	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Tetrachloroethane, 1,1,2,2-	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Tetrachloroethene (PCE)	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Toluene	µg/g	0.2[A]	<0.020	<0.020	-	<0.020	<0.020	<0.020	nc	-	-	-	-	-	-	<0.020	<0.020	nc	-	<0.020
Trichloroethane, 1,1,1-	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Trichloroethane, 1,1,2-	µg/g	0.05[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Trichloroethene (TCE)	µg/g	0.05[A]	<0.010	<0.010	-	<0.010	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Trichlorofluoromethane (Freon 11)	µg/g	0.25[A]	<0.050	<0.050	-	<0.050	<0.050	<0.050	nc	-	-	-	-	-	-	<0.050	<0.050	nc	-	<0.050
Vinyl Chloride	µg/g	0.02[A]	<0.020	<0.020	-	<0.020	<0.020	<0.020	nc	-	-	-	-	-	-	<0.020	<0.020	nc	-	<0.020
Xylene, m & p-	µg/g	$_{s1}$[A]	<0.020	<0.020	-	<0.020	<0.020	<0.020	nc	-	-	-	-	-	-	<0.020	<0.020	nc	-	<0.020
Xylene, o-	µg/g	$_{s1}$[A]	<0.020	<0.020	-	<0.020	<0.020	<0.020	nc	-	-	-	-	-	-	<0.020	<0.020	nc	-	<0.020
Xylenes, Total	µg/g	0.05_{s1}[A]	<0.020	<0.020	-	<0.020	<0.020	<0.020	nc	-	-	-	-	-	-	<0.020	<0.020	nc	-	<0.020

See notes on last page.

Table 3
Summary of Soil Analytical Results
Phase Two Environmental Site Assessment
2164 Old Prescott Road, Greely, Ontario
P.W. Justice Holdings Ltd.

Sample Location			MW20-6/TP21-1/TP21-2/TP21-3/TP21-4							TP21-5	BH20-5	MW20-6
Sample Date			5-Mar-21	5-Mar-21	5-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	5-Mar-21	5-Mar-21
Sample ID			MW20-6-SS1	MW20-6-SS2	MW20-6-SS9	TP21-1	TP21-2	TP21-3	TP21-4	TP21-5-SHALLOW	GRAIN SIZE TOP	GRAIN SIZE BOTTOM
Sample Depth			0 - 1.5 m	1.5 - 3 m	9.1 - 9.9 m	0.4 - 1.5 m	0.6 - 1.6 m	0.6 - 1.6 m	0.6 - 1.6 m	0.5 - 2.2 m		
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			BV	BV	BV	BV	BV	BV	BV	BV	BV	BV
Laboratory Work Order			C161488	C161488	C161488	C184479	C184479	C184479	C184479	C185813	C161488	C161488
Laboratory Sample ID			PAE320	PAE321	PAE322	PFA640	PFA641	PFA642	PFA643	PFH642	PAE324	PAE325
Sample Type	Units	Ontario SCS										
Physical Properties												
Grain Size	%	n/v	-	-	-	-	-	-	-	-	FINE	COARSE
Sieve - #200 (<0.075mm)	%	n/v	-	-	-	-	-	-	-	-	51	12
Sieve - #200 (>0.075mm)	%	n/v	-	-	-	-	-	-	-	-	49	88
General Chemistry												
Available (CaCl2) pH	S.U.	n/v	7.22	-	-	-	-	-	-	7.64	-	-
Cyanide (Free)	µg/g	0.051[A]	0.01	-	-	-	-	-	-	<0.01	-	-
Electrical Conductivity, Lab	mS/cm	0.7[A]	0.18	-	-	-	-	-	-	0.17	-	-
Fluoride	µg/g	n/v	-	-	-	-	-	-	-	-	-	-
Moisture Content	%	n/v	22	-	6.3	-	-	-	-	19	-	-
Sodium Adsorption Ratio (SAR)	none	5[A]	0.23 SDC	-	-	-	-	-	-	0.23 SDC	-	-
Petroleum Hydrocarbons												
PHC F1 (C6-C10 range)	µg/g	$_{s7}$[A]	-	-	<10	-	-	-	-	<10	-	-
PHC F1 (C6-C10 range) minus BTEX	µg/g	25_{s7}[A]	-	-	<10	-	-	-	-	<10	-	-
PHC F2 (>C10-C16 range)	µg/g	10_{s15}[A]	-	-	<10	-	-	-	-	<10	-	-
PHC F3 (>C16-C34 range)	µg/g	240_{s8}[A]	-	-	<50	-	-	-	-	<50	-	-
PHC F4 (>C34-C50 range)	µg/g	120_{s10}[A]	-	-	<50	-	-	-	-	<50	-	-
Chromatogram to baseline at C50	none	n/v	-	-	YES	-	-	-	-	YES	-	-
Metals												
Antimony	µg/g	1.3[A]	<0.20	-	-	-	-	-	-	<0.20	-	-
Arsenic	µg/g	18[A]	3.5	-	-	-	-	-	-	4.0	-	-
Barium	µg/g	220[A]	79	-	-	-	-	-	-	51	-	-
Beryllium	µg/g	2.5[A]	0.59	-	-	-	-	-	-	0.27	-	-
Boron	µg/g	36_{s16}[A]	7.2	-	-	-	-	-	-	<5.0	-	-
Boron (Available)	µg/g	1.5_{s16}[A]	0.22	-	-	-	-	-	-	0.23	-	-
Cadmium	µg/g	1.2[A]	0.14	-	-	-	-	-	-	<0.10	-	-
Chromium	µg/g	70[A]	32	-	-	-	-	-	-	14	-	-
Chromium (Hexavalent)	µg/g	0.66[A]	<0.18	-	-	-	-	-	-	<0.18	-	-
Cobalt	µg/g	22[A]	8.8	-	-	-	-	-	-	5.9	-	-
Copper	µg/g	92[A]	26	-	-	-	-	-	-	12	-	-
Lead	µg/g	120[A]	13	-	-	-	-	-	-	11	-	-
Manganese	µg/g	n/v	-	-	-	-	-	-	-	-	-	-
Mercury	µg/g	0.27[A]	0.070	-	-	-	-	-	-	<0.050	-	-
Molybdenum	µg/g	2[A]	**2.1[A]**	0.61	-	<0.50	<0.50	<0.50	<0.50	1.6	-	-
Nickel	µg/g	82[A]	20	-	-	-	-	-	-	13	-	-
Selenium	µg/g	1.5[A]	<0.50	-	-	-	-	-	-	<0.50	-	-
Silver	µg/g	0.5[A]	<0.20	-	-	-	-	-	-	<0.20	-	-
Thallium	µg/g	1[A]	0.13	-	-	-	-	-	-	0.14	-	-
Tin	µg/g	n/v	-	-	-	-	-	-	-	-	-	-
Uranium	µg/g	2.5[A]	0.93	-	-	-	-	-	-	0.58	-	-
Vanadium	µg/g	86[A]	36	-	-	-	-	-	-	21	-	-
Zinc	µg/g	290[A]	57	-	-	-	-	-	-	31	-	-
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	µg/g	0.072[A]	<0.0050	-	-	-	-	-	-	<0.0050	-	-
Acenaphthylene	µg/g	0.093[A]	<0.0050	-	-	-	-	-	-	0.011	-	-
Anthracene	µg/g	0.22[A]	<0.0050	-	-	-	-	-	-	0.015	-	-
Benzo(a)anthracene	µg/g	0.36[A]	<0.0050	-	-	-	-	-	-	0.058	-	-
Benzo(a)pyrene	µg/g	0.3[A]	<0.0050	-	-	-	-	-	-	0.057	-	-
Benzo(b/j)fluoranthene	µg/g	0.47_{s2}[A]	<0.0050	-	-	-	-	-	-	0.074	-	-
Benzo(g,h,i)perylene	µg/g	0.68[A]	<0.0050	-	-	-	-	-	-	0.039	-	-
Benzo(k)fluoranthene	µg/g	0.48[A]	<0.0050	-	-	-	-	-	-	0.022	-	-
Chrysene	µg/g	2.8[A]	<0.0050	-	-	-	-	-	-	0.054	-	-
Dibenzo(a,h)anthracene	µg/g	0.1[A]	<0.0050	-	-	-	-	-	-	0.0070	-	-
Fluoranthene	µg/g	0.69[A]	0.0054	-	-	-	-	-	-	0.12	-	-
Fluorene	µg/g	0.19[A]	<0.0050	-	-	-	-	-	-	<0.0050	-	-
Indeno(1,2,3-cd)pyrene	µg/g	0.23[A]	<0.0050	-	-	-	-	-	-	0.043	-	-
Methylnaphthalene (Total)	µg/g	0.59_{s3}[A]	<0.0071	-	-	-	-	-	-	<0.0071	-	-
Methylnaphthalene, 1-	µg/g	$_{s3}$[A]	<0.0050	-	-	-	-	-	-	<0.0050	-	-
Methylnaphthalene, 2-	µg/g	$_{s3}$[A]	<0.0050	-	-	-	-	-	-	<0.0050	-	-
Naphthalene	µg/g	0.09[A]	<0.0050	-	-	-	-	-	-	<0.0050	-	-
Phenanthrene	µg/g	0.69[A]	<0.0050	-	-	-	-	-	-	0.049	-	-
Pyrene	µg/g	1[A]	<0.0050	-	-	-	-	-	-	0.098	-	-
Polychlorinated Biphenyls												
Aroclor 1242	µg/g	$_{s14}$[A]	<0.010	-	-	-	-	-	-	<0.010	-	-
Aroclor 1248	µg/g	$_{s14}$[A]	<0.010	-	-	-	-	-	-	<0.010	-	-
Aroclor 1254	µg/g	$_{s14}$[A]	<0.010	-	-	-	-	-	-	<0.010	-	-
Aroclor 1260	µg/g	$_{s14}$[A]	<0.010	-	-	-	-	-	-	<0.010	-	-
Polychlorinated Biphenyls (PCBs)	µg/g	0.3_{s14}[A]	<0.010	-	-	-	-	-	-	<0.010	-	-

See notes on last page.

Table 3
Summary of Soil Analytical Results
Phase Two Environmental Site Assessment
2164 Old Prescott Road, Greely, Ontario
P.W. Justice Holdings Ltd.

Sample Location			MW20-6/TP21-1/TP21-2/TP21-3/TP21-4							TP21-5	BH20-5	MW20-6
Sample Date			5-Mar-21	5-Mar-21	5-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	30-Mar-21	5-Mar-21	5-Mar-21
Sample ID			MW20-6-SS1	MW20-6-SS2	MW20-6-SS9	TP21-1	TP21-2	TP21-3	TP21-4	TP21-5-SHALLOW	GRAIN SIZE TOP	GRAIN SIZE BOTTOM
Sample Depth			0 - 1.5 m	1.5 - 3 m	9.1 - 9.9 m	0.4 - 1.5 m	0.6 - 1.6 m	0.6 - 1.6 m	0.6 - 1.6 m	0.5 - 2.2 m		
Sampling Company			STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			BV	BV	BV	BV	BV	BV	BV	BV	BV	BV
Laboratory Work Order			C161488	C161488	C161488	C184479	C184479	C184479	C184479	C185813	C161488	C161488
Laboratory Sample ID			PAE320	PAE321	PAE322	PFA640	PFA641	PFA642	PFA643	PFH642	PAE324	PAE325
Sample Type	Units	Ontario SCS										
Volatile Organic Compounds												
Acetone	µg/g	0.5[A]	-	-	<0.50	-	-	-	-	<0.50	-	-
Benzene	µg/g	0.02[A]	-	-	<0.020	-	-	-	-	<0.020	-	-
Bromodichloromethane	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Bromoform (Tribromomethane)	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Bromomethane (Methyl bromide)	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Carbon Tetrachloride (Tetrachloromethane)	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Chlorobenzene (Monochlorobenzene)	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Chloroform (Trichloromethane)	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Dibromochloromethane	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Dichlorobenzene, 1,2-	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Dichlorobenzene, 1,3-	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Dichlorobenzene, 1,4-	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Dichlorodifluoromethane (Freon 12)	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Dichloroethane, 1,1-	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Dichloroethane, 1,2-	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Dichloroethene, 1,1-	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Dichloroethene, cis-1,2-	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Dichloroethene, trans-1,2-	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Dichloropropane, 1,2-	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/g	0.05[s11,A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Dichloropropene, cis-1,3-	µg/g	[s11,A]	-	-	<0.030	-	-	-	-	<0.030	-	-
Dichloropropene, trans-1,3-	µg/g	[s11,A]	-	-	<0.040	-	-	-	-	<0.040	-	-
Ethylbenzene	µg/g	0.05[A]	-	-	<0.020	-	-	-	-	<0.020	-	-
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Hexane (n-Hexane)	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/g	0.5[A]	-	-	<0.50	-	-	-	-	<0.50	-	-
Methyl Isobutyl Ketone (MIBK)	µg/g	0.5[A]	-	-	<0.50	-	-	-	-	<0.50	-	-
Methyl tert-butyl ether (MTBE)	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Methylene Chloride (Dichloromethane)	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Styrene	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Tetrachloroethane, 1,1,1,2-	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Tetrachloroethane, 1,1,2,2-	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Tetrachloroethene (PCE)	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Toluene	µg/g	0.2[A]	-	-	<0.020	-	-	-	-	<0.020	-	-
Trichloroethane, 1,1,1-	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Trichloroethane, 1,1,2-	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Trichloroethene (TCE)	µg/g	0.05[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Trichlorofluoromethane (Freon 11)	µg/g	0.25[A]	-	-	<0.050	-	-	-	-	<0.050	-	-
Vinyl Chloride	µg/g	0.02[A]	-	-	<0.020	-	-	-	-	<0.020	-	-
Xylene, m & p-	µg/g	[s1,A]	-	-	<0.020	-	-	-	-	<0.020	-	-
Xylene, o-	µg/g	[s1,A]	-	-	<0.020	-	-	-	-	<0.020	-	-
Xylenes, Total	µg/g	0.05[s1,A]	-	-	<0.020	-	-	-	-	<0.020	-	-

Notes:

Ontario SCS	Soil, Ground Water and Sediment Standards for Use under Part XV.I of the Environmental Protection Act (MOE, 2011) Site Condition Standards (SCS)
A	Table 8 - Residential / Parkland / Institutional / Industrial / Commercial / Community Property Use
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
s1	Standard is applicable to total xylenes, and m & p-xylenes and o-xylenes should be summed for comparison.
s2	Standard is for benzo(b)fluoranthene; however, the analytical laboratory can not distinguish between benzo(b)fluoranthene and benzo(j)fluoranthene, and therefore, the result is a combination of the two isomers, against which the standard has been compared.
s3	Standard is applicable to both 1-methylnaphthalene and 2-methylnaphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.
s7	Standard is applicable to PHC in the F1 range minus BTEX.
s8	Standard is applicable to PHC in the F3 range, minus PAHs (other than naphthalene). If PAHs were not analyzed, the standard is applied to F3.
s10	If baseline is not reached during F4 analysis, then gravimetric analysis is to be performed, and the standard is applied to the higher of the two results.
s11	Standard is applicable to 1,3-Dichloropropene, and the individual isomers (cis + trans) should be added for comparison.
s14	Standard is applicable to total PCBs, and the individual Aroclors should be added for comparison.
s15	Standard is applicable to PHC in the F2 range minus naphthalene. If naphthalene was not analyzed, the standard is applied to F2.
s16	For surface soil, the boron standard is for hot water soluble extract. For subsurface soil, the standard is for total boron (mixed strong acid digest), as ecological criteria are not considered.
SDC	Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 10% for Electrical Conductivity, 25% for Chromium VI, Chloride, and Cyanide, 30% for Metals, Inorganics and PHCs, 50% for VOCs, and 40% for PCBs and PAHs. (source: Maxxam Environmental QA/QC Interpretation Guide Reference COR-FCD-0097 released July 18, 2016.)
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table 4
Summary of Ground Water Analytical Results
Phase Two Environmental Site Assessment
2164 Old Prescott Road, Greely, Ontario
P.W. Justice Holdings Ltd.

Sample Location			BH/MW20-2							MW20-4	MW20-6	Trip Blank	
Sample Date			8-Jun-20	8-Jun-20		17-Dec-20	4-Jun-21	4-Jun-21		4-Jun-21	4-Jun-21	8-Jun-20	4-Jun-21
Sample ID			MW20-2	DUP-1		MW20-2	MW20-2	QC-1		MW20-4	MW20-6	TRIP BLANK	TRIP BLANK
Sample Depth			7.01 - 10.06 m BGS	7.01 - 10.06 m BGS		7.01 - 10.06 m BGS	7.01 - 10.06 m BGS	7.01 - 10.06 m BGS		7.62 - 10.67 m BGS	7.62 - 10.67 m BGS		
Sampling Company			STANTEC	STANTEC		STANTEC	STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			BV	BV		BV	BV	BV		BV	BV	BV	BV
Laboratory Work Order			C0E0800	C0E0800		C0X7774	C1F5620	C1F5620		C1F5620	C1F5620	C0E0800	C1F5620
Laboratory Sample ID			MVA520	MVA522		OLJ292	PTT817	PTT820		PTT819	PTT818	MVA523	PTT821
Sample Type	Units	Ontario SCS		Field Duplicate	RPD (%)			Field Duplicate	RPD (%)			Trip Blank	Trip Blank
General Chemistry													
Chloride	mg/L	790[A]	25	26	4%	-	34	34	0%	41	48	-	-
Cyanide (Free)	µg/L	52[A]	<1	<1	nc	-	<1	<1	nc	<1	2	-	-
Petroleum Hydrocarbons													
PHC F1 (C6-C10 range)	µg/L	[s7,A]	<25	<25	nc	-	<25	<25	nc	<25	<25	-	<25
PHC F1 (C6-C10 range) minus BTEX	µg/L	420[s7,A]	<25	<25	nc	-	<25	<25	nc	<25	<25	-	<25
PHC F2 (>C10-C16 range)	µg/L	150[s15,A]	<100	<100	nc	-	<100	<100	nc	<100	<100	-	-
PHC F3 (>C16-C34 range)	µg/L	500[s8,A]	<200	<200	nc	-	<200	<200	nc	<200	<200	-	-
PHC F4 (>C34-C50 range)	µg/L	500[s10,A]	<200	<200	nc	-	<200	<200	nc	<200	<200	-	-
Chromatogram to baseline at C50	none	n/v	YES	YES	nc	-	YES	YES	nc	YES	YES	-	-
Metals, Dissolved													
Antimony	µg/L	6[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	-	-
Arsenic	µg/L	25[A]	<1.0	<1.0	nc	-	<1.0	<1.0	nc	<1.0	<1.0	-	-
Barium	µg/L	1,000[A]	160	150	6%	-	170	180	6%	69	130	-	-
Beryllium	µg/L	4[A]	<0.40	<0.40	nc	-	<0.40	<0.40	nc	<0.40	<0.40	-	-
Boron	µg/L	5,000[A]	41	41	nc	-	28	29	nc	12	36	-	-
Cadmium	µg/L	2.1[A]	<0.090	<0.090	nc	-	<0.090	<0.090	nc	<0.090	<0.090	-	-
Chromium	µg/L	50[A]	<5.0	<5.0	nc	-	<5.0	<5.0	nc	<5.0	<5.0	-	-
Chromium (Hexavalent)	µg/L	25[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	-	-
Cobalt	µg/L	3.8[A]	**6.3[A]**	**6.2[A]**	2%	0.53	<0.50	<0.50	nc	<0.50	<0.50	-	-
Copper	µg/L	69[A]	3.5	<0.90	nc	-	1.2	3.7	nc	<0.90	15	-	-
Lead	µg/L	10[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	-	-
Mercury	µg/L	0.29[A]	<0.10	<0.10	nc	-	<0.10	<0.10	nc	<0.10	<0.10	-	-
Molybdenum	µg/L	70[A]	15	15	0%	-	2.7	2.6	4%	<0.50	4.3	-	-
Nickel	µg/L	100[A]	8.6	8.4	2%	-	1.3	1.4	nc	1.7	1.0	-	-
Selenium	µg/L	10[A]	<2.0	<2.0	nc	-	<2.0	<2.0	nc	<2.0	<2.0	-	-
Silver	µg/L	1.2[A]	<0.090	<0.090	nc	-	<0.090	<0.090	nc	<0.090	<0.090	-	-
Sodium	µg/L	490,000[A]	31,000	32,000	3%	-	33,000	34,000	3%	27,000	27,000	-	-
Thallium	µg/L	2[A]	0.065	0.056	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Uranium	µg/L	20[A]	0.73	0.71	3%	-	1.3	1.2	8%	0.51	0.89	-	-
Vanadium	µg/L	6.2[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	-	-
Zinc	µg/L	890[A]	<5.0	<5.0	nc	-	<5.0	<5.0	nc	<5.0	<5.0	-	-
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	µg/L	4.1[A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Acenaphthylene	µg/L	1[A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Anthracene	µg/L	1[A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Benzo(a)anthracene	µg/L	1[A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Benzo(a)pyrene	µg/L	0.01[A]	<0.0090	<0.0090	nc	-	<0.0090	<0.0090	nc	<0.0090	<0.0090	-	-
Benzo(b/j)fluoranthene	µg/L	0.1[s2,A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Benzo(g,h,i)perylene	µg/L	0.2[A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Benzo(k)fluoranthene	µg/L	0.1[A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Chrysene	µg/L	0.1[A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Dibenzo(a,h)anthracene	µg/L	0.2[A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Fluoranthene	µg/L	0.41[A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Fluorene	µg/L	120[A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Indeno(1,2,3-cd)pyrene	µg/L	0.2[A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Methylnaphthalene (Total)	µg/L	3.2[s3,A]	<0.071	<0.071	nc	-	<0.071	<0.071	nc	<0.071	<0.071	-	-
Methylnaphthalene, 1-	µg/L	[s3,A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Methylnaphthalene, 2-	µg/L	[s3,A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Naphthalene	µg/L	11[A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Phenanthrene	µg/L	1[A]	<0.030	<0.030	nc	-	<0.030	<0.030	nc	<0.030	<0.030	-	-
Pyrene	µg/L	4.1[A]	<0.050	<0.050	nc	-	<0.050	<0.050	nc	<0.050	<0.050	-	-
Polychlorinated Biphenyls													
Aroclor 1242	µg/L	[s14,A]	-	-	-	-	<0.05	<0.05	nc	<0.05	<0.05	-	-
Aroclor 1248	µg/L	[s14,A]	-	-	-	-	<0.05	<0.05	nc	<0.05	<0.05	-	-
Aroclor 1254	µg/L	[s14,A]	-	-	-	-	<0.05	<0.05	nc	<0.05	<0.05	-	-
Aroclor 1260	µg/L	[s14,A]	-	-	-	-	<0.05	<0.05	nc	<0.05	<0.05	-	-
Polychlorinated Biphenyls (PCBs)	µg/L	0.2[s14,A]	-	-	-	-	<0.05	<0.05	nc	<0.05	<0.05	-	-
Volatile Organic Compounds													
Acetone	µg/L	2,700[A]	<10	<10	nc	-	<10	<10	nc	<10	<10	<10	<10
Benzene	µg/L	5[A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	µg/L	16[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.50	<0.50
Bromoform (Tribromomethane)	µg/L	25[A]	<1.0	<1.0	nc	-	<1.0	<1.0	nc	<1.0	<1.0	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	0.89[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride (Tetrachloromethane)	µg/L	0.79[A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.19	<0.20
Chlorobenzene (Monochlorobenzene)	µg/L	30[A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20
Chloroform (Trichloromethane)	µg/L	2.4[A]	1.5	1.2	22%	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	25[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,2-	µg/L	3[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.40	<0.50
Dichlorobenzene, 1,3-	µg/L	59[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.40	<0.50
Dichlorobenzene, 1,4-	µg/L	1[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.40	<0.50
Dichlorodifluoromethane (Freon 12)	µg/L	590[A]	<1.0	<1.0	nc	-	<1.0	<1.0	nc	<1.0	<1.0	<1.0	<1.0
Dichloroethane, 1,1-	µg/L	5[A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20
Dichloroethane, 1,2-	µg/L	1.6[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.49	<0.50
Dichloroethene, 1,1-	µg/L	1.6[A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20
Dichloroethene, cis-1,2-	µg/L	1.6[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.50	<0.50
Dichloroethene, trans-1,2-	µg/L	1.6[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.50	<0.50
Dichloropropane, 1,2-	µg/L	5[A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/L	0.5[s11,A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.50	<0.50
Dichloropropene, cis-1,3-	µg/L	[s11,A]	<0.30	<0.30	nc	-	<0.30	<0.30	nc	<0.30	<0.30	<0.30	<0.30
Dichloropropene, trans-1,3-	µg/L	[s11,A]	<0.40	<0.40	nc	-	<0.40	<0.40	nc	<0.40	<0.40	<0.40	<0.40
Ethylbenzene	µg/L	2.4[A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	0.2[A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.19	<0.20
Hexane (n-Hexane)	µg/L	51[A]	<1.0	<1.0	nc	-	<1.0	<1.0	nc	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	1,800[A]	<10	<10	nc	-	<10	<10	nc	<10	<10	<10	<10
Methyl Isobutyl Ketone (MIBK)	µg/L	640[A]	<5.0	<5.0	nc	-	<5.0	<5.0	nc	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether (MTBE)	µg/L	15[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.50	<0.50
Methylene Chloride (Dichloromethane)	µg/L	50[A]	<2.0	<2.0	nc	-	<2.0	<2.0	nc	<2.0	<2.0	<2.0	<2.0
Styrene	µg/L	5.4[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.40	<0.50
Tetrachloroethane, 1,1,1,2-	µg/L	1.1[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	µg/L	1[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.40	<0.50
Tetrachloroethene (PCE)	µg/L	1.6[A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	22[A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,1-	µg/L	200[A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,2-	µg/L	4.7[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.40	<0.50
Trichloroethene (TCE)	µg/L	1.6[A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane (Freon 11)	µg/L	150[A]	<0.50	<0.50	nc	-	<0.50	<0.50	nc	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	0.5[A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20
Xylene, m & p-	µg/L	[s1,A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20
Xylene, o-	µg/L	[s1,A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20
Xylenes, Total	µg/L	300[s1,A]	<0.20	<0.20	nc	-	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20

See notes on last page.

Table 4
Summary of Ground Water Analytical Results
Phase Two Environmental Site Assessment
2164 Old Prescott Road, Greely, Ontario
P.W. Justice Holdings Ltd.

Notes:

Ontario SCS	Soil, Ground Water and Sediment Standards for Use under Part XV.I of the Environmental Protection Act (MOE, 2011) Site Condition Standards (SCS)
A	Table 8 - All Types of Property Use
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/
-	Parameter not analyzed / not available.
s1	Standard is applicable to total xylenes, and m & p-xylenes and o-xylenes should be summed for comparison.
s2	Standard is for benzo(b)fluoranthene; however, the analytical laboratory can not distinguish between benzo(b)fluoranthene and benzo(j)fluoranthene, and therefore, the result is a combination of the two isomers, against which the standard has been compared.
s3	Standard is applicable to both 1-methylnaphthalene and 2-methylnaphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.
s7	Standard is applicable to PHC in the F1 range minus BTEX.
s8	Standard is applicable to PHC in the F3 range, minus PAHs (other than naphthalene). If PAHs were not analyzed, the standard is applied to F3.
s10	If baseline is not reached during F4 analysis, then gravimetric analysis is to be performed, and the standard is applied to the higher of the two results.
s11	Standard is applicable to 1,3-Dichloropropene, and the individual isomers (cis + trans) should be added for comparison.
s14	Standard is applicable to total PCBs, and the individual Aroclors should be added for comparison.
s15	Standard is applicable to PHC in the F2 range minus naphthalene. If naphthalene was not analyzed, the standard is applied to F2.
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 20% for Metals and Inorganics, and 30% for PHCs, VOCs, PCBs and PAHs. (source: Maxxam Environmental QA/QC Interpretation Guide Reference COR-FCD-0097 released July 18, 2016.)
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table 5
Maximum Concentrations in Soil
Phase Two Environmental Site Assessment
2164 Old Prescott Road, Greely, Ontario
P.W. Justice Holdings Ltd.

Parameter	CAS	Maximum Concentration	Maximum Concentration Unit of Measure	Location with Max Detected Concentration	Date of Max Detected Concentration	Depth of Max Detected Concentration	Minimum Reporting Detection Limit	Maximum Reporting Detection Limit (for non-detects)	Number of Sample Locations	Number of Samples Analyzed	Ontario SCS [A]	Maximum Detection Exceed SCS?
General Chemistry												
Available (CaCl2) pH	PHAVAIL	7.64	S.U.	TP21-5	30-Mar-21	0.5-2.2	n/a	n/a	8	10	n/v	n/v
Cyanide (Free)	57-12-5FREE	0.05	ug/g	SS18-3, SS18-5	27-Jun-18	0.25-0.75	0.01	0.01	11	14	0.051	No
Electrical Conductivity, Lab	CONDLAB	0.35	mS/cm	MW20-4	05-Mar-21	1.5-2.3	0.002	n/a	8	10	0.7	No
Fluoride	16984-48-8	8	ug/g	SS18-3, SS18-4	27-Jun-18	0.25-0.75	5	n/a	3	3	n/v	n/v
Moisture Content	MOISTURE	22	%	MW20-6	05-Mar-21	0-1.5	0.2	n/a	11	18	n/v	n/v
Sodium Adsorption Ratio (SAR)	7440-23-5AR	0.56	none	MW20-4	05-Mar-21	1.5-2.3	n/a	n/a	8	10	5	No
Physical Properties												
Sieve - #200 (<0.075mm)	SIEVE200<	51	%	BH20-5	05-Mar-21	n/a	1	n/a	2	2	n/v	n/v
Sieve - #200 (>0.075mm)	SIEVE200	88	%	MW20-6	05-Mar-21	n/a	1	n/a	2	2	n/v	n/v
Petroleum Hydrocarbons												
PHC F1 (C6-C10 range)	PHC_F1	(<10)	ug/g	n/a	n/a	n/a	10	10	8	10	n/v	n/v
PHC F1 (C6-C10 range) minus BTEX	PHC_F1-BTEX	(<10)	ug/g	n/a	n/a	n/a	10	10	8	10	25	No
PHC F2 (>C10-C16 range)	PHC_F2	(<10)	ug/g	n/a	n/a	n/a	10	10	8	10	10	No
PHC F3 (>C16-C34 range)	PHC_F3	(<50)	ug/g	n/a	n/a	n/a	50	50	8	10	240	No
PHC F4 (>C34-C50 range)	PHC_F4	(<50)	ug/g	n/a	n/a	n/a	50	50	8	10	120	No
Metals												
Antimony	7440-36-0	(<0.20)	ug/g	n/a	n/a	n/a	0.20	0.20	8	10	1.3	No
Arsenic	7440-38-2	4.0	ug/g	TP21-5	30-Mar-21	0.5-2.2	1.0	n/a	8	10	18	No
Barium	7440-39-3	140	ug/g	MW20-4	05-Mar-21	1.5-2.3	0.50	n/a	8	10	220	No
Beryllium	7440-41-7	0.59	ug/g	MW20-6	05-Mar-21	0-1.5	0.20	n/a	8	10	2.5	No
Boron	7440-42-8	7.2	ug/g	MW20-6	05-Mar-21	0-1.5	5.0	5.0	8	10	36	No
Boron (Available)	7440-42-8AVAIL	0.47	ug/g	MW20-4	05-Mar-21	1.5-2.3	0.050	n/a	8	10	1.5	No
Cadmium	7440-43-9	0.39	ug/g	MW20-4	05-Mar-21	1.5-2.3	0.10	0.10	8	10	1.2	No
Chromium	7440-47-3	45	ug/g	SS18-5	27-Jun-18	0.25-0.75	1.0	n/a	8	10	70	No
Chromium (Hexavalent)	18540-29-9	(<0.2)	ug/g	n/a	n/a	n/a	0.18	0.2	8	10	0.66	No
Cobalt	7440-48-4	10	ug/g	SS18-5	27-Jun-18	0.25-0.75	0.10	n/a	8	10	22	No
Copper	7440-50-8	26	ug/g	MW20-6	05-Mar-21	0-1.5	0.50	n/a	8	10	92	No
Lead	7439-92-1	40	ug/g	MW20-4	44260	1.5-2.3	1.0	n/a	8	10	120	No
Manganese	7439-96-5	440	ug/g	SS18-5	43278.47917	0.25-0.75	1.0	n/a	3	3	n/v	n/v
Mercury	7439-97-6	0.078	ug/g	MW20-4	05-Mar-21	1.5-2.3	0.050	0.050	8	10	0.27	No
Molybdenum	7439-98-7	2.0	ug/g	MW20-4	05-Mar-21	1.5-2.3	0.50	0.50	8	15	2	No
Nickel	7440-02-0	24	ug/g	SS18-5	27-Jun-18	0.25-0.75	0.50	n/a	8	10	82	No
Selenium	7782-49-2	(<0.50)	ug/g	n/a	n/a	n/a	0.50	0.50	8	10	1.5	No
Silver	7440-22-4	(<0.20)	ug/g	n/a	n/a	n/a	0.20	0.20	8	10	0.5	No
Thallium	7440-28-0	0.17	ug/g	SS18-5	27-Jun-18	0.25-0.75	0.050	n/a	8	10	1	No
Tin	7440-31-5	1.0	ug/g	SS18-5	27-Jun-18	0.25-0.75	1.0	1.0	3	3	n/v	n/v
Uranium	7440-61-1	1.0	ug/g	MW20-4, SS18-3	5-Mar-2021, 27-Jun-18	1.5-2.3, 0.25-0.75	0.050	n/a	8	10	2.5	No
Vanadium	7440-62-2	48	ug/g	SS18-3	27-Jun-18	0.25-0.75	5.0	n/a	8	10	86	No
Zinc	7440-66-6	72	ug/g	SS18-3	27-Jun-18	0.25-0.75	5.0	n/a	8	10	290	No
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	83-32-9	0.015	ug/g	BH20-5	05-Mar-21	0-0.8	0.0050	0.0050	8	10	0.072	No
Acenaphthylene	208-96-8	0.029	ug/g	SS18-8	05-Dec-18	0.25-0.5	0.0050	0.0050	8	10	0.093	No
Anthracene	120-12-7	0.051	ug/g	BH20-5	05-Mar-21	0-0.8	0.0050	0.0050	8	10	0.22	No
Benzo(a)anthracene	56-55-3	0.14	ug/g	BH20-5	05-Mar-21	0-0.8	0.0050	0.0050	8	10	0.36	No
Benzo(a)pyrene	50-32-8	0.11	ug/g	SS18-8	05-Dec-18	0.25-0.5	0.0050	0.0050	8	10	0.3	No
Benzo(b/j)fluoranthene	205992/205823	0.14	ug/g	BH20-5	05-Mar-21	0-0.8	0.0050	0.0050	8	10	0.47	No
Benzo(g,h,i)perylene	191-24-2	0.057	ug/g	BH20-5	05-Mar-21	0-0.8	0.0050	0.0050	8	10	0.68	No
Benzo(k)fluoranthene	207-08-9	0.045	ug/g	BH20-5	05-Mar-21	0-0.8	0.0050	0.0050	8	10	0.48	No
Chrysene	218-01-9	0.11	ug/g	BH20-5	05-Mar-21	0-0.8	0.0050	0.0050	8	10	2.8	No
Dibenzo(a,h)anthracene	53-70-3	0.014	ug/g	BH20-5, SS18-8	05-Mar-21, 05-Dec-18	0-0.8, 0.25-0.5	0.0050	0.0050	8	10	0.1	No
Fluoranthene	206-44-0	0.27	ug/g	BH20-5	05-Mar-21	0-0.8	0.0050	0.0050	8	10	0.69	No
Fluorene	86-73-7	0.019	ug/g	BH20-5	05-Mar-21	0-0.8	0.0050	0.0050	8	10	0.19	No
Indeno(1,2,3-cd)pyrene	193-39-5	0.066	ug/g	BH20-5	05-Mar-21	0-0.8	0.0050	0.0050	8	10	0.23	No
Methylnaphthalene (Total)	90120/91576	(<0.0071)	ug/g	n/a	n/a	n/a	0.0071	0.0071	8	10	0.59	No
Methylnaphthalene, 1-	90-12-0	(<0.0050)	ug/g	n/a	n/a	n/a	0.0050	0.0050	8	10	n/v	n/v
Methylnaphthalene, 2-	91-57-6	(<0.0050)	ug/g	n/a	n/a	n/a	0.0050	0.0050	8	10	n/v	n/v
Naphthalene	91-20-3	(<0.0050)	ug/g	n/a	n/a	n/a	0.0050	0.0050	8	10	0.09	No
Phenanthrene	85-01-8	0.17	ug/g	BH20-5	44260.61458	0-0.8	0.0050	0.0050	8	10	0.69	No
Pyrene	129-00-0	0.20	ug/g	BH20-5	44260.61458	0-0.8	0.0050	0.0050	8	10	1	No
Polychlorinated Biphenyls												
Aroclor 1242	53469-21-9	(<0.010)	ug/g	n/a	n/a	n/a	0.010	0.010	8	10	n/v	n/v
Aroclor 1248	12672-29-6	0.22	ug/g	MW20-4	44260.54861	1.5-2.3	0.010	0.010	8	10	n/v	n/v
Aroclor 1254	11097-69-1	(<0.010)	ug/g	n/a	n/a	n/a	0.010	0.010	8	10	n/v	n/v
Aroclor 1260	11096-82-5	(<0.010)	ug/g	n/a	n/a	n/a	0.010	0.010	8	10	n/v	n/v
Polychlorinated Biphenyls (PCBs)	1336-36-3	0.22	ug/g	MW20-4	44260.54861	1.5-2.3	0.010	0.010	8	10	0.3	No
Volatile Organic Compounds												
Acetone	67-64-1	(<0.50)	ug/g	n/a	n/a	n/a	0.50	0.50	8	10	0.5	No
Benzene	71-43-2	(<0.020)	ug/g	n/a	n/a	n/a	0.0060	0.020	8	10	0.02	No
Bromodichloromethane	75-27-4	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Bromoform (Tribromomethane)	75-25-2	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Bromomethane (Methyl bromide)	74-83-9	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Carbon Tetrachloride (Tetrachloromethane)	56-23-5	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Chlorobenzene (Monochlorobenzene)	108-90-7	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Chloroform (Trichloromethane)	67-66-3	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Dibromochloromethane	124-48-1	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Dichlorobenzene, 1,2-	95-50-1	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Dichlorobenzene, 1,3-	541-73-1	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Dichlorobenzene, 1,4-	106-46-7	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Dichlorodifluoromethane (Freon 12)	75-71-8	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Dichloroethane, 1,1-	75-34-3	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Dichloroethane, 1,2-	107-06-2	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Dichloroethene, 1,1-	75-35-4	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Dichloroethene, cis-1,2-	156-59-2	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Dichloroethene, trans-1,2-	156-60-5	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Dichloropropane, 1,2-	78-87-5	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Dichloropropene, 1,3- (sum of isomers cis + trans)	542-75-6	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Dichloropropene, cis-1,3-	10061-01-5	(<0.030)	ug/g	n/a	n/a	n/a	0.030	0.030	8	10	n/v	n/v
Dichloropropene, trans-1,3-	10061-02-6	(<0.040)	ug/g	n/a	n/a	n/a	0.040	0.040	8	10	n/v	n/v
Ethylbenzene	100-41-4	(<0.020)	ug/g	n/a	n/a	n/a	0.010	0.020	8	10	0.05	No
Ethylene Dibromide (Dibromoethane, 1,2-)	106-93-4	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Hexane (n-Hexane)	110-54-3	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Methyl Ethyl Ketone (MEK) (2-Butanone)	78-93-3	(<0.50)	ug/g	n/a	n/a	n/a	0.50	0.50	8	10	0.5	No
Methyl Isobutyl Ketone (MIBK)	108-10-1	(<0.50)	ug/g	n/a	n/a	n/a	0.50	0.50	8	10	0.5	No
Methyl tert-butyl ether (MTBE)	1634-04-4	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Methylene Chloride (Dichloromethane)	75-09-2	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Styrene	100-42-5	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Tetrachloroethane, 1,1,1,2-	630-20-6	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Tetrachloroethane, 1,1,2,2-	79-34-5	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Tetrachloroethene (PCE)	127-18-4	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Toluene	108-88-3	(<0.020)	ug/g	n/a	n/a	n/a	0.020	0.020	8	10	0.2	No
Trichloroethane, 1,1,1-	71-55-6	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Trichloroethane, 1,1,2-	79-00-5	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.05	No
Trichloroethene (TCE)	79-01-6	(<0.050)	ug/g	n/a	n/a	n/a	0.010	0.050	8	10	0.05	No
Trichlorofluoromethane (Freon 11)	75-69-4	(<0.050)	ug/g	n/a	n/a	n/a	0.050	0.050	8	10	0.25	No
Vinyl Chloride	75-01-4	(<0.020)	ug/g	n/a	n/a	n/a	0.020	0.020	8	10	0.02	No
Xylene, m & p-	108383/106423	(<0.020)	ug/g	n/a	n/a	n/a	0.020	0.020	8	10	n/v	n/v
Xylene, o-	95-47-6	(<0.020)	ug/g	n/a	n/a	n/a	0.020	0.020	8	10	n/v	n/v
Xylenes, Total	1330-20-7	(<0.020)	ug/g	n/a	n/a	n/a	0.020	0.020	8	10	0.05	No

Notes:

Ontario SCS	Soil, Ground Water and Sediment Standards for Use under Part XV.I of the Environmental Protection Act (MOE, 2011) Site Condition Standards (SCS)
[A]	Table 8 - Residential / Parkland / Institutional / Industrial / Commercial / Community Property Use
-	Parameter not analyzed / not available.
n/a	Not applicable.
n/v	No standard/guideline value.
CAS	A unique numerical identifier assigned by the Chemical Abstracts Services to a chemical substance.
PHC F1-F4	Petroleum Hydrocarbon Fraction 1 to Fraction 4.

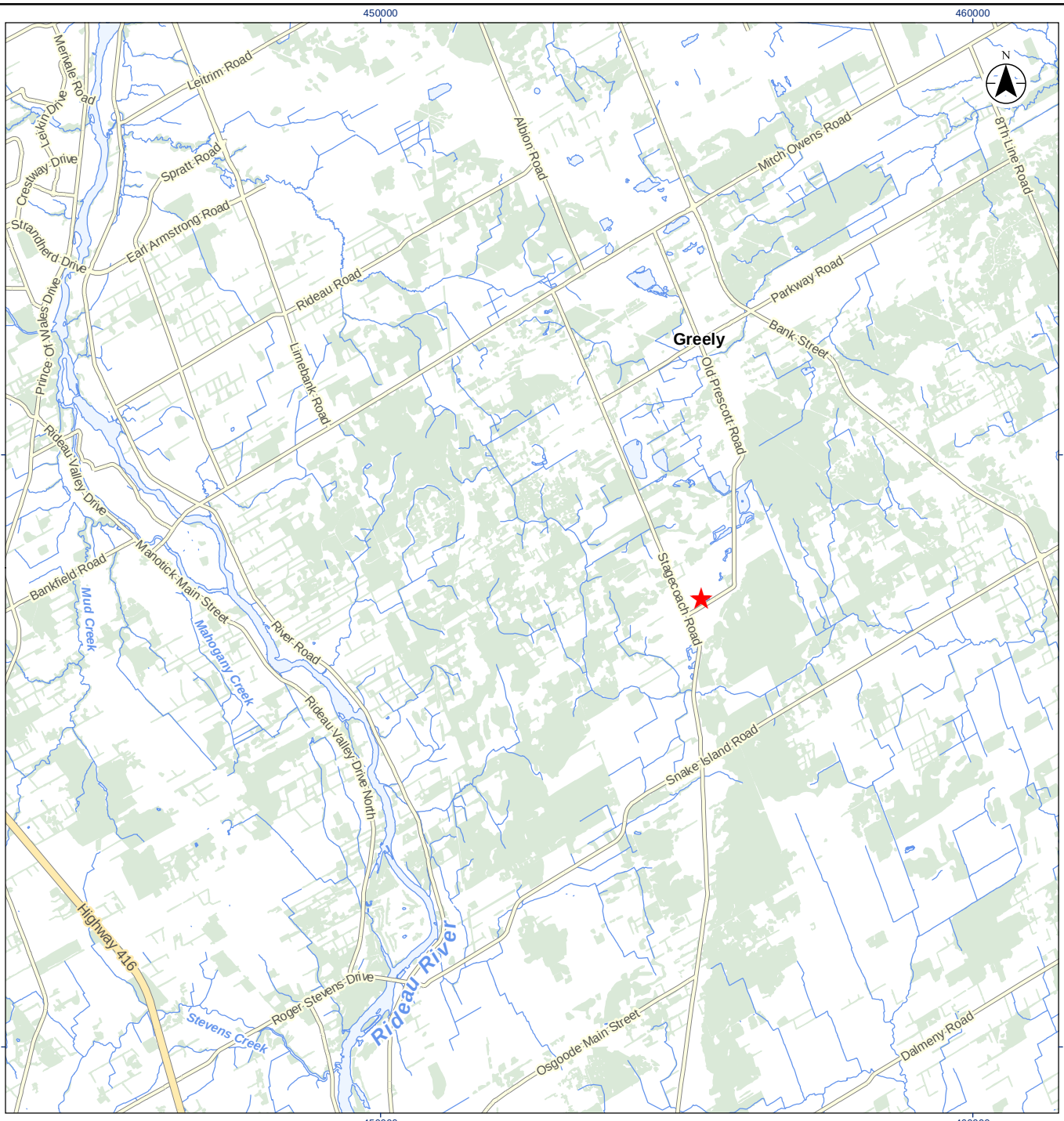
Table 6
Maximum Concentrations in Ground Water
Phase Two Environmental Site Assessment
2164 Old Prescott Road, Greely, Ontario
P.W. Justice Holdings Ltd.

Parameter	CAS	Maximum Concentration	Maximum Concentration Unit of Measure	Location with Max Detected Concentration	Date of Max Detected Concentration	Minimum Reporting Detection Limit	Maximum Reporting Detection Limit (for non-detects)	Number of Sample Locations	Number of Samples Analyzed	Ontario SCS [A]	Maximum Detection Exceed SCS?
General Chemistry											
Chloride	16887-00-6	48	mg/L	MW20-6	6/4/2021	1.0	n/a	3	6	790	No
Cyanide (Free)	57-12-5FREE	2	ug/L	MW20-6	6/4/2021	1	1	3	6	52	No
Petroleum Hydrocarbons											
PHC F1 (C6-C10 range)	PHC_F1	(<25)	ug/L	n/a	n/a	25	25	3	6	n/v	n/v
PHC F1 (C6-C10 range) minus BTEX	PHC_F1-BTEX	(<25)	ug/L	n/a	n/a	25	25	3	6	420	No
PHC F2 (>C10-C16 range)	PHC_F2	(<100)	ug/L	n/a	n/a	100	100	3	6	150	No
PHC F3 (>C16-C34 range)	PHC_F3	(<200)	ug/L	n/a	n/a	200	200	3	6	500	No
PHC F4 (>C34-C50 range)	PHC_F4	(<200)	ug/L	n/a	n/a	200	200	3	6	500	No
Metals											
Antimony	7440-36-0	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	6	No
Arsenic	7440-38-2	(<1.0)	ug/L	n/a	n/a	1.0	1.0	3	6	25	No
Barium	7440-39-3	180	ug/L	BH/MW20-2	6/4/2021	2.0	n/a	3	6	1000	No
Beryllium	7440-41-7	(<0.40)	ug/L	n/a	n/a	0.40	0.40	3	6	4	No
Boron	7440-42-8	41	ug/L	BH/MW20-2	6/8/2020	10	n/a	3	6	5000	No
Cadmium	7440-43-9	(<0.090)	ug/L	n/a	n/a	0.090	0.090	3	6	2.1	No
Chromium	7440-47-3	(<5.0)	ug/L	n/a	n/a	5.0	5.0	3	6	50	No
Chromium (Hexavalent)	18540-29-9	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	25	No
Cobalt	7440-48-4	0.53	ug/L	BH/MW20-2	12/17/2020	0.50	0.50	3	7	3.8	No
Copper	7440-50-8	15	ug/L	MW20-6	6/4/2021	0.90	0.90	3	6	69	No
Lead	7439-92-1	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	10	No
Mercury	7439-97-6	(<0.10)	ug/L	n/a	n/a	0.10	0.10	3	6	0.29	No
Molybdenum	7439-98-7	15	ug/L	BH/MW20-2	6/8/2020	0.50	0.50	3	6	70	No
Nickel	7440-02-0	8.6	ug/L	BH/MW20-2	6/8/2020	1.0	n/a	3	6	100	No
Selenium	7782-49-2	(<2.0)	ug/L	n/a	n/a	2.0	2.0	3	6	10	No
Silver	7440-22-4	(<0.090)	ug/L	n/a	n/a	0.090	0.090	3	6	1.2	No
Sodium	7440-23-5	34000	ug/L	BH/MW20-2	6/4/2021	100	n/a	3	6	490000	No
Thallium	7440-28-0	0.065	ug/L	BH/MW20-2	6/8/2020	0.050	0.050	3	6	2	No
Uranium	7440-61-1	1.3	ug/L	BH/MW20-2	6/4/2021	0.10	n/a	3	6	20	No
Vanadium	7440-62-2	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	6.2	No
Zinc	7440-66-6	(<5.0)	ug/L	n/a	n/a	5.0	5.0	3	6	890	No
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	4.1	No
Acenaphthylene	208-96-8	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	1	No
Anthracene	120-12-7	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	1	No
Benzo(a)anthracene	56-55-3	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	1	No
Benzo(a)pyrene	50-32-8	(<0.0090)	ug/L	n/a	n/a	0.0090	0.0090	3	6	0.01	No
Benzo(b/j)fluoranthene	205992/205823	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	0.1	No
Benzo(g,h,i)perylene	191-24-2	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	0.2	No
Benzo(k)fluoranthene	207-08-9	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	0.1	No
Chrysene	218-01-9	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	0.1	No
Dibenzo(a,h)anthracene	53-70-3	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	0.2	No
Fluoranthene	206-44-0	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	0.41	No
Fluorene	86-73-7	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	120	No
Indeno(1,2,3-cd)pyrene	193-39-5	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	0.2	No
Methylnaphthalene (Total)	90120/91576	(<0.071)	ug/L	n/a	n/a	0.071	0.071	3	6	3.2	No
Methylnaphthalene, 1-	90-12-0	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	n/v	n/v
Methylnaphthalene, 2-	91-57-6	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	n/v	n/v
Naphthalene	91-20-3	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	11	No
Phenanthrene	85-01-8	(<0.030)	ug/L	n/a	n/a	0.030	0.030	3	6	1	No
Pyrene	129-00-0	(<0.050)	ug/L	n/a	n/a	0.050	0.050	3	6	4.1	No
Polychlorinated Biphenyls											
Aroclor 1242	53469-21-9	(<0.05)	ug/L	n/a	n/a	0.05	0.05	3	4	n/v	n/v
Aroclor 1248	12672-29-6	(<0.05)	ug/L	n/a	n/a	0.05	0.05	3	4	n/v	n/v
Aroclor 1254	11097-69-1	(<0.05)	ug/L	n/a	n/a	0.05	0.05	3	4	n/v	n/v
Aroclor 1260	11096-82-5	(<0.05)	ug/L	n/a	n/a	0.05	0.05	3	4	n/v	n/v
Polychlorinated Biphenyls (PCBs)	1336-36-3	(<0.05)	ug/L	n/a	n/a	0.05	0.05	3	4	0.2	No
Volatile Organic Compounds											
Acetone	67-64-1	(<10)	ug/L	n/a	n/a	10	10	3	6	2700	No
Benzene	71-43-2	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	5	No
Bromodichloromethane	75-27-4	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	16	No
Bromoform (Tribromomethane)	75-25-2	(<1.0)	ug/L	n/a	n/a	1.0	1.0	3	6	25	No
Bromomethane (Methyl bromide)	74-83-9	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	0.89	No
Carbon Tetrachloride (Tetrachloromethane)	56-23-5	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	0.79	No
Chlorobenzene (Monochlorobenzene)	108-90-7	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	30	No
Chloroform (Trichloromethane)	67-66-3	1.5	ug/L	BH/MW20-2	6/8/2020	0.20	0.20	3	6	2.4	No
Dibromochloromethane	124-48-1	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	25	No
Dichlorobenzene, 1,2-	95-50-1	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	3	No
Dichlorobenzene, 1,3-	541-73-1	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	59	No
Dichlorobenzene, 1,4-	106-46-7	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	1	No
Dichlorodifluoromethane (Freon 12)	75-71-8	(<1.0)	ug/L	n/a	n/a	1.0	1.0	3	6	590	No
Dichloroethane, 1,1-	75-34-3	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	5	No
Dichloroethane, 1,2-	107-06-2	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	1.6	No
Dichloroethene, 1,1-	75-35-4	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	1.6	No
Dichloroethene, cis-1,2-	156-59-2	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	1.6	No
Dichloroethene, trans-1,2-	156-60-5	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	1.6	No
Dichloropropane, 1,2-	78-87-5	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	5	No
Dichloropropene, 1,3- (sum of isomers cis + trans)	542-75-6	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	0.5	No
Dichloropropene, cis-1,3-	10061-01-5	(<0.30)	ug/L	n/a	n/a	0.30	0.30	3	6	n/v	n/v
Dichloropropene, trans-1,3-	10061-02-6	(<0.40)	ug/L	n/a	n/a	0.40	0.40	3	6	n/v	n/v
Ethylbenzene	100-41-4	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	2.4	No
Ethylene Dibromide (Dibromoethane, 1,2-)	106-93-4	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	0.2	No
Hexane (n-Hexane)	110-54-3	(<1.0)	ug/L	n/a	n/a	1.0	1.0	3	6	51	No
Methyl Ethyl Ketone (MEK) (2-Butanone)	78-93-3	(<10)	ug/L	n/a	n/a	10	10	3	6	1800	No
Methyl Isobutyl Ketone (MIBK)	108-10-1	(<5.0)	ug/L	n/a	n/a	5.0	5.0	3	6	640	No
Methyl tert-butyl ether (MTBE)	1634-04-4	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	15	No
Methylene Chloride (Dichloromethane)	75-09-2	(<2.0)	ug/L	n/a	n/a	2.0	2.0	3	6	50	No
Styrene	100-42-5	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	5.4	No
Tetrachloroethane, 1,1,1,2-	630-20-6	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	1.1	No
Tetrachloroethane, 1,1,2,2-	79-34-5	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	1	No
Tetrachloroethene (PCE)	127-18-4	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	1.6	No
Toluene	108-88-3	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	22	No
Trichloroethane, 1,1,1-	71-55-6	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	200	No
Trichloroethane, 1,1,2-	79-00-5	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	4.7	No
Trichloroethene (TCE)	79-01-6	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	1.6	No
Trichlorofluoromethane (Freon 11)	75-69-4	(<0.50)	ug/L	n/a	n/a	0.50	0.50	3	6	150	No
Vinyl Chloride	75-01-4	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	0.5	No
Xylene, m & p-	108383/106423	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	n/v	n/v
Xylene, o-	95-47-6	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	n/v	n/v
Xylenes, Total	1330-20-7	(<0.20)	ug/L	n/a	n/a	0.20	0.20	3	6	300	No

Notes:

Ontario SCS	Soil, Ground Water and Sediment Standards for Use under Part XV.I of the Environmental Protection Act (MOE, 2011) Site Condition Standards (SCS)
[A]	Table 8 - All Types of Property Uses
-	Parameter not analyzed / not available.
n/a	Not applicable.
n/v	No standard/guideline value.
CAS	A unique numerical identifier assigned by the Chemical Abstracts Services to a chemical substance.
PHC F1-F4	Petroleum Hydrocarbon Fraction 1 to Fraction 4.

FIGURES



Legend

- Site Location
- Highway
- Major Road
- Railway
- Watercourse
- Waterbody
- Wooded Area

0 1 2 kilometres

1:100,000 (at original document size of 8.5x11)

Notes
1. Coordinate System: NAD 1983 UTM Zone 18N
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Stantec

Project Location
2164 Old Prescott Road, Greely, ON

122170434 REVA
Prepared by CL on 2021-07-29

Client/Project
Mr. Paul Justice
Phase Two Environmental Site Assessment Part of 2164 Old Prescott Road, Greely, Ontario

Figure No.
1

Title
Site Location

Stantec

Legend

- Borehole (Stantec, 2021)
- Monitoring Well (Stantec, 2021)
- Monitoring Well (Stantec, 2020)
- Soil Sample (Stantec, 2018)
- Test Pit (Stantec, 2021)
- Inferred Regional Groundwater Flow Direction
- 2021 updated Phase One and Phase Two Property
- 2018 and 2020 Phase One Property
- Interpreted Extent of Fill Placement
- APEC - Importance of Fill Material of Unknown Quality (PCA 30)

0 50 100 metres

1:3,000 (At original document size of 11x17)

Notes

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Project Location
2164 Old Prescott Road,
Greely, ON

122170434 REVC
Prepared by CL on 2021-10-01

Client/Project
JUSTICE CONSTRUCTION LIMITED
PHASE TWO ESA
PART OF 2164 OLD PRESCOTT RD, OTTAWA, ON

Figure No.
2

Title
Site Plan

Stantec

Legend

- Monitoring Well (Stantec, 2021)
- Monitoring Well (Stantec, 2020)
- Ground Water Contour (m AMSL)
- Inferred Ground Water Flow Direction
- 2021 updated Phase One and Phase Two Property
- 2018 and 2020 Phase One Property
- Interpreted Extent of Fill Placement
- APEC - Importance of Fill Material of Unknown Quality (PCA 30)
- 88.26 Ground Water Elevation (m AMSL)

0 20 40 metres

1:800 (At original document size of 11x17)

Notes

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4. mAMSL = metres above mean sea level.

Project Location
2164 Old Prescott Road,
Greely, ON

122170434 REVC
Prepared by CL on 2021-10-01

Client/Project
JUSTICE CONSTRUCTION LIMITED
PHASE TWO ESA
PART OF 2164 OLD PRESCOTT RD, OTTAWA, ON

Figure No.
3

Title
Inferred Ground Water Flow Direction – June 4, 2021

Stantec

Legend

- Borehole (Stantec, 2021)
- Monitoring Well (Stantec, 2021)
- Monitoring Well (Stantec, 2020)
- Soil Sample (Stantec, 2018)
- Test Pit (Stantec, 2021)
- 2021 updated Phase One and Phase Two Property
- 2018 and 2020 Phase One Property
- Interpreted Extent of Fill Placement
- APEC - Importance of Fill Material of Unknown Quality (PCA 30)
- Sample Does Not Exceed Regulatory Criteria

0 20 40 metres

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Notes

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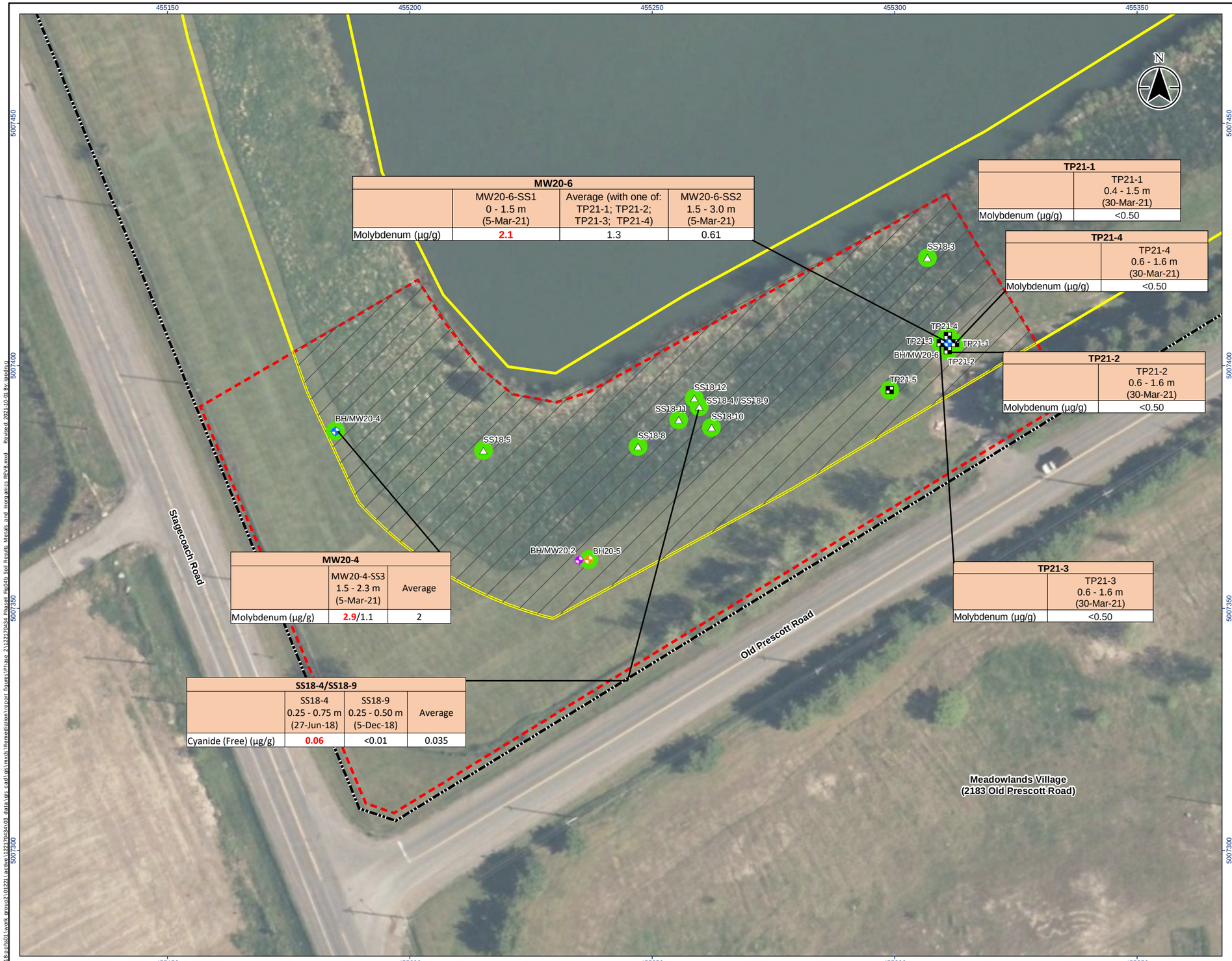
Project Location
2164 Old Prescott Road,
Greely, ON

122170434 REVB
Prepared by CL on 2021-10-01

Client/Project
JUSTICE CONSTRUCTION LIMITED
PHASE TWO ESA
PART OF 2164 OLD PRESCOTT RD, OTTAWA, ON

Figure No.
4a

Title
Soil Analytical Results – PHCs, BTEX, VOCs



Stantec

Legend

- Borehole (Stantec, 2021)
- Monitoring Well (Stantec, 2021)
- Monitoring Well (Stantec, 2020)
- Soil Sample (Stantec, 2018)
- Test Pit (Stantec, 2021)
- 2021 updated Phase One and Phase Two Property
- 2018 and 2020 Phase One Property
- Interpreted Extent of Fill Placement
- APEC - Importance of Fill Material of Unknown Quality (PCA 30)
- Sample Does Not Exceed Regulatory Criteria

Parameter	Ontario Table 8 SCS
Cyanide (Free) (µg/g)	0.051
Molybdenum (µg/g)	2

1. Site Condition Standards, Ontario Ministry Of Environment, Conservation And Parks (2011), Table 8 - All Types of Property Use

Sample ID
Depth
Date (dd-mm-yyyy)
Parameter
Value/Field Duplicate

0 20 40 metres

1:800 (At original document size of 11x17)

Notes

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2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.
3. Orthoimagery © First Base Solutions, 2021. Imagery Date, 2017.
4. The molybdenum concentration reported for MW20-4-SS3 was averaged with the molybdenum concentration reported in the field duplicate collected at the same location (DUP-2)
5. The molybdenum concentration reported for MW20-6-SS1 was averaged with the molybdenum concentration reported in the adjacent test pit samples (TP21-1 to TP21-4)

Project Location
2164 Old Prescott Road,
Greely, ON

122170434 REVB
Prepared by CL on 2021-10-01

Client/Project
JUSTICE CONSTRUCTION LIMITED
PHASE TWO ESA
PART OF 2164 OLD PRESCOTT RD, OTTAWA, ON

Figure No.
4b

Title
Soil Analytical Results – Metals and Inorganics

Stantec

Legend

- Borehole (Stantec, 2021)
- Monitoring Well (Stantec, 2021)
- Monitoring Well (Stantec, 2020)
- Soil Sample (Stantec, 2018)
- Test Pit (Stantec, 2021)
- 2021 updated Phase One and Phase Two Property
- 2018 and 2020 Phase One Property
- Interpreted Extent of Fill Placement
- APEC - Importance of Fill Material of Unknown Quality (PCA 30)
- Sample Does Not Exceed Regulatory Criteria

0 20 40 metres

1:800 (At original document size of 11x17)

Notes

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Project Location
2164 Old Prescott Road,
Greely, ON

122170434 REVB
Prepared by CL on 2021-10-01

Client/Project
JUSTICE CONSTRUCTION LIMITED
PHASE TWO ESA
PART OF 2164 OLD PRESCOTT RD, OTTAWA, ON

Figure No.
4c

Title
Soil Analytical Results – PAHs and PCBs

Stantec

Legend

- Monitoring Well (Stantec, 2021)
- Monitoring Well (Stantec, 2020)
- 2021 updated Phase One and Phase Two Property
- 2018 and 2020 Phase One Property
- Interpreted Extent of Fill Placement
- APEC - Importance of Fill Material of Unknown Quality (PCA 30)
- Sample Does Not Exceed Regulatory Criteria

0 20 40 metres

1:800 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
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Project Location
2164 Old Prescott Road,
Greely, ON

122170434 REVB
Prepared by CL on 2021-10-01

Client/Project
JUSTICE CONSTRUCTION LIMITED
PHASE TWO ESA
PART OF 2164 OLD PRESCOTT RD, OTTAWA, ON

Figure No.
5a

Title
Ground Water Analytical Results – PHCs, BTEX, VOCs

MW20-2			
	MW20-2 7.01 - 10.06 m (8-Jun-20)	MW20-2 7.01 - 10.06 m (17-Dec-20)	MW20-2 7.01 - 10.06 m (4-Jun-21)
Cobalt (µg/L)	**6.3/6.2**	0.53	<0.50/<0.50

Stantec

Legend

- Monitoring Well (Stantec, 2021)
- Monitoring Well (Stantec, 2020)
- 2021 updated Phase One and Phase Two Property
- 2018 and 2020 Phase One Property
- Interpreted Extent of Fill Placement
- APEC - Importance of Fill Material of Unknown Quality (PCA 30)
- Sample Does Not Exceed Regulatory Criteria

Parameter	Ontario Table 8 SCS
Cobalt (µg/L)	3.8
1. Site Condition Standards, Ontario Ministry Of Environment, Conservation And Parks (2011), Table 8 - All Types of Property Use	

Sample ID; Depth (m BGS)/ Date (dd-mm-yyyy)

MW20-2			
	MW20-2 7.01 - 10.06 m (8-Jun-20)	MW20-2 7.01 - 10.06 m (17-Dec-20)	MW20-2 7.01 - 10.06 m (4-Jun-21)
Cobalt (µg/L)	**6.3/6.2**	0.53	<0.50/<0.50

Parameter; Value/Field Duplicate

0 20 40 metres

1:800 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.
3. Orthoimagery © First Base Solutions, 2021. Imagery Date, 2017.
4. m BGS - metres below ground surface

Project Location
2164 Old Prescott Road,
Greely, ON

122170434 REVB
Prepared by CL on 2021-10-01

Client/Project
JUSTICE CONSTRUCTION LIMITED
PHASE TWO ESA
PART OF 2164 OLD PRESCOTT RD, OTTAWA, ON

Figure No.
5b

Title
Ground Water Analytical Results – Metals and Inorganics

Stantec

Legend

- Monitoring Well (Stantec, 2021)
- Monitoring Well (Stantec, 2020)
- 2021 updated Phase One and Phase Two Property
- 2018 and 2020 Phase One Property
- Interpreted Extent of Fill Placement
- APEC - Importance of Fill Material of Unknown Quality (PCA 30)
- Sample Does Not Exceed Regulatory Criteria

0 20 40 metres

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Project Location
2164 Old Prescott Road,
Greely, ON

122170434 REVB
Prepared by CL on 2021-10-01

Client/Project
JUSTICE CONSTRUCTION LIMITED
PHASE TWO ESA
PART OF 2164 OLD PRESCOTT RD, OTTAWA, ON

Figure No.
5c

Title
Ground Water Analytical Results – PAHs and PCBs

APPENDICES

APPENDIX A SAMPLING AND ANALYSIS PLAN

Sampling and Analysis Plan
Part of 2164 Old Prescott Road, Greely, Ontario

November 8, 2021

Prepared for:

Paul Justice
Justice Construction Limited
2160 Old Prescott Road
Greely ON K4P 1L4

Prepared by:

Stantec Consulting Ltd.
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Ottawa ON K2C 3G4

Project No.: 122170434

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1.0 INTRODUCTION

Justice Construction Limited (the Client) retained Stantec Consulting Ltd. (Stantec) to conduct a Phase Two Environmental Site Assessment (ESA) for the property located at 2164 Old Prescott Road in Greely, Ontario, herein referred to as the "Phase Two Property" or the "Site". The Phase Two ESA was conducted to characterize soil and ground water at the areas of potential environmental concern (APECs) identified as part of a Phase One ESA completed by Stantec for the contaminants of potential concern (COPCs) associated with identified potentially contaminating activities (PCAs) and was completed consistent with the requirements of Ontario Regulation (O.Reg.)153/04. Soil and ground water quality were assessed in the context of the applicable Ministry of the Environment, Conservation and Parks (MECP) (MOE, 2011) SCS as referenced by O.Reg.153/04.

This document is the Sampling and Analysis Plan (SAP) for the Phase Two ESA. The preparation and inclusion of a SAP is a requirement of both the Canadian Standards Association Z769-00 Standard for conducting Phase II ESAs and O.Reg.153/04.

The SAP is a planning document and comprises four main parts:

Objectives Setting - The study purpose is defined as are the required quantity and quality of the environmental data to fulfill the study purpose;

Program Design & Planning - The location, type, number and timing of investigation sampling and measurements are developed;

Methods Selection & Specification - The methods used for sampling and measurement are selected and described; and

Quality Assessment - The procedures are specified to continuously confirm the design and mechanical components of the SAP are sufficient to meet the project objectives.

In Ontario, Phase Two ESAs follow a progression of study that requires the following understanding of key definitions, concepts and activities.

1. A "contaminant" is defined in the *Ontario Environmental Protection Act* (R.S.O. 1990) as any solid, liquid, gas, odour, heat, sound, vibration, radiation or combination of any of them resulting directly or indirectly from human activities that causes or may cause an adverse effect.

2. "Contaminants of concern" are then defined in the Regulation as follows:

    a. One or more contaminants found on, in or under a property at a concentration that exceeds the applicable site condition standards for the property, or

    b. One or more contaminants found on, in or under a property for which no applicable site condition standard is prescribed under Part IX (Site Condition Standards and Risk Assessment) and which are associated with PCA.

3. A Phase One ESA consists of an historical records review, interviews with persons knowledgeable of a property's past and current use, and a site reconnaissance to identify PCAs on the property or properties within the Phase One Study Area with the potential to result in Areas of Potential Environmental Concern (APECs) on the property. Sample collection is generally not performed as part of a Phase One ESA. For each APEC identified, the Qualified Person (QP_{ESA}) develops a Conceptual Site Model (CSM) that describes the understanding (including inferences) of the type(s) of contaminants released, the release location(s), the media contaminated, and the contaminant fate and transport mechanisms. The CSM forms the "mental picture" of the APECs from which the Phase Two ESA sampling program is developed to characterize the APECs.

4. The Phase Two ESA is conducted to characterize each APEC. The SAP is the planning document that is prepared before field investigations commence. The SAP directs how the field investigations are conducted. As field investigations proceed, the site understanding evolves and thus, the project objectives, the SAP, and the nature of the field investigations evolve in an iterative fashion. The CSM is updated at the conclusion of the Phase Two ESA to document the actual site conditions encountered.

O.Reg.153/04 specifies numerous technical requirements for the planning, implementation and documentation of Phase Two ESAs in Ontario where the proponent plans to obtain an RSC. Many of these regulatory requirements are highlighted throughout this SAP to remind the reader of the importance of their inclusion in the SAP.

O.Reg.153/04 also requires that the SAP and Phase Two ESA be documented in sufficient detail to allow a third party to review the adequacy of the methods used.

2.0 PROJECT BACKGROUND

2.1 PROJECT OVERVIEW

As indicated in Section 1.0, the Client retained Stantec to conduct a Phase Two ESA for the Phase Two Property. The Phase Two ESA was conducted to characterize soil at the APEC identified as part of a Phase One ESA completed by Stantec for the COPC associated with the identified PCA.

The most recent land use at the Site, as defined by O.Reg.153/04, is industrial (Sand and Gravel Resource Area). The Site is currently vacant. Future property use for the Site is anticipated to be a combination of residential and commercial.

This SAP describes the planning and methodologies associated with work conducted at the Phase Two Property by Stantec.

2.1 PHYSICAL IMPEDIMENTS

The Regulation requires that the SAP include a description of any physical impediments that interfered with or limited the ability to conduct the sampling and analysis program. There were no physical impediments during the Phase Two ESA.

3.0 PROJECT OBJECTIVES AND DATA QUALITY OBJECTIVES

Project objectives are statements of the "bigger picture" questions to be answered or problems to be solved, usually expressed in terms of a statement that is readily understandable to the public (e.g., "Is the property contaminated?").

Data Quality Objectives (DQOs) specify the quantity and quality of the environmental data that is required to support project decisions or conclusions (alternate wording is that DQOs specify the tolerable level of uncertainty in decision-making). In turn, DQOs are used to specify the required quality of the measurements by specifying tolerable limits for the following Data Quality Indicators (DQIs): precision, accuracy, representativeness, comparability, and completeness (the "PARCC" criteria).

DQOs are iterative in nature and evolve as site characterization proceeds. Initially DQOs usually focus on assessing for the presence/absence of contamination at each of the APECs identified in the Phase One ESA. If the presence of contamination is confirmed, the DQOs will evolve to delineation of the lateral and vertical extents of soil contamination, delineation of the limits and plume stability state of ground water contamination, and confirmation of the effectiveness of remedial measures, if implemented.

The following sections present the project objectives and DQOs set for the Site.

3.1 PROJECT OBJECTIVES

The general objectives of the Phase Two ESA are to:

Adequately assess each APEC identified in the Phase One ESA, or as discovered during the Phase Two ESA, where contaminants may be present in land or water on, in or under the property;

To implement a quality assurance (QA) program designed to reduce errors and bias in sampling and analysis through implementation of assessment and control measures intended to confirm data are useful, appropriate, and accurate in the determination of whether the soil, ground water, and sediment quality at a property meet applicable site condition standards or the standards specified in a risk assessment; and

Conduct the Phase Two ESA to meet the requirements of the Regulation.

The primary project objective is to obtain an RSC for the Site. The soil and ground water conditions will be assessed to the MECP Table 8 Site Condition Standards (SCS) for residential/parkland/institutional land use in a potable ground water setting with coarse textured soils (MOE, 2011a).

Specific project objectives that have been established to fulfill the primary project objective (i.e., file a RSC) are to:

Characterize the concentrations of contaminants in the surface (<1.5 m below ground surface [m BGS]) and sub-surface soils (>1.5 m BGS) along the southwest bank of the pond on the Site.

Characterize contaminant concentrations in ground water beneath the Site.

Delineate the lateral and vertical extent of contaminants on and beneath the Site.

Assess the stability of ground water impacts identified at the Site.

Determine if soil or ground water impacts identified at the Site have the potential to extend off-site.

3.2 DATA QUALITY OBJECTIVES

For convenience, the DQOs have been organized by the primary PARCC criteria to which Stantec considers specific DQOs relate. Given there can be overlap between project objectives, DQOs, DQIs, and technical specifications, it is recognized that different practitioners may organize the DQOs differently. DQOs and DQIs can be thought of as “rules” that define what is considered acceptable work/results. The standard operating procedure (SOP) for QA/QC, presented herein, provides further description for how each of the PARCC criteria is assessed.

3.2.1 Precision

The following DQOs have been established for precision.

The relative percent difference (RPD) between parent and field duplicate or laboratory replicate samples will be calculated. The following screening-level acceptance criteria (BV, 2016) will be applied using guidance from BV (BV, 2016):

- PAHs; RPD ≤ 40% for soil, ≤ 30% for ground water.
- PHCs; RPD ≤ 30% for soil and ground water.
- VOCs; RPD ≤ 50% for soil, ≤ 30% for ground water.
- Metals and Inorganics; RPD ≤ 30% for soil, ≤ 20% for ground water.
- Available Boron; RPD ≤ 40% for soil.
- Hexavalent Chromium, chloride and cyanide; RPD ≤ 35% for soil, ≤ 20% for ground water
- Electrical Conductivity; RPD ≤ 10% for soil and ground water.

Water level and interface probe measurements will be recorded to the nearest centimetre (typical level of precision for elevation survey).

Field headspace measurements are typically one-time readings and cannot be repeated to assess precision.

Should a situation arise where attaining these RPDs or precision indicators is challenging, alternate analytical approaches will be assessed from the scientific literature, in consultation with the analytical laboratory.

3.2.2 Accuracy

The following DQOs have been established for accuracy.

Laboratory analyses for target parameters will have laboratory reported detection limits that are less than the applicable site condition standards, preferably by at least ten times. This is preferred for non-target parameters as well, but not required.

Laboratory analyses will have surrogate recoveries (%R) that meet the acceptance criteria established by the laboratory.

Field headspace screening instruments will be calibrated as follows:

- PID: <0.02 (ambient air) to 100 parts per million by volume (ppmv) (isobutylene span gas).
- Combustible vapour detector: <5 ppmv (ambient air) to 400 ppmv (hexane span gas).

Water Level Meter and Interface Probe: no criterion established for these direct measurements, apart from not using damaged meters (e.g., no use of measuring tapes that may have been stretched, cut, torn, or cracked).

The reference elevations for monitoring wells (i.e., grade) will be surveyed to metres above mean sea level. Accuracy within approximately 10% of the anticipated water level contouring interval is generally satisfactory, with the need for higher levels of accuracy potentially required for coarse sands and higher permeability aquifers (i.e., soils with low horizontal hydraulic gradients).

3.2.3 Representativeness

The following DQOs have been established for representativeness.

Each area where a contaminant is confirmed present at concentrations greater than the applicable SCS will be assumed contaminated from that sampling location outward the entire distance to the nearest sampling location that meets the SCS, in both the lateral and vertical dimension.

Analytical results will not be accepted if the sample was not analyzed within its holding time. The results may be accepted, and qualified as “estimated”, provided the results are deemed by the QP_{ESA} to be well above or well below the applicable SCS, and/or the COCs are considered unlikely to change significantly in concentration in the sample container outside the holding time (e.g., metals, PCBs, etc.).

Soil samples will be “discrete” in that each sample will be formed from, and represent only, one distinct soil layer.

Soil samples for volatile organics analysis will be grab samples to reduce the potential for loss of volatiles during sample collection. Reducing the potential for volatile losses comes with the disadvantage that the scale over which the measured concentration applies cannot be estimated.

Soil samples for analysis of non-volatile parameters will generally be discrete samples.

Soil sample collection will avoid, to the extent possible, collecting vegetation, insects, worms, and particles larger than small gravel, including natural rock, concrete, brick, glass, wood, asphalt, and other non-soil-like materials (e.g., paper, plastic, rubber, etc.).

Samples for analysis of volatile COCs will be transferred directly into the sample container as soon as practically possible with as little agitation and exposure to the atmosphere as can be achieved during normal field practices.

Monitoring wells and piezometers will not be installed with saturated screen lengths greater than 3.1 m.

Monitoring well screens installed across the water table will be positioned to maintain the water table within the screened portion throughout the year, typically requiring a 3.1 m screen, knowledge of the seasonal water level variation and water level conditions at the time of installation.

Monitoring well screens will be placed within the geologic formation in which the contaminant is interpreted to be potentially present.

Monitoring well screens will be positioned to isolate the zones where contaminants may be present (i.e., screens will not extend through less permeable zones, connecting two or more distinct higher permeability zones).

Ground water level measurement will reflect a static monitoring condition, such that no change in water levels is anticipated at any of the wells monitored from the time the monitoring event started until the time it is finished.

Ground water level measurements obtained for the purposes of interpreting the ground water flow direction will not be measured until at least 24 hours after the well has been developed.

The assessment of ground water quality (including the potential for separate-phase liquids) and flow direction will consider the potential influences of temporal variation in ground water levels, including short-term (rainfall events), mid-term (seasonal), and longer-term (multi-year) trends.

Appropriate sample containers will be provided by the laboratory containing the required preservative, if any, already in the sample bottle.

Sample containers will be maintained within the acceptable storage temperature range and under chain of custody to reduce the potential for sample quality to diminish before analysis occurs.

3.2.4 Comparability

The following DQOs have been established for comparability.

Only analytical results presented in signed, final and complete laboratory certificates of analysis from a laboratory accredited according to the requirements of O.Reg.153/04 (i.e., by the Standards Council of Canada (SCC) or Canadian Association for Laboratory Accreditation (CALA)) will be relied upon by Stantec for comparison to applicable regulatory criteria.

Stantec endeavors to use the same laboratory, field methods, and field technician to obtain results of higher consistency by reducing potential variations that may be introduced when different sample collection methods and laboratories are used.

The Regulation requires grain-size analyses to be conducted if the fine-medium textured soil standards are to be used. Sufficient samples to represent soil textures at the property will be obtained. Stantec further requires the soils tested to represent the area of potential contamination, or in some cases, contaminant migration pathways.

The ground water standards apply to dissolved ground water concentrations, and thus, ground water sample results will not be accepted for the following:

- Samples containing separate-phase liquids.
- Samples with reported concentrations greater than solubility limits.
- Sample results greater than the applicable SCS for metals but for which field-filtering of the sample could not be confirmed.
- Sample results deemed by the QPESA to be anomalously high due to excessive sediment in the sample container.

Lab filtered results for benzo(a)pyrene are acceptable under the Regulation. Analysis for all other polycyclic aromatic hydrocarbons (PAH) will be completed on unfiltered samples.

Field measurements will not be compared to the applicable SCS for demonstrating the site conditions have been met, as precluded by the Regulation.

3.2.5 Completeness

The following DQOs have been established for completeness.

Laboratory analyses will be conducted for the COCs identified in each medium in each APEC during the pre-remediation assessment.

COC concentrations will be determined for each APEC, with the intent to:

- Confirm the potential contaminants present.
- Measure the maximum concentration of the contaminants.
- Confirm the media contaminated.

- Delineate the lateral and vertical extents of contamination.

Sampling will be conducted in areas confirmed contaminated until the highest concentrations are identified and located, to the extent possible. As an exception, areas planned for remediation using methods like soil excavation and off-site disposal do not require as extensive characterization to identify maximum contaminant concentrations, provided the three-dimensional extents of contamination are sufficiently characterized for remediation planning and costing purposes, and sufficient confirmatory sampling is conducted to confirm the post-remediation site conditions meet the applicable site condition standards.

The ground water level will be measured each time a monitoring well is sampled.

If separate-phase liquid is suspected of being present in a monitoring well, its presence will be confirmed with a clean single-use bailer and its thickness will be measured using an interface probe.

Assessment of ground water flow will include the calculation of horizontal and vertical hydraulic gradients where data are available.

All aquifers and aquitards relevant at the property for determining the location and concentration of contaminants will be identified and investigated.

4.0 SAMPLING PLAN – RATIONALE AND DESIGN

This section presents a summary of the rationale for selection of borehole, monitoring well and sample locations for the Phase Two ESA. In general, the borehole, test pit, monitoring well and sample locations were selected to assess data gaps identified during the review of previous investigations and provide additional soil and ground water data for the Site. Deviations from the plan proposed herein, if any, and the rationale for such will be documented in the main text of the Phase Two ESA.

This sampling plan provides details of the sampling elements listed below.

Sampling system (e.g., judgmental, random, grid sampling, etc.)

Sampling type (e.g., grab or composite)

Number of samples

Sampling frequency

Sampling depth intervals (including the screened intervals for monitoring wells and piezometers)

Field-processing of samples

Samples submitted for laboratory analysis

The proposed sampling locations and analyses are summarized in **Table 1**.

5.0 STANDARD OPERATING PROCEDURES

This section describes the methods followed by Stantec field staff during field investigations. The methods are derived from industry consensus practices published by agencies including the MOE (1996; 2011b), ASTM (2011, 2017), and EPA (1996). SOPs are detailed, stepwise procedures for routinely performed activities, and are intended to improve: 1) data collection quality by following accepted industry standards of practice, and 2) data consistency by following these procedures during each sampling and measurement event.

Field technicians are to follow these SOPs, documenting any deviations and the rationale for the deviation in their field notes. Other than minor deviations, pre-authorization from the supervising QP_{ESA} (e.g., licensed Professional Engineer or Professional Geoscientist) is required, and this discussion documented in the field notes. The Regulation requires the QP_{ESA} to confirm there is a suitable rationale for deviations from the SOPs.

Note, not all field SOPs presented herein are applicable to all investigations.

5.1 UTILITY LOCATES

Stantec contacts Ontario One Call to arrange buried utility clearances before each field mobilization involving intrusive subsurface activities, such as drilling, test-pitting or remedial excavation. On private property, a utility locating company is also retained to provide clearance of private utilities for each planned intrusive investigation/ remediation location.

In general, intrusive investigation locations can usually be adjusted so as not to correspond to a buried utility location without affecting the project objectives. Where intrusive locations need to be within approximately 2 m of a buried utility, increased measures are required by the contractor to protect the buried utility and worker health and safety. These measures may include daylighting the utility using hand digging or a mobile hydrovac excavation system.

The utility locate sheets are present on-site during the intrusive investigation activities. The drilling or excavation contractor is provided with copies of the utility locate sheets for review purposes before the intrusive investigations commence.

5.2 OVERBURDEN DRILLING

Boreholes in overburden are drilled using a licensed well driller. Boreholes are typically advanced using one of the following conventional drilling techniques. No drilling fluids or lubricants are used. Where applicable, the asphalt or concrete surface is removed to expose soil before drilling commences.

The sampler is retrieved, and the process repeated to advance the borehole to the next interval.

Direct Push Sampling – Boreholes are advanced using direct push samplers. Soil cores are collected using a soil core continuous sampler that is advanced with the casing to collect a sample over the drilling interval. The sampler is retrieved, and the process repeated to advance the borehole to the next interval.

Split Spoon Sampling – Boreholes are advanced to a target depth, then a split spoon sampler is advanced. Soil is collected by advancing the split spoon at the bottom of the hole to collect a sample at the drilling interval. The sampler is retrieved, and the process repeated to advance the borehole to the next interval.

Soil sub-samples are collected from the sampler for headspace screening (where sufficient sample quantity is present) and for potential submission to the laboratory. Each sample for field headspace screening is placed into a new, 500 mL sealable freezer bag and stored out of direct sunlight. Bags are one-third to one-half filled with soil to leave sufficient headspace above the sample and then sealed. Soil samples for potential submission to the laboratory are placed directly into the appropriate sample containers supplied by the laboratory, labeled, and stored in a sample cooler containing ice.

5.3 SOIL SUB-SAMPLING

Soil sub-sampling consists of the selection of soil for potential laboratory analyses, the processing of this soil before it is placed into a sample container and documenting key information about each sample.

Sub-samples are collected as “discrete” in that each sample is collected from, and intended to represent only, one distinct soil layer or type at the sampling location. If inadequate sample is available in a soil core to fill sufficient sample containers to perform all planned laboratory analyses, then the analyses are prioritized and fewer analyses are performed. Soil from the adjacent, but different, soil layers is not used as a surrogate to represent the initial target soil layer.

Sub-samples are collected to represent “worst-case” for that particular sampling location and target chemical parameters, in consideration of field indications (e.g., headspace readings or visual-olfactory observations) and potential modes of contaminant release and migration. In some cases, professional judgment is required to select samples for analysis that are more consistent with the potential mode of contaminant release than just relying on analyzing the sample with the maximum field headspace reading. Because contamination extent is defined by the distance (laterally and vertically) to the nearest sample that meets the applicable SCS, samples to determine the “clean line” are still collected to represent “worst-case” (i.e., for that particular soil layer and location).

Grab samples of soil are collected for volatile parameters (VOCs and petroleum hydrocarbon fraction 1) to minimize the potential for loss of constituents during the sample collection process.

Composite samples of soil are preferred for all non-volatile parameters as a means to address the small-scale heterogeneity in soil concentration, as described in MOE (1996). Under the Regulation, composite samples are to consist of equal portions of material (aliquots) from multiple locations from the same soil layer and depth interval within a 2 m radius “sampling location”. The aliquots of material are placed in a stainless-steel bowl and mixed to homogenize the soil before placing a portion into sample containers. The intent of composite sampling is to provide a reproducible means to measure the average concentration of the soil at that sampling location, recognizing that once a technician is sampling worst-case conditions at a sampling location, it is not possible to differentiate in the field areas of higher or lower concentration. Composite sampling programs generally use between three and 10 aliquots per sample depending on the specific project objectives and effort required to obtain each aliquot.

Vertical compositing is conducted where collecting multiple aliquots of soil layers at depth is cost prohibitive. Where a soil core contains 0.3 m or more of like soil from the same soil layer, a vertical composite sample may be formed over a 0.3 m to 0.6 m interval by taking either discrete segments or a slice along the core length and mixing the sample in a stainless-steel bowl. Filling the sample container using material along a core length is not a composite sample because laboratories do not homogenize soil container contents before extracting the soil that is ultimately analyzed.

Composite samples were not collected/analyzed for this Phase Two ESA; however, averaging of discrete samples collected from within 2 m of each other was conducted in some cases, as described in the report.

Particle sizes larger than small gravel need not be included in sample containers because standard laboratory methods disaggregate soil and sieve, but do not crush/grind. Thus, coarse sand and larger particle sizes are not included in laboratory analysis. In practice, the field technician can remove gravel-size particles from sample containers and soil mixing bowls.

Documentation of soil sub-sampling includes the following:

- Measurements and photographs of the lateral sampling location (taken parallel and perpendicular to fixed, permanent reference points such that returning to that location is possible in the future).
- Description of the soil coring interval (or equivalent, if applicable).
- Measurements of the depth interval for the soil layer being sampled.
- Measurement of the soil sub-sampling interval over which the grab sample or composite sample was obtained.
- Sample recovery for the soil core (if applicable).

5.4 GEOLOGIC LOGGING

Soil cores are classified following the procedures described in the ASTM guidance for the visual-manual description and identification of soils (ASTM, 2017). For each soil core, the field technician logs the relevant descriptions of soil type, texture, colour, structure, consistency, plasticity, and moisture content. Weathering features and secondary mineralization are logged, as are observations of the presence of man-made materials, such as brick, concrete, glass, ash, cinder, slag, asphalt, etc. Field technicians do not intentionally smell the cores; however, obvious odours of septic, solvents, petroleum hydrocarbons, burnt rubber, etc., are noted, sometimes with a descriptor of weak, moderate, or strong.

Soils from test pits and surficial samplers (e.g., trowel, shovel, hand corer) are logged in a manner similar to soil obtained from soil cores.

A borehole log is prepared for each location containing the detailed geologic descriptions described above. This form of field log includes a scaled, graphical presentation of information. Where a monitoring well and piezometer is installed in the completed borehole, the construction and installation details are added to the borehole log. The field log format also presents the locations where samples were collected for potential laboratory analysis and field headspace readings.

Where recovery in a core is less than 100%, Stantec uses the convention that the material obtained represents the upper portion of the interval sampled, unless evidence indicates otherwise, not counting the uppermost few centimetres of soft sediments that settle in the bottom of the borehole (“slough”) that the sampler may be driven through before encountering the undisturbed native materials. In graphically presenting an interval, the last encountered geologic unit is assumed to extend from the bottom of sample recovery, through the zone of no recovery to the top of the next sample interval.

5.5 SOIL HEADSPACE SCREENING

Soil headspace screening is conducted on soil samples to monitor for the presence of total organic vapours (TOV) and combustible vapour concentrations (CVC) using a dual instrument device which includes both a photoionization detector (PID) and combustible gas detector (i.e., RKI Eagle 2). The PID generally detects VOCs, including chlorinated solvents and lighter-end PHCs (gasoline). The combustible gas detector generally detects petroleum hydrocarbons in the diesel-range or at explosive levels. The use of the dual instrument device facilitates screening of both chlorinated solvents and diesel-range or explosive levels of petroleum hydrocarbons.

The RKI Eagle 2 PID is typically equipped with a 10.6 eV lamp, which is capable of measuring many of the most common chlorinated solvents of interest to environmental investigations. Of note, an 11.7 eV lamp is required to detect 1,1,1-TCA. The PID displays the TOV in parts per million by volume (ppm_v). The PID is calibrated to 100 ppm_v isobutylene span gas following the manufacturer’s instructions. The PID calibration is checked each day and re-calibrated if the PID readings appear contradictory to other field indicators (e.g., odours and staining).

The combustible gas detector (e.g., RKI Eagle O_2, CO, H_2S and LEL gas monitor) is calibrated to 15% lower explosive limit (LEL) hexane in the same manner as that followed for the PID. The combustible gas detector displays the combustible soil vapour (CSV) concentration reading in ppm_v for low concentrations and %LEL for higher concentrations.

The calibration of the dual instrument device is checked each day and re-calibrated if the readings appear contradictory to other field indicators (e.g. odours and staining).

Headspace measurements are performed after allowing the samples to warm to approximately room temperature, normally within 15 to 30 minutes after sample collection. The bags are gently kneaded and shaken to enhance gas equilibration between the soil and the headspace. The probe is then inserted into the soil bag, taking care not to contact any solids or liquids or the side of the bag. The highest reading is recorded.

An alternative approach uses one sample bag for the PID reading and one for the combustible gas detector reading provided there is sufficient sample available. More recently, dual instrument device including both a PID and combustible gas detector have appeared allowing measurement of the TOV and CSV concurrently within the same sample bag.

5.6 MONITORING WELL INSTALLATION

One monitoring well is installed in each select borehole after borehole advancement is completed to the desired depth. Each well is constructed of 51 mm ID, Schedule 40, polyvinyl chloride (PVC) materials with a 0.25-mm slot (“10-slot”), PVC well screen. The well materials are not removed from the protective plastic wrapping until required. The PVC screen and piping are flush-threaded and contain O-rings to provide watertight joints. Well screens are 3 m in length and are generally positioned to intercept the water table. By installing monitoring wells with the water table at mid-screen at the time of installation, the water table can fluctuate approximately 1 m seasonally up or down with the well still being considered a water table well (containing sufficient water column to permit sampling).

To install a well, the well screen and riser are assembled, a threaded end plug installed, and the well materials lowered into the borehole. As the augers are removed (if used), silica sand is placed around the well screen and extended to a minimum of 0.6 m above the well screen. A bentonite seal is then placed to a minimum thickness of 0.6 m above the silica sand to hydraulically isolate the well screen. Municipal tap water is added to hydrate the bentonite if it is placed above the water table but is not required for wells installed below the water table.

The well is completed at ground surface with either a flush-mount or an above-grade protective cover set in a concrete pad. Wells are capped with either a locking J-plug or a PVC slip-cap. A lock may be installed on wells equipped with a j-plug (typically those with flush-mount covers) and on the lid of the above-grade cover. The well drilling contractor applies a well tag and files a well record with MECP as required by O.Reg.903.

Monitoring wells are not developed, purged, or sampled for a minimum of 24 hours after installation to permit the well seal to hydrate and the concrete pad to cure.

The well construction details are presented on the borehole logs prepared for each borehole and monitoring well installation.

5.7 MONITORING WELL DEVELOPMENT, PURGING AND SAMPLING

The monitoring wells are developed and purged before first sampling. Wells are developed to remove fine-grained material from the well screen and filter-pack. Wells are purged to remove stagnant water from the well casing. The development and purging activities are performed using an inertial pumping system (consisting of dedicated polyethylene tubing and foot valve), an automated pumping system (e.g., using peristaltic or down hole pump and polyethylene tubing dedicated to each well), or a “clean” single-use bailer.

To develop and purge the well concurrently, approximately ten casing volumes of water are removed. The depth to water in the well and observations of the physical appearance of the purge water are noted (odour, colour, clarity, sediment load) after the removal of each casing volume of water, including the observed presence of any film, sheen or separate-phase product. Measurement of water quality parameters is also performed as described in the next section. Wells are developed before the first time they are sampled, and thereafter only require purging of approximately three to six casing volumes. Six casing volumes are usually purged from smaller diameter wells or from wells having short water columns because of the small corresponding casing volume. If water is used to control heaving conditions during drilling, a corresponding volume of water is removed during well development in addition to the six to ten casing volumes.

During well development, purging, and sampling, care is taken to control the degree of drawdown in the well and to limit induced water turbidity during successive activities:

- The target flow rate during sampling is up to 1 litre per minute (LPM), with target flow rates for purging and development set at two and four times the well sampling rate, respectively (i.e., 2 and 4 LPM). In concept, well sampling should not re-suspend excessive fine materials in the well at 1 LPM if such did not occur during purging and development at the higher flow rates.
- During development and purging, the pump intake starts at the bottom of the well and is moved progressively up the water column to approximately the mid-point of the saturated well screen length. Continual pumping of the well bottom tends to induce water turbidity.
- Pumping rates are generally adjusted during development, purging and sampling to maintain the saturated well-screen configuration:
  - Where the starting water level is above the top of the well screen, it is not lowered into the well screen during pumping;
  - Where the starting water is below but near the top of the well screen, the water level is not lowered below the middle of the well screen during pumping;
  - Where the starting water is near or below the middle of the well screen, the water level is not lowered by more than 25% of the height of the water column in the well during pumping; and

  - If the well is deemed low-yielding (requiring more than one hour to purge three casing volumes following the above method), return visits to the well are made to remove at least three casing volumes of water, with the need for further well purging assessed on a case-by-case basis, usually depending on the degree of suspended sediment in the water samples, target analytical parameters, and existing water quality results, etc. Full well development is not expected for low-yielding wells because the ability to remove fine-grained material is limited by the inability of the well to produce water.
- The depth to water, observations of water turbidity, pump intake depth, and pumping rate are documented and used to adjust the water removal activities, as well as providing an indication of the sustainable well yield and hydraulic conductivity of the screened interval.

Well purging is considered complete upon successive measurement of water quality parameters that have stabilized to within 10%, provided a minimum of three casing volumes have been purged. The rationale for concluding well purging for low-yielding wells is established and documented on a case-by-case basis and is usually set by logistical and/or time constraints.

Ground water samples are collected directly into the appropriate sample containers. The sample containers are supplied by the laboratory and are pre-preserved, if and as appropriate, for the planned laboratory analyses.

Sample containers are filled, labeled, and then stored in a sample cooler containing ice as quickly as practical to minimize the time that samples are subject to potential damage and ambient conditions, like sunlight and hot temperatures.

Samples for metals analysis are first field-filtered using a new, single-use, 0.45 micron, in-line filter. At least two filter volumes are purged through the filter before starting to fill the sample container.

Samples for PAH analysis are not field filtered. If necessary, a separate sample is collected for laboratory filtration prior to analysis for benzo(a)pyrene.

The field notes document the well development, purging and sampling times (start/stop time for each activity), the initial depth of the water level relative to the well-screen (i.e., well development and purging approach), observations of water quality, water level, pump intake and cumulative water removed, as well as the field measurements of water quality parameters (discussed below) and any sampling information (sample identifier, bottles filled, and any corresponding field duplicate samples). The rationale for concluding the development and purging activities, and the equipment used is also documented.

5.8 ORDER OF SAMPLE COLLECTION

Ground water samples are typically collected in order from sample locations where contaminant concentrations are lowest to locations where contaminant concentrations are highest to reduce the potential for cross-contamination of samples.

Where a ground water sampling location is planned for multiple laboratory analyses, some practitioners use a hierarchy to specify the order in which sample containers are filled. Stantec does not follow a prescribed order. Instead, where sample volume is limited, sample containers are filled first for the primary contaminants of interest, then for secondary contaminants of interest, field headspace screening, quality control (QC) samples and lastly for physical analysis (e.g., grain size distribution curves). If analyses are planned for volatile parameters, these sample containers are filled first so that there is sufficient sample volume to fill the sample containers without leaving headspace, and so that the potential for volatile losses during sampling is reduced.

5.9 FIELD MEASUREMENT OF WATER QUALITY PARAMETERS

Field measurement of the water quality parameters is conducted after each casing volume of water is removed. The temperature, pH, and specific conductivity of the water are measured using an appropriate field instrument(s) and a flow-through cell (if sufficient flow is available). Alternatively, water is pumped into a beaker, the beaker rinsed and then half-filled with purge water from which the measurements are taken directly. Measurements are made as soon as the readings stabilize to reduce the exposure time of the purged water to atmospheric conditions. Care is taken during reading the specific conductivity measurement to note the units of measurement because many meters auto-scale, and thus, the units of measurement can automatically change between or during readings.

The meter is calibrated, used, and stored following the manufacturer's instructions. At the start of each field day, the meter calibration is checked in the calibration solutions, and the calibration adjusted if required. The pH probe is typically calibrated to two points using pH 4 and pH 10 calibration solutions. The specific conductivity probe is typically calibrated in a solution having specific conductance of 1413 µS/m. The temperature probe does not require field calibration.

5.10 SAMPLE LOCATION AND IDENTIFICATION

All investigation locations are assigned a unique identification code for that location. In addition, each sample collected is assigned a unique identification code. Identification codes are selected to be unique such that they cannot be inadvertently repeated.

Numerous systems have been developed for selecting identification codes. The specific system used is a project-specific decision. Sometimes it is preferable to use the system previously used at a project site for continuity. It is also sometimes easier to maintain continuity of the units of measurement (metric or imperial). Imperial units are often used where drilling is involved because drilling equipment and well supplies are sized in imperial units. Spaces and apostrophes are not used in sample identification codes.

Blind identification systems or sequential numbering systems are rarely used where field decisions are required in real-time. Instead, informative identification systems are used because the sample identifier contains key information about each sample collected.

Sample Depth Interval

Indicate the top and bottom of the depth interval over which the sample was collected for filling the sample container (e.g., “0.7-1.1”) in metres.

QC Samples

Field duplicate and field blank samples are submitted “blind” to the laboratory. A fictitious sample identifier and sample collection time is used so that the laboratory cannot identify the sample to which the QC sample corresponds.

5.11 SAMPLE CONTAINERS, LABELING, HANDLING AND CUSTODY

The analytical laboratory provides sample containers and preservative. Bureau Veritas Laboratories (BV) of Mississauga, Ontario is the laboratory for this assignment. BV is a CALA- and SCC-accredited laboratory. The table in **Appendix B** of this SAP was provided by BV, the laboratory selected for this project. The table presents, for each medium analyzed, the matrix of analytical parameters, sample container description (bottle type and number of bottles to fill), holding time, and preservation requirements (chemical and physical). BV provided all sample containers.

Samples for laboratory analyses are packed carefully into sample coolers to prevent damage to the sample containers. Samples are maintained at a temperature between 4 and 10ºC by including ice in sample coolers during on-site storage and transport to the laboratory. A chain of custody form is completed and included in each sample cooler. A custody seal is affixed to each cooler once packed and sealed. Samples are hand-delivered to the analytical laboratory, shipped by overnight courier, or picked up by the laboratory’s courier service. The field technician maintains custody of the samples until custody is transferred to either laboratory reception or the delivery service.

5.12 LIQUID LEVEL MEASUREMENTS

Water levels are measured to the nearest 0.01 m using a battery-operated, water level or interface-probe. Measurements are obtained by lowering the electrode, attached to the graduated polyethylene tape, slowly into the well until a tone sounds. If light phase-separated liquid is detected, as indicated by an intermittent tone, the depth is read from the tape and recorded. If there is no phase-separated liquid present (or it has already been detected by an intermittent tone) the electrode continues to be lowered into the well until a solid tone sounds indicating water. The depth-to-water from the reference point on the well is then read from the tape and recorded. Duplicate measurements are performed at each location to attain 0.01 m repeatability. The highest point of the well casing is used as the reference point. If the presence of dense phase-separated liquid is suspected, the probe continues to be lowered to the bottom of the well, with an intermittent tone indicating the depth at which the probe transitions from water to dense phase-separated liquid.

In general, an interface probe is not used unless phase-separated liquids are suspected to be present from initial borehole drilling and ground water sampling results.

When monitoring multiple wells at a site, monitoring proceeds from least contaminated to most contaminated areas to reduce the potential for cross-contamination from the water level or interface probe.

5.13 ANALYTICAL TESTING

As noted previously, the analytical laboratory provides sample containers and preservative. BV of Mississauga, Ontario is the laboratory for this project. BV is a CALA- and SCC-accredited laboratory.

5.14 EQUIPMENT CLEANING

All non-dedicated sampling and monitoring equipment is cleaned before initial use and following each use.

Drilling and field equipment is cleaned following common equipment cleaning procedures (MOE, 1996; ASTM, 2015). The samplers are cleaned by manually scrubbing using a brush and a phosphate-free soap solution, and rinsing with distilled or tap water. Equipment that may be damaged by immersion in water is wiped clean using a sponge, rinsed in phosphate-free soap solution, and then rinsed with tap water. The probe of the interface probe or water-level meter is cleaned by rinsing in a phosphate-free soap solution followed by distilled or tap water. In addition, a new pair of nitrile gloves was used to remove the soil samples from the split spoon sampler when environmental samples were being collected.

A solvent rinse using reagent-grade, laboratory-supplied methanol is used (ASTM, 2015) when investigating areas of higher suspected VOC concentrations.

5.15 LOCATION AND ELEVATION SURVEYS

Measurements are recorded and photographs taken to document each sampling location laterally. Measurements and photographs are taken parallel and perpendicular to fixed, permanent reference points to allow returning to that sampling location in the future, if required.

The Stantec technician will survey the elevation of monitoring wells. The technician will also measure the lateral locations of boreholes, and wells, if appropriate, at large properties or at properties lacking permanent nearby reference points.

5.16 RESIDUE MANAGEMENT

Based on the proposed redevelopment of the Phase Two Property, soil cuttings, purge fluids, and cleaning fluids were left on-site for future removal.

5.17 QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC)

QA/QC procedures are implemented in the field and laboratory to demonstrate that the data generated are of a level of quality suitable for its intended purposes. Field QA/QC procedures include use of new sampling equipment, equipment cleaning procedures, blind duplicate and blind field blank sample submittal, and adherence to published standards for field methodology. Laboratory QA/QC procedures include following internal protocols and analysis of laboratory blank samples and laboratory reference standards.

The electronic data received from the laboratory are imported into Stantec's data management system. The data are output into report ready spreadsheets. After checking the spreadsheet, the compiled data are reviewed to confirm that the data are of satisfactory quality. Sample chain-of-custody, holding times, dilution factors, surrogate recoveries, replicate analyses, analytical quantitation limits, and blank analyses are reviewed and compared to applicable QC acceptance criteria.

A data review process, often referred to as "data validation", is conducted to assess whether the DQOs were satisfied. Stantec establishes data validation criteria that require the analytical data to have an acceptable level of precision, accuracy, representativeness, comparability, and completeness ("PARCC" criteria). The data validation process is described below.

5.17.1 Precision

The analytical results of the investigation samples and their associated field duplicates (or laboratory replicates) are presented in the data tables. Data precision is evaluated by calculating the RPD between the investigation sample results and their duplicate or replicate results. The RPD is calculated as follows:

$$RPD = 2 \text{ x } \frac{(|C_1 - C_2|)}{(C_1 + C_2)} \text{ x } 100$$

where: C_1 = parent sample concentration

C_2 = duplicate sample concentration

RPDs are calculated where both C1 and C2 are above the analytical reporting limit (RL). Stantec set a screening-level RPD acceptance criterion as presented in Section 3.2 using guidance from BV (Maxxam, 2016). Where the reported concentrations are less than 10 times the RL, lower precision is expected and the screening-level criterion does not apply. Reported concentrations greater than 10 times the RL and having an RPD greater than the screening-level criteria are considered to have failed the initial precision assessment; however, both sample results are accepted as suitably precise if both are considered many times above or below the applicable regulatory criterion or guideline value. A sample concentration and its duplicate result are concluded to have lowered precision if the reported concentrations are near the applicable regulatory criterion or guideline value being used or concentrations are less than 10 times the RL and RPD greater than the screening-level criterion, such that the interpretation might change depending on the reported concentration used. In this case, the data are considered an estimated value and corrective actions taken, such as further sample collection and analysis.

5.17.2 Accuracy

The accuracy of the analytical results is assessed by confirming that the reported laboratory surrogate recoveries and spike samples are within the acceptance criteria established by the laboratory as reported on the laboratory certificates of analysis. The surrogate recoveries and spike samples consist of known concentrations of chemicals that the laboratory adds to the investigation samples. The laboratory measures the amount detected, and then calculates the Percent Recovery (%R) to confirm the reported value is within reasonable agreement with the known value. The typical acceptance criterion requires %R to be within 70% and 130% (i.e., accuracy of approximately ±30%).

5.17.3 Representativeness

The representativeness of the analytical results is assessed by reviewing several factors of a qualitative nature, including the following:

- Field procedures and laboratory methods followed industry consensus practices (including sample collection methods; laboratory analytical methods; sample containers, preservative(s), holding times; and chain-of-custody documentation).
- Sampling design was appropriate to characterize the depth intervals of interest in the areas of potential environmental concern.
- Sample results were consistent with visual/olfactory observations, previous investigation results at nearby locations and/or the conceptual site model for the potential release of chemicals to the environment.
- The number of samples analyzed and parameters for which analyses were performed were considered by the Qualified Person to be sufficient for the purpose of the Phase Two ESA.
- Corrective actions were taken, as deemed appropriate, to resolve data anomalies or other quality issues that arose during the site investigation, including qualifying any data (as estimated or unreliable), sample re-analysis, or conducting additional sample collection, analysis and interpretation.

5.17.4 Comparability

Data comparability is assessed qualitatively by confirming that the sampling locations, sampling depths, field methods and laboratory methods were the same, or as close as practical to the methods used in previous investigations.

5.17.5 Completeness

Data completeness is assessed qualitatively by confirming that the analytical results were obtained for all the samples submitted and all the analytical parameters requested, including the supporting laboratory documentation and chain-of-custody documentation. Consideration is given to the significance of any data that were rejected based on poor data quality. The frequency of inclusion of QC samples is also considered.

5.17.6 Other Assessment

Other data collection activities, such as water level monitoring and field headspace screening, undergo QC checks confirm they meet the DQOs. Deviations that occur during the field investigations, if any, are documented in the main text of the Phase Two ESA report.

5.17.7 Frequency of QC Sample Analysis and Calibration Checks

QC sample requirements for the number, type, and frequency of QC sample collection and laboratory analysis are summarized below. Slight departures may occur on a case-by-case basis depending on project-specific situations (e.g., insufficient sample volume) and their potential significance will be addressed as they occur.

Minimum QC Sample Analysis Frequency

Medium	Soil	Ground water
Trip Blank	Trip blanks are generally not submitted for soil.	One per sample shipment for VOC analysis.
Field Blank	Field blanks are generally not submitted for soil.	Field blanks are generally not submitted unless required by the project or client.
Field Duplicate	One for every 10 investigation samples submitted for analysis.	One for every 10 investigation samples submitted for analysis.

Calibration checks on field instruments are performed at the following frequencies.

The water quality meter (pH, specific conductance, temperature) is calibrated once per day, generally at the start or end of each field day, and typically consists of a calibration check followed by minor calibration adjustments, if required.

The calibration of the dual instrument device (which measured TOV and CVC) is checked each day and re-calibrated if the readings appear contradictory to other field indicators (e.g. odours and staining).

6.0 REFERENCES

American Society for Testing and Materials (ASTM), 2017. D2488-17e1 *Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*.

American Society for Testing and Materials (ASTM), 2015. D5088-15a *Standard Practice for Decontamination of Field Equipment Used at Nonradioactive Sites.*

American Society for Testing and Materials (ASTM), 2011. E1903-11 *ASTM Standards Related to the phase II Environmnetal Site Assessment Process.*

United States Environmental Protection Agency, 1996. Environmental Protection Act (EPA). *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures.*

Maxxam Analytics International Corporation (Maxxam) (now Bureau Veritas Canada), 2016. Ontario QA/QC Interpretation Guide-Environmental Services.

Ontario Ministry of the Environment (MOE), 1996, *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario. Version 1.1.* Ministry of Environment and Energy. December 1996.

Ontario Ministry of the Environment (MOE), 2011a. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act.* April 15, 2011.

Ontario Ministry of the Environment (MOE), 2011b. *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.* March 9, 2004, amended as of July 1, 2011.

APPENDICES

Appendix A **TABLE**

Table 1: Phase Two ESA Sampling and Analysis Plan

Borehole/Test Pit/ Monitoring Identification	Location	Investigation Rationale	Soil Analysis	Ground Water Analysis
BH/MW20-2	South-Central portion of the Phase Two Property, south of the southern bank of the pond on Site	Assess ground water conditions based on past industrial use of the Phase Two Property. Additional assessment of previously identified cobalt exceedance from the sample location identified in ground water during the June 2020 sampling event.	None	Metals and inorganics, PHCs, PAHs, PCBs, VOCs, BTEX
BH/MW20-4	Northeastern portion of the Phase Two Property, west of the western bank of the pond on the Site	Assess soil and ground water conditions based on APEC #1 associated COPCs identified in Phase One ESA, and past industrial use of the Phase Two Property.	Metals and inorganics, PHCs, PAHs, PCBs, VOCs, BTEX	Metals and inorganics, PHCs, PAHs, PCBs, VOCs, BTEX
BH20-5	South-Central portion of the Phase Two Property, south of the southern bank of the pond on Site	Assess soil conditions adjacent to BH/MW20-2 based on APEC #1 associated COPCs identified in Phase One ESA.	Metals and inorganics, PHCs, PAHs, PCBs, VOCs, BTEX	N/A – monitoring well not installed at this location.
BH/MW20-6	Eastern portion of the Phase Two Property, south of the southern bank of the pond on the Site	Assess soil and ground water conditions based on APEC #1 associated COPCs identified in Phase One ESA and past industrial use of the Phase Two Property.	Metals and inorganics, PHCs, PAHs, PCBs, VOCs, BTEX	Metals and inorganics, PHCs, PAHs, PCBs, VOCs, BTEX
TP21-1	Eastern portion of the Phase Two Property, south of the southern bank of the pond on the Site	Assess soil conditions based on APEC #1 associated COPCs identified in Phase One ESA. Additional assessment of previously identified molybdenum exceedance in the vicinity (MW20-6).	Molybdenum	N/A – monitoring well not installed at this location.
TP21-2	Eastern portion of the Phase Two Property, south of the southern bank of the pond on the Site	Assess soil conditions based on APEC #1 associated COPCs identified in Phase One ESA. Additional assessment of previously identified molybdenum exceedance in the vicinity (MW20-6).	Molybdenum	N/A – monitoring well not installed at this location.

Borehole/Test Pit/ Monitoring Identification	Location	Investigation Rationale	Soil Analysis	Ground Water Analysis
TP21-3	Eastern portion of the Phase Two Property, south of the southern bank of the pond on the Site	Assess soil conditions based on APEC #1 associated COPCs identified in Phase One ESA. Additional assessment of previously identified molybdenum exceedance in the vicinity (MW20-6).	Molybdenum	N/A – monitoring well not installed at this location.
TP21-4	Eastern portion of the Phase Two Property, south of the southern bank of the pond on the Site	Assess soil conditions based on APEC #1 associated COPCs identified in Phase One ESA. Additional assessment of previously identified molybdenum exceedance in the vicinity (MW20-6).	Molybdenum	N/A – monitoring well not installed at this location.
TP21-5	Eastern portion of the Phase Two Property, south of the southern bank of the pond on the Site	Assess soil conditions based on APEC #1 associated COPCs identified in Phase One ESA. Additional assessment of previously identified molybdenum exceedance in the vicinity (MW20-6).	Metals and inorganics, PHCs, PAHs, PCBs, VOCs, BTEX	N/A – monitoring well not installed at this location.

Note(s):
N/A – Not Applicable

Appendix B **BV SAMPLING REQUIREMENTS**

Sample Container, Preservation, and Hold Time Information

Hold Times and Container Types Do Not Apply to Drinking Water Samples

WATER

Inorganic Parameters	Recommended Sample Container	Preservation	Hold Time*
Alkalinity	500 mL plastic	None	14 days
Anions (Br, Cl, F, NO3, NO2, PO4, SO4)	500 mL plastic	None	3/28 Days
Biochemical Oxygen Demand (BOD)	120 mL plastic	None	**4 days**
Carbon, Total Organic (TOC)	250 mL plastic	H_2SO_4 (pH < 2)	10 days
Carbon, Dissolved Organic (DOC)	120 mL plastic	None	3 days
Chemical Oxygen Demand (COD)	250 mL plastic	H_2SO_4 (pH < 2)	30 days
Chlorine, Residual (Cl)	40 mL glass vial w/septum cap**	None	**Immediate**
Chromium VI - **FIELD FILTER GW (Reg. 153)**	125 mL plastic	$(NH_4)_2SO_4/NH_4OH$/NaOH	28 days
Conductivity	500 mL plastic	None	28 days
Cyanide (CN)	125 mL plastic	NaOH (pH > 12)	14 days
Dissolved ICPMS, ICP Metals - **FIELD FILTER GW**	120 mL plastic	HNO_3 (pH < 2)	60 days
Total ICPMS, ICP Metals - **NOT FILTERED**	120 mL plastic	HNO_3 (pH < 2)	30 days
Mercury - **FIELD FILTER GW (Reg. 153) / SW (PWQO)**	100 mL clear glass	HCl (pH < 2)	28 days
Methyl Mercury (*Subcontracted*)	250 mL plastic jars (Teflon Lined)	HCl (pH < 2)	28 days
Nitrogen - Ammonia (NH_3-N) / Total Kjeldahl Nitrogen (TKN)	250 mL plastic	H_2SO_4 (pH < 2)	10 days
Phenolics - Total	120 mL amber glass	H_2SO_4 (pH < 2)	30 days
Solids - (TS, TSS, TDS)	500 mL plastic	None	7 days
Sulphide (S^{2-})	125 mL plastic	NaOH / ZnOAc (pH > 9)	7 days
Total Phosphorus	250 mL plastic	H_2SO_4 (pH < 2)	30 days
Microbiological - Sewer	300 mL plastic - Sterilized	$Na_2S_2O_3$	**24 hours**
Microbiological - All Other	300 mL plastic - Sterilized	$Na_2S_2O_3$	**48 hours**

Organic Parameters	Recommended Sample Container	Preservation	Hold Time*
ABNs (Acid & Base Neutral Extractables) or SVOCs (Semi-Volatiles)	2 x 1L amber glass	None	14 days
Fatty and Resin Acids	2 x 1L amber glass	None	7 days
Herbicides	2 x 1L amber glass	None	14 days
Dioxins and Furans	2 x 1L amber glass	None	30 days/Indefinite
Chlorophenols	2 x 1L amber glass	None	14 days
PAHs	2 x 250 mL amber glass	$NaHSO_4$ (pH < 2)	14 days
Pesticides / PCBs / Ocs	2 x 500 mL amber glass	None	14 days
Oil & Grease / Heavy Oils	1 x 1L amber glass	HCl (pH < 2)	30 days
F4 Gravimetric	1 x 250 mL amber glass	$NaHSO_4$ (pH < 2)	40 days
CCME PHCs F2-F4 / Extractable Hydrocarbons	2 x 250 mL amber glass	$NaHSO_4$ (pH < 2)	40 days
CCME PHCs F1 / BTEX	2 x 40 mL clear glass septum vial**	$NaHSO_4$ (pH < 2)	14 days
THMs / VOC's	3 x 40 mL clear glass septum vial**	$NaHSO_4$ (pH < 2)	14 days
1,4 Dioxane - processed as a VOC	3 x 40 mL clear glass septum vial**	$NaHSO_4$ (pH < 2)	14 days
1,4 Dioxane - processed as an ABN	2 x 1L amber glass	None	14 days

SOIL

Inorganic Parameters	Recommended Sample Container	Preservation	Hold Time*
Anions (Br, F, NO3, NO2, PO4, SO4)	250 mL glass jar	None	None Specified
Anions (Chloride)	250 mL glass jar	None	30 days
Carbon, Total or Fraction of Organic (TOC/FOC)	250 mL glass jar, teflon lined lid	None	28 days
Conductivity	250 mL glass jar	None	30 days
Cyanide, Free	250 mL glass jar, teflon lined lid***	None	14 days
Chromium VI	250 mL glass jar	None	30 days
Metals (incl. Hydrides, SAR, HWS Boron, Ca, Mg, Na)	250 mL glass jar	None	180 days
Mercury	250 mL glass jar	None	28 days
Methyl Mercury (*Subcontracted*)	250 mL glass jar	None	28 days
Nitrogen - Ammonia (NH_3-N) / Total Kjeldahl Nitrogen (TKN)	250 mL glass jar	None	None Specified
pH	250 mL glass jar	None	30 days
Phenolics - Total	250 mL glass jar	None	None Specified
Regulation 558 - TCLP - Inorganics & Organics	250 mL glass jar	None	14-180 days
Regulation 558 - TCLP (Zero Headspace Extraction) - Volatiles	120 mL glass jar, teflon lined lid	None	14 days

Organic Parameters	Recommended Sample Container	Preservation	Hold Time*
BTEX, PHCs (F1), THMs, VOCs for Reg 153 - RSC work	40ml glass vial (plus 60ml jar for moisture)	10 mL methanol	14 days
BTEX, PHCs (F1), THMs, VOCs for Reg 153 - RSC work	Hermetic Sampler (plus 60ml jar for moisture)	Stabilize with Methanol within 48 hrs of sampling	
PHCs (F2-F4) and Moisture	120 mL glass jar, teflon lined lid	None	14 days
Herbicides, OP Pesticides	120 mL glass jar, teflon lined lid	None	14 days
Dioxins and Furans, PCBs	120 mL glass jar, teflon lined lid	None	Indefinite storage time
Oil & Grease, Heavy Oils	120 mL glass jar, teflon lined lid	None	30 days
ABNs, Chlorophenols, OC Pesticides, PAHs	120 mL glass jar, teflon lined lid	None	60 days
1,4-Dioxane - processed as a VOC	40ml glass vial (plus 60ml jar for moisture)	10 mL methanol	14 days
1,4 Dioxane - processed as an ABN	120 mL glass jar, teflon lined lid	None	14 days

*Based upon Reg. 153 analytical protocols and MISA (Municipal and Industrial Strategy for Abatement)
**No headspace or air bubbles in the container.
***Protect from light

Reg 153 Metals and Inorganics Packages		
Reg 153 ICPMS Metals	**Reg 153 Metals Package (Soil)**	**Reg 153 Metals Package (Water)**
Antimony	***Reg 153 ICPMS Metals with***	***Reg 153 ICPMS Metals with***
Arsenic	Chromium VI	Chromium VI
Barium	HWS Boron	Mercury
Beryllium	Mercury	
Boron (total)		
Cadmium		
Chromium (total)		
Cobalt	**Reg 153 Metals & Inorganics Package (Soil)**	**Reg 153 Metals & Inorganics Package (Water)**
Copper		
Lead	***Reg 153 Metals Package with..***	***Reg 153 Metals Package with…***
Molybdenum	Electrical Conductivity	Chloride
Nickel	Free Cyanide	Free Cyanide
Selenium	pH	
Silver	Sodium Absorption Ratio	
Sodium *(water only)*		
Thallium		
Uranium		
Vanadium		
Zinc		

Bureau Veritas Laboratories Water Quality Packages		
RCAP - Comprehensive ICP/MS Metals - Dissolved	**RCAP - Routine ICP Metals - Dissolved**	**RCAP - Surface Water ICP/MS Metals - Total**
Alkalinity $CaCO_3$	Alkalinity $CaCO_3$	Alkalinity $CaCO_3$
Ammonia as N	Ammonia as N	Ammonia as N
Carbon, Dissolved Org. as C	Carbon, Dissolved Org. as C	Carbon, Total Org. As C
Chloride	Chloride	Chloride
Conductivity	Conductivity	Conductivity
Nitrate as Nitrogen	Nitrate as Nitrogen	Nitrate as Nitrogen
Nitrite as Nitrogen	Nitrite as Nitrogen	Nitrite as Nitrogen
pH	pH	pH
Phosphate as o-PO_4	Phosphate as o-PO_4	Phosphate as o-PO_4
Sulphate as SO_4	Sulphate as SO_4	Sulphate as SO_4
		Total Phosphorus (colorimetric)
		Turbidity
CALCULATIONS:	**CALCULATIONS:**	**CALCULATIONS:**
TDS Calculated	TDS Calculated	TDS Calculated
Bicarbonate Alkalinity	Bicarbonate Alkalinity	Bicarbonate Alkalinity
Carbonate Alkalinity	Carbonate Alkalinity	Carbonate Alkalinity
Anion Sum	Anion Sum	Hardness
Cation Sum	Cation Sum	Langelier Index @5C
Hardness	Hardness	Langelier Index @20C
Ion Balance	Ion Balance	Saturation pH @5C
Langelier Index @5C	Langelier Index @5C	Saturation pH @20C
Langelier Index @20C	Langelier Index @20C	
Saturation pH @5C	Saturation pH @5C	
Saturation pH @20C	Saturation pH @20C	

Note: Samples are to be kept cool (less than 10°C) post collection; however, samples arriving at Bureau Veritas Laboratories the same day as they were collected, with an attempt made to cool, are not considered compromised at greater than 10°C.

Bureau Veritas Laboratories has provided a summary of holding times for convenience purposes only and is to be used only as a guide. Holding times may differ depending on required protocol.
Please consult the official regulations to ensure the appropriate holding times are followed. Please ensure samples are transported as quickly as possible to ensure hold times can be met.
Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at http://www.bvlabs.com/terms-and-conditions

APPENDIX B Finalized Field Logs

Soil Sampling Details
2164 Old Prescott Road, Greely, Ontario
Justice Construction Ltd.

Soil Sample Location	Location	Date Collected	Sample Depth (m BGS)	Soil Analysis	Soil Description	CVC (ppmv)
SS18-3	Eastern portion	27-Jun-18	0.25 to 0.75	VOCs, PHCs, PAHs, PCBs, Inorganics, Metals	Very fine to fine grained sand with topsoil (organics)	< 5
SS18-4	Central portion	27-Jun-18	0.25 to 0.75	VOCs, PHCs, PAHs, PCBs, Inorganics, Metals	Very fine to fine grained sand with topsoil (organics)	< 5
SS18-5	Western portion	27-Jun-18	0.25 to 0.75	VOCs, PHCs, PAHs, PCBs, Inorganics, Metals	Very fine to fine grained sand with topsoil (organics)	< 5
SS18-8	Central portion	5-Dec-18	0.25 to 0.50	VOCs, PHCs, PAHs, PCBs, Inorganics, Metals	Silty sand to sandy silt with trace organics and gravel	NM
SS18-9	Central portion (resampling of SS18-4)	5-Dec-18	0.25 to 0.50	Free Cyanide	Silty sand to sandy silt with trace organics and gravel	NM
SS18-10	Central portion	5-Dec-18	0.25 to 0.50	Free Cyanide	Silty sand to sandy silt with trace organics and gravel	NM
SS18-11	Central portion	5-Dec-18	0.25 to 0.50	Free Cyanide	Silty sand to sandy silt with trace organics and gravel	NM
SS18-12	Central portion	5-Dec-18	0.25 to 0.50	Free Cyanide	Silty sand to sandy silt with trace organics and gravel	NM
MW20-4-SS3	Western portion	5-Mar-21	1.50 to 2.30	PAHs, PCBs, Inorganics, Metals	Medium grained sand	<5
MW20-4-SS10	Western portion	5-Mar-21	8.40 to 9.10	VOCs, PHCs	Medium grained sand	<5
BH20-5-SS1	Southern portion	5-Mar-21	0 to 0.80	PAHs, PCBs, Inorganics, Metals	Medium grained sand with possible concrete fragments	<5
BH20-5-SS9	Southern portion	5-Mar-21	6.10 to 7.60	VOCs, PHCs	Medium grained sand	<5
MW20-6-SS1	Eastern portion	5-Mar-21	0 to 1.50	PAHs, PCBs, Inorganics, Metals	Medium grained sand with possible concrete fragments	<5
MW20-6-SS2	Eastern portion	5-Mar-21	1.50 to 3.00	Molybdenum	Medium to coarse grained sand	<5
MW20-6-SS9	Eastern portion	5-Mar-21	9.10 to 9.90	VOCs, PHCs	Medium grained sand	<5
TP21-1	Eastern portion	30-Mar-21	0.40 to 1.50	Molybdenum	Medium to coarse grained sand with trace gravel	<5
TP21-2	Eastern portion	30-Mar-21	0.60 to 1.60	Molybdenum	Fine grained sand with trace gravel	<5
TP21-3	Eastern portion	30-Mar-21	0.60 to 1.60	Molybdenum	Fine to medium grained sand with trace gravel	<5
TP21-4	Eastern portion	30-Mar-21	0.60 to 1.60	Molybdenum	Fine to medium grained sand with trace gravel	<5
TP21-5	Eastern portion	30-Mar-21	0.50 to 2.20	VOCs, PHCs, PAHs, PCBs, Inorganics, Metals	Silty sand	10

Notes:

m BGS	Metres below ground surface
VOCs	Volatile organic compounds
PHCs	Petroleum hydrocarbons
PAHs	Polycyclic aromatic hydrocarbons
PCBs	Polychlorinated biphenyls
CVC	Combustible vapour concentrations
ppmv	Parts per million by volume
NM	Not measured

Monitoring Well: BH/MW20-2

Project:	Phase II ESA and RSC	**Drilling method:**	Geoprobe 7822DT (Direct Push)
Client:	P.W. Justice Holdings Ltd.	**Date started/completed:**	02-Jun-2020
Location:	2164 Old Prescott Road, Greely, ON	**Ground surface elevation:**	99.07 m AMSL
Number:	122170434	**Top of casing elevation:**	99.86 m AMSL
Field investigator:	R. Gonsalves	**Easting:**	455234.9
Contractor:	Strata Drilling Group	**Northing:**	5007360

SUBSURFACE PROFILE				SAMPLE DETAILS					INSTALLATION DETAILS	
Depth (ft)	Depth (m)	Graphic Log	Stratigraphic Description	Elevation (m AMSL) Depth (m BGS)	Sample Number	Sample Type	Recovery	Lab Analyses	%LEL / ppm (OTOV, Comb)	Diagram / Description
				99.68						
0	0		Ground Surface	99.07						Protective steel monument
0	0		TOPSOIL brown, loose, sand, damp	0.00 98.98						Concrete seal
			SAND brown, loose, some gravel, damp	0.09	1	DP	33" 55%		<5 <0.02	
					2				<5 <0.02	
5	2				3	DP	36" 60%		<5 <0.02	
					4				<5 <0.02	
10	4		- grey coarse seam		5	DP	30" 50%		<5 <0.02	50 mm ID PVC pipe backfilled with bentonite
15					6	DP	30" 50%		<5 6.0	
20	6				7	DP	21" 35%		<5 <0.02	
25	8		- moist		8	DP	33" 55%		<5 <0.02	50 mm ID slotted PVC pipe backfilled with silica sand
30			- wet							Groundwater Level: 8.86 m BGS 4-Jun-21
	10				9	DP	36" 60%		<5 <0.02	
35			End of Borehole	88.40 10.67						

Screen Interval: 7.01 - 10.06 m BGS
Sand Pack Interval: 6.71 - 10.67 m BGS
Well Seal Interval: 0.23 - 6.71 m BGS

Notes:
m AMSL - metres above mean sea level
m BGS - metres below ground surface
DP - direct push sample
ppm - parts per million by volume
n/a - not available

PAH - polycyclic aromatic hydrocarbons
PHC F1-F4 - petroleum hydrocarbon fractions 1 to 4
VOC - volatile organic compounds

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Drawn By/Checked By: M. Ford / R. Gonsalves

STANTEC BOREHOLE AND WELL V2 122170434_BHLOGS.GPJ STANTEC - DATA TEMPLATE.GDT 10/4/21 TSOKOLOWSKI

Monitoring Well: BH/MW20-4

Project:	Phase II ESA and RSC	**Drilling method:**	GM 100DT (Direct Push)
Client:	P.W. Justice Holdings Ltd.	**Date started/completed:**	05-Mar-2021
Location:	2164 Old Prescott Road, Greely, ON	**Ground surface elevation:**	99.47 m RTD
Number:	122170434	**Top of casing elevation:**	100.44 m RTD
Field investigator:	RG & MD	**Easting:**	455184.7
Contractor:	Strata Drilling Group	**Northing:**	5007387

SUBSURFACE PROFILE				SAMPLE DETAILS					INSTALLATION DETAILS	
Depth (ft)	Depth (m)	Graphic Log	Stratigraphic Description	Elevation (m RTD) Depth (m BGS)	Sample Number	Sample Type	Recovery	Lab Analyses	%LEL Comb▲ 20 40 60 80 ppm OTOV Comb● 200 400 600 800	Diagram	Description
				100.44							
			Ground Surface	99.47							Stick up with protective steel monument
0	0		TOPSOIL	0.00							
			with organics and crushed rock, possible concrete fragments	99.32							Concrete seal
			SAND	0.15							
			medium grained, loose, brown		1	DP	50" 83%		<5 <0.02		
					2				<5 <0.02		
5			- trace cobbles		3	DP	45" 75%	PAH, PCB, Metals & Inorganics	<5 <0.02		
	2		- no trace cobbles		4				<5 <0.02		
10					5	DP	55" 92%		<5 <0.02		
	4				6				<5 <0.02		50 mm ID PVC pipe backfilled with bentonite
15					7	DP	20" 33%		<5 <0.02		
20	6		-coarse grained		8	DP	24" 40%		<5 <0.02		
25			- medium grained		9	DP	45" 75%		<5 <0.02		
	8				10			PHCs, VOCs	<5 <0.02		
30			- wet		11	DP	25" 52%		<5 <0.02		50 mm ID slotted PVC pipe backfilled with silica sand
	10										Groundwater Level: 9.20 m BGS 4-Jun-21
35				88.81							
			End of Borehole	10.67							

Screen Interval: 7.62 - 10.67 m BGS
Sand Pack Interval: 7.32 - 10.67 m BGS
Well Seal Interval: 1.52 - 7.32 m BGS

Notes:
m BGS - metres below ground surface
DP - direct push sample
ppm - parts per million by volume
n/a - not available

PCB - polychlorinated biphenyls
VOC - volatile organic compounds
PHC - petroleum hydrocarbon fractions 1 to 4
PAH - polycyclic aromatic hydrocarbons

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Drawn By/Checked By: S. McCutcheon / R. Gonsalves

Borehole: BH/MW20-5

Project:	Phase II ESA and RSC	**Drilling method:**	GM 100DT (Direct Push)
Client:	P.W. Justice Holdings Ltd.	**Date started/completed:**	05-Mar-2021
Location:	2164 Old Prescott Road, Greely, ON	**Ground surface elevation:**	n/a
Number:	122170434	**Top of casing elevation:**	n/a
Field investigator:	RG & MD	**Easting:**	455245.3
Contractor:	Strata Drilling Group	**Northing:**	5007359

SUBSURFACE PROFILE				SAMPLE DETAILS					INSTALLATION DETAILS	
Depth (ft)	Depth (m)	Graphic Log	Stratigraphic Description	Depth (m BGS)	Sample Number	Sample Type	Recovery	Lab Analyses	%LEL Comb▲ 20 40 60 80 ppm OTOV ● Comb 200 400 600 800	Diagram / Description
			Ground Surface							
			TOPSOIL	0.00						
			loose, crushed rocks, possible concrete fragments	0.20						
			SAND medium-fine grained, brown		1	DP	43" 72%	PAHs, PCBs, Metals and Inorganics	<5 ● ○ <0.02	
					2				<5 ● ○ <0.02	
5	2				3	DP	15" 25%		<5 ● ○ <0.02	
10			- trace gravel		4	DP	55" 92%		<5 ● ○ <0.02	
	4		- no gravel		5				<5 ● ○ <0.02	
15			- darker sand seams		6	DP	60" 100%		<5 ● ○ <0.02	Backfilled with bentonite
	6				7				<5 ● ○ <0.02	
20			- wet		8	DP	20" 33%		<5 ● ○ <0.02	
25	8				9	DP	60" 100%	PHCs, VOCs	<5 ● ○ <0.02	
					10				<5 ● ○ <0.02	
30	10		End of Borehole	9.14						
35										
	12									

Notes:
m BGS - metres below ground surface
DP - direct push sample
ppm - parts per million by volume
n/a - not available

PCB - polychlorinated biphenyls
VOC - volatile organic compounds
PHC - petroleum hydrocarbon fractions 1 to 4
PAH - polycyclic aromatic hydrocarbons

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Drawn By/Checked By: S. McCutcheon / R. Gonsalves

Monitoring Well: BH/MW20-6

Project:	Phase II ESA and RSC	**Drilling method:**	GM 100DT (Direct Push)
Client:	P.W. Justice Holdings Ltd.	**Date started/completed:**	05-Mar-2021
Location:	2164 Old Prescott Road, Greely, ON	**Ground surface elevation:**	99.69 m RTD
Number:	122170434	**Top of casing elevation:**	100.68 m RTD
Field investigator:	RG & MD	**Easting:**	455311
Contractor:	Strata Drilling Group	**Northing:**	5007405

SUBSURFACE PROFILE				SAMPLE DETAILS					INSTALLATION DETAILS	
Depth (ft)	Depth (m)	Graphic Log	Stratigraphic Description	Elevation (m RTD) Depth (m BGS)	Sample Number	Sample Type	Recovery	Lab Analyses	%LEL Comb▲ 20 40 60 80 ppm OTOV Comb● 200 400 600 800	Diagram	Description
				100.68							
			Ground Surface	99.69							Stick up with protective steel monument
0	0		SAND (FILL) with silt, trace gravel and loose rock	0.00 / 99.59							Concrete seal
			SAND with silt, trace gravel, brown	0.10	1	DP	25" 42%	PAHs, PCBs, Metal and Inorganics	<5 <0.02		
5	2		-loose, medium to coarse grained, brown, dry		2	DP	18" 30%	Molybdenum	<5 <0.02		
10	4				3	DP	23" 38%		<5 <0.02		
15					4	DP	53" 88%		<5 <0.02		50 mm ID PVC pipe backfilled with bentonite
					5				<5 <0.02		
20	6				6	DP	60" 100%		<5 <0.02		
25			-wet		7				<5 <0.02		
	8				8	DP	20" 33%		<5 <0.02		
30					9	DP	60" 100%	PHCs, VOCs	<5 <0.02		50 mm ID slotted PVC pipe backfilled with silica sand
	10				10				<5 <0.02		Groundwater Level: 9.49 m BGS 4-Jun-21
35			End of Borehole	89.02 / 10.67							

Screen Interval: 7.62 - 10.67 m BGS
Sand Pack Interval: 7.32 - 10.67 m BGS
Well Seal Interval: 1.52 - 7.32 m BGS

Notes:
m BGS - metres below ground surface
DP - direct push sample
ppm - parts per million by volume
n/a - not available

PCB - polychlorinated biphenyls
VOC - volatile organic compounds
PHC - petroleum hydrocarbon fractions 1 to 4
PAH - polycyclic aromatic hydrocarbons

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Drawn By/Checked By: S. McCutcheon / R. Gonsalves

Sheet 1 of 1

STANTEC BOREHOLE AND WELL V2 122170434_BHLOGS.GPJ STANTEC - DATA TEMPLATE.GDT 10/4/21 TSOKOLOWSKI

Test Pit: TP21-1

Project:	Phase II ESA and RSC	**Drilling method:**	Backhoe
Client:	P.W. Justice Holdings Ltd.	**Date started/completed:**	30-Mar-2021
Location:	2164 Old Prescott Road, Greely, ON	**Ground surface elevation:**	n/a
Number:	122170434	**Top of casing elevation:**	n/a
Field investigator:	RG & MD	**Easting:**	455312.5
Contractor:		**Northing:**	5007405

SUBSURFACE PROFILE				SAMPLE DETAILS				INSTALLATION DETAILS	
Depth (ft)	Depth (m)	Graphic Log	Stratigraphic Description	Depth (m BGS)	Sample Number	Sample Type	Lab Analyses	%LEL Comb▲ 20 40 60 80 / ppm OTOV ● Comb 200 400 600 800	Diagram / Description
			Ground Surface						
			TOPSOIL	0.00					
			SAND trace gravel, medium-coarse, brown, dry	0.04	1	GS	Molybdenum	<5 ● / ○ <0.02	Backfilled with excavated material
			End of Test Pit	1.50					

Notes:
m BGS - metres below ground surface
GS - grab sample
ppm - parts per million by volume
n/a - not available

PCB - polychlorinated biphenyls
VOC - volatile organic compounds
PHC - petroleum hydrocarbon fractions 1 to 4
PAH - polycyclic aromatic hydrocarbons

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Drawn By/Checked By: S. McCutcheon / R. Gonsalves

Test Pit: TP21-2

Project:	Phase II ESA and RSC	**Drilling method:**	Backhoe
Client:	P.W. Justice Holdings Ltd.	**Date started/completed:**	30-Mar-2021
Location:	2164 Old Prescott Road, Greely, ON	**Ground surface elevation:**	n/a
Number:	122170434	**Top of casing elevation:**	n/a
Field investigator:	RG & MD	**Easting:**	455311
Contractor:		**Northing:**	5007403

SUBSURFACE PROFILE				SAMPLE DETAILS				INSTALLATION DETAILS	
Depth (ft)	Depth (m)	Graphic Log	Stratigraphic Description	Depth (m BGS)	Sample Number	Sample Type	Lab Analyses	%LEL Comb▲ 20 40 60 80 / ppm OTOV ● Comb 200 400 600 800	Diagram / Description
			Ground Surface						
			TOPSOIL	0.00					
			SAND trace gravel, fine, brown, dry	0.06	1	GS	Molybdenum	<5 ● / ○ <0.02	Backfilled with excavated material
			End of Test Pit	1.60					

Notes:
m BGS - metres below ground surface
GS - grab sample
ppm - parts per million by volume
n/a - not available

PCB - polychlorinated biphenyls
VOC - volatile organic compounds
PHC - petroleum hydrocarbon fractions 1 to 4
PAH - polycyclic aromatic hydrocarbons

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Drawn By/Checked By: S. McCutcheon / R. Gonsalves

Test Pit: TP21-3

Project:	Phase II ESA and RSC	**Drilling method:**	Backhoe
Client:	P.W. Justice Holdings Ltd.	**Date started/completed:**	30-Mar-2021
Location:	2164 Old Prescott Road, Greely, ON	**Ground surface elevation:**	n/a
Number:	122170434	**Top of casing elevation:**	n/a
Field investigator:	RG & MD	**Easting:**	455309.5
Contractor:		**Northing:**	5007405

SUBSURFACE PROFILE				SAMPLE DETAILS				INSTALLATION DETAILS	
Depth (ft)	Depth (m)	Graphic Log	Stratigraphic Description	Depth (m BGS)	Sample Number	Sample Type	Lab Analyses	%LEL Comb▲ 20 40 60 80 / ppm OTOV ● Comb 200 400 600 800	Diagram / Description
			Ground Surface						
			TOPSOIL	0.00					
			SAND trace gravel, medium-fine	0.06	1	GS	Molybdenum	<5 (OTOV) <0.02 (Comb)	Backfilled with excavated material
			End of Test Pit	1.50					

Notes:
m BGS - metres below ground surface
GS - grab sample
ppm - parts per million by volume
n/a - not available

PCB - polychlorinated biphenyls
VOC - volatile organic compounds
PHC - petroleum hydrocarbon fractions 1 to 4
PAH - polycyclic aromatic hydrocarbons

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Drawn By/Checked By: S. McCutcheon / R. Gonsalves

Test Pit: TP21-4

Project:	Phase II ESA and RSC	**Drilling method:**	Backhoe
Client:	P.W. Justice Holdings Ltd.	**Date started/completed:**	30-Mar-2021
Location:	2164 Old Prescott Road, Greely, ON	**Ground surface elevation:**	n/a
Number:	122170434	**Top of casing elevation:**	n/a
Field investigator:	RG & MD	**Easting:**	455311
Contractor:		**Northing:**	5007406

SUBSURFACE PROFILE				SAMPLE DETAILS				INSTALLATION DETAILS	
Depth (ft)	Depth (m)	Graphic Log	Stratigraphic Description	Depth (m BGS)	Sample Number	Sample Type	Lab Analyses	%LEL Comb▲ 20 40 60 80 / ppm OTOV ● Comb 200 400 600 800	Diagram / Description
			Ground Surface						
			TOPSOIL	0.00					
			SAND medium-fine	0.06	1	GS	Molybdenum	<5 ● / ○ <0.02	Backfilled with excavated material
			End of Test Pit	1.65					

Notes:
m BGS - metres below ground surface
GS - grab sample
ppm - parts per million by volume
n/a - not available

PCB - polychlorinated biphenyls
VOC - volatile organic compounds
PHC - petroleum hydrocarbon fractions 1 to 4
PAH - polycyclic aromatic hydrocarbons

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Drawn By/Checked By: S. McCutcheon / R. Gonsalves

Test Pit: TP21-5

Project:	Phase II ESA and RSC	**Drilling method:**	Backhoe
Client:	P.W. Justice Holdings Ltd.	**Date started/completed:**	30-Mar-2021
Location:	2164 Old Prescott Road, Greely, ON	**Ground surface elevation:**	n/a
Number:	122170434	**Top of casing elevation:**	n/a
Field investigator:	RG & MD	**Easting:**	455299
Contractor:		**Northing:**	5007395

SUBSURFACE PROFILE				SAMPLE DETAILS				INSTALLATION DETAILS	
Depth (ft)	Depth (m)	Graphic Log	Stratigraphic Description	Depth (m BGS)	Sample Number	Sample Type	Lab Analyses	%LEL Comb▲ 20 40 60 80 / ppm OTOV ● Comb 200 400 600 800	Diagram / Description
			Ground Surface						
			SILTY SAND (FILL) wet, debris fill including plastic bags, brick, metal scraps	0.00					
					1	GS	PAHs, PHCs, Metals & Inorganics, VOCs	10 ● O <0.02	
			SAND medium, with oxidation	2.30					Backfilled with excavated material
					2	GS		<5 ● O <0.02	
			End of Test Pit	5.00					

Notes:
m BGS - metres below ground surface
GS - grab sample
ppm - parts per million by volume
n/a - not available

PCB - polychlorinated biphenyls
VOC - volatile organic compounds
PHC - petroleum hydrocarbon fractions 1 to 4
PAH - polycyclic aromatic hydrocarbons

Stantec

Drawn By/Checked By: S. McCutcheon / R. Gonsalves

APPENDIX C CERTIFICATES OF ANALYSIS OR ANALYTICAL REPORTS FROM LABORATORIES

Your Project #: 160410230.101.106
Your C.O.C. #: 671312-01-01

Attention: Jill Peters-Dechman

Stantec Consulting Ltd
1331 Clyde Avenue
Suite 400
Ottawa, ON
CANADA K2C 3G4

Report Date: 2021/09/30
Report #: R6834769
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: B8F8535
Received: 2018/06/27, 13:30

Sample Matrix: Soil
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum	3	N/A	2018/07/05	CAM SOP-00301	EPA 8270D m
Hot Water Extractable Boron	3	2018/06/29	2018/07/03	CAM SOP-00408	R153 Ana. Prot. 2011
Free (WAD) Cyanide	3	2018/06/29	2018/07/03	CAM SOP-00457	OMOE E3015 m
Conductivity	3	2018/07/04	2018/07/04	CAM SOP-00414	OMOE E3530 v1 m
Hexavalent Chromium in Soil by IC (2)	3	2018/06/28	2018/07/04	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	3	2018/06/28	2018/06/29	OTT SOP-00001	CCME CWS
Soluble Fluoride analysis in Soil	3	2018/07/03	2018/07/04	CAM SOP-00449	SM 23 4500 F C m
Acid Extractable Metals by ICPMS	3	2018/06/29	2018/07/04	CAM SOP-00447	EPA 6020B m
Moisture (1)	3	N/A	2018/06/29	CAM SOP-00445	McKeague 2nd ed 1978
PAH Compounds in Soil by GC/MS (SIM)	3	2018/07/03	2018/07/03	CAM SOP-00318	EPA 8270D m
Polychlorinated Biphenyl in Soil	3	2018/06/30	2018/06/30	CAM SOP-00309	EPA 8082A m
pH CaCl2 EXTRACT	3	2018/07/03	2018/07/03	CAM SOP-00413	EPA 9045 D m
Sodium Adsorption Ratio (SAR)	3	N/A	2018/07/04	CAM SOP-00102	EPA 6010C
Volatile Organic Compounds and F1 PHCs	3	N/A	2018/06/30	CAM SOP-00230	EPA 8260 m

Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope

Your Project #: 160410230.101.106
Your C.O.C. #: 671312-01-01

Attention: Jill Peters-Dechman

Stantec Consulting Ltd
1331 Clyde Avenue
Suite 400
Ottawa, ON
CANADA K2C 3G4

Report Date: 2021/09/30
Report #: R6834769
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: B8F8535
Received: 2018/06/27, 13:30

dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Ottawa, 36 Antares Dr Unit 100, Nepean, ON, K2E 7W5
(2) Soils are reported on a dry weight basis unless otherwise specified.
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories 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.
Jonathan Urben, Senior Project Manager
Email:
Phone# (613)274-3549
==========
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

CCME SOIL INORGANICS PACKAGE (SOIL)

BV Labs ID		HBL773	HBL774			HBL774		
Sampling Date		2018/06/27 10:55	2018/06/27 11:10			2018/06/27 11:10		
COC Number		671312-01-01	671312-01-01			671312-01-01		
	UNITS	SS18-3	SS18-4	RDL	QC Batch	SS18-4 Lab-Dup	RDL	QC Batch
Calculated Parameters								
Sodium Adsorption Ratio	N/A	0.22	0.22		5600932			
Inorganics								
Conductivity	mS/cm	0.19	0.18	0.002	5610594			
Fluoride (F-)	ug/g	8	8	5	5609977			
Available (CaCl2) pH	pH	7.15	7.21		5609282			
WAD Cyanide (Free)	ug/g	0.05	0.06	0.01	5605871			
Chromium (VI)	ug/g	<0.20	<0.20	0.20	5604705	<0.20	0.20	5604705
Metals								
Hot Water Ext. Boron (B)	ug/g	0.27	0.32	0.050	5606385			
Acid Extractable Antimony (Sb)	ug/g	<0.20	<0.20	0.20	5606327			
Acid Extractable Arsenic (As)	ug/g	1.9	1.6	1.0	5606327			
Acid Extractable Barium (Ba)	ug/g	120	110	0.50	5606327			
Acid Extractable Beryllium (Be)	ug/g	0.56	0.51	0.20	5606327			
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	5.0	5606327			
Acid Extractable Cadmium (Cd)	ug/g	0.16	<0.10	0.10	5606327			
Acid Extractable Chromium (Cr)	ug/g	43	39	1.0	5606327			
Acid Extractable Cobalt (Co)	ug/g	9.3	8.3	0.10	5606327			
Acid Extractable Copper (Cu)	ug/g	16	14	0.50	5606327			
Acid Extractable Lead (Pb)	ug/g	10	11	1.0	5606327			
Acid Extractable Manganese (Mn)	ug/g	390	350	1.0	5606327			
Acid Extractable Molybdenum (Mo)	ug/g	0.54	0.51	0.50	5606327			
Acid Extractable Nickel (Ni)	ug/g	22	21	0.50	5606327			
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	0.50	5606327			
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	0.20	5606327			
Acid Extractable Thallium (Tl)	ug/g	0.16	0.15	0.050	5606327			
Acid Extractable Tin (Sn)	ug/g	<1.0	<1.0	1.0	5606327			
Acid Extractable Uranium (U)	ug/g	1.0	0.91	0.050	5606327			
Acid Extractable Vanadium (V)	ug/g	48	43	5.0	5606327			
Acid Extractable Zinc (Zn)	ug/g	72	64	5.0	5606327			
Acid Extractable Mercury (Hg)	ug/g	<0.050	<0.050	0.050	5606327			

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

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CCME SOIL INORGANICS PACKAGE (SOIL)

BV Labs ID		HBL775		
Sampling Date		2018/06/27 11:30		
COC Number		671312-01-01		
	UNITS	SS18-5	RDL	QC Batch
Calculated Parameters				
Sodium Adsorption Ratio	N/A	0.23		5600932
Inorganics				
Conductivity	mS/cm	0.17	0.002	5610594
Fluoride (F-)	ug/g	7	5	5609977
Available (CaCl2) pH	pH	6.93		5609282
WAD Cyanide (Free)	ug/g	0.05	0.01	5605871
Chromium (VI)	ug/g	<0.20	0.20	5604705
Metals				
Hot Water Ext. Boron (B)	ug/g	0.31	0.050	5606385
Acid Extractable Antimony (Sb)	ug/g	<0.20	0.20	5606327
Acid Extractable Arsenic (As)	ug/g	1.7	1.0	5606327
Acid Extractable Barium (Ba)	ug/g	120	0.50	5606327
Acid Extractable Beryllium (Be)	ug/g	0.54	0.20	5606327
Acid Extractable Boron (B)	ug/g	<5.0	5.0	5606327
Acid Extractable Cadmium (Cd)	ug/g	0.15	0.10	5606327
Acid Extractable Chromium (Cr)	ug/g	45	1.0	5606327
Acid Extractable Cobalt (Co)	ug/g	10	0.10	5606327
Acid Extractable Copper (Cu)	ug/g	17	0.50	5606327
Acid Extractable Lead (Pb)	ug/g	11	1.0	5606327
Acid Extractable Manganese (Mn)	ug/g	440	1.0	5606327
Acid Extractable Molybdenum (Mo)	ug/g	0.75	0.50	5606327
Acid Extractable Nickel (Ni)	ug/g	24	0.50	5606327
Acid Extractable Selenium (Se)	ug/g	<0.50	0.50	5606327
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	5606327
Acid Extractable Thallium (Tl)	ug/g	0.17	0.050	5606327
Acid Extractable Tin (Sn)	ug/g	1.0	1.0	5606327
Acid Extractable Uranium (U)	ug/g	0.79	0.050	5606327
Acid Extractable Vanadium (V)	ug/g	47	5.0	5606327
Acid Extractable Zinc (Zn)	ug/g	70	5.0	5606327
Acid Extractable Mercury (Hg)	ug/g	<0.050	0.050	5606327

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

CCME VOCS & F1-F4 (SOIL)

BV Labs ID		HBL773	HBL774	HBL775		
Sampling Date		2018/06/27 10:55	2018/06/27 11:10	2018/06/27 11:30		
COC Number		671312-01-01	671312-01-01	671312-01-01		
	UNITS	SS18-3	SS18-4	SS18-5	RDL	QC Batch
Inorganics						
Moisture	%	17	14	17	0.2	5603979
Volatile Organics						
Acetone (2-Propanone)	ug/g	<0.50	<0.50	<0.50	0.50	5605449
Benzene	ug/g	<0.0060	<0.0060	<0.0060	0.0060	5605449
Bromodichloromethane	ug/g	<0.050	<0.050	<0.050	0.050	5605449
Bromoform	ug/g	<0.050	<0.050	<0.050	0.050	5605449
Bromomethane	ug/g	<0.050	<0.050	<0.050	0.050	5605449
Carbon Tetrachloride	ug/g	<0.050	<0.050	<0.050	0.050	5605449
Chlorobenzene	ug/g	<0.050	<0.050	<0.050	0.050	5605449
Chloroform	ug/g	<0.050	<0.050	<0.050	0.050	5605449
Dibromochloromethane	ug/g	<0.050	<0.050	<0.050	0.050	5605449
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	0.050	5605449
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	0.050	5605449
1,4-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	0.050	5605449
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	<0.050	0.050	5605449
1,1-Dichloroethane	ug/g	<0.050	<0.050	<0.050	0.050	5605449
1,2-Dichloroethane	ug/g	<0.050	<0.050	<0.050	0.050	5605449
1,1-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	0.050	5605449
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	0.050	5605449
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	0.050	5605449
1,2-Dichloropropane	ug/g	<0.050	<0.050	<0.050	0.050	5605449
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	<0.030	0.030	5605449
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	<0.040	0.040	5605449
Ethylbenzene	ug/g	<0.010	<0.010	<0.010	0.010	5605449
Ethylene Dibromide	ug/g	<0.050	<0.050	<0.050	0.050	5605449
Hexane	ug/g	<0.050	<0.050	<0.050	0.050	5605449
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	<0.050	0.050	5605449
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	<0.50	0.50	5605449
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	<0.50	0.50	5605449
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	<0.050	0.050	5605449
Styrene	ug/g	<0.050	<0.050	<0.050	0.050	5605449

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

CCME VOCS & F1-F4 (SOIL)

BV Labs ID		HBL773	HBL774	HBL775		
Sampling Date		2018/06/27 10:55	2018/06/27 11:10	2018/06/27 11:30		
COC Number		671312-01-01	671312-01-01	671312-01-01		
	UNITS	SS18-3	SS18-4	SS18-5	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	0.050	5605449
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	0.050	5605449
Tetrachloroethylene	ug/g	<0.050	<0.050	<0.050	0.050	5605449
Toluene	ug/g	<0.020	<0.020	<0.020	0.020	5605449
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	<0.050	0.050	5605449
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	<0.050	0.050	5605449
Trichloroethylene	ug/g	<0.010	<0.010	<0.010	0.010	5605449
Vinyl Chloride	ug/g	<0.020	<0.020	<0.020	0.020	5605449
p+m-Xylene	ug/g	<0.020	<0.020	<0.020	0.020	5605449
o-Xylene	ug/g	<0.020	<0.020	<0.020	0.020	5605449
Total Xylenes	ug/g	<0.020	<0.020	<0.020	0.020	5605449
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	<0.050	0.050	5605449
F1 (C6-C10)	ug/g	<10	<10	<10	10	5605449
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	10	5605449
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	10	5603942
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	50	5603942
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	50	5603942
Reached Baseline at C50	ug/g	Yes	Yes	Yes		5603942
Surrogate Recovery (%)						
o-Terphenyl	%	96	99	94		5603942
4-Bromofluorobenzene	%	85	85	85		5605449
D10-o-Xylene	%	96	98	103		5605449
D4-1,2-Dichloroethane	%	97	100	99		5605449
D8-Toluene	%	101	101	99		5605449

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 PAHS (SOIL)

BV Labs ID		HBL773	HBL774	HBL775		
Sampling Date		2018/06/27 10:55	2018/06/27 11:10	2018/06/27 11:30		
COC Number		671312-01-01	671312-01-01	671312-01-01		
	UNITS	SS18-3	SS18-4	SS18-5	RDL	QC Batch
Calculated Parameters						
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	<0.0071	0.0071	5600907
Polyaromatic Hydrocarbons						
Acenaphthene	ug/g	<0.0050	0.0068	<0.0050	0.0050	5609438
Acenaphthylene	ug/g	<0.0050	<0.0050	<0.0050	0.0050	5609438
Anthracene	ug/g	<0.0050	0.018	0.0084	0.0050	5609438
Benzo(a)anthracene	ug/g	0.010	0.046	0.027	0.0050	5609438
Benzo(a)pyrene	ug/g	0.010	0.036	0.021	0.0050	5609438
Benzo(b/j)fluoranthene	ug/g	0.016	0.048	0.027	0.0050	5609438
Benzo(g,h,i)perylene	ug/g	0.0073	0.022	0.013	0.0050	5609438
Benzo(k)fluoranthene	ug/g	<0.0050	0.015	0.0081	0.0050	5609438
Chrysene	ug/g	0.0099	0.039	0.023	0.0050	5609438
Dibenzo(a,h)anthracene	ug/g	<0.0050	0.0052	<0.0050	0.0050	5609438
Fluoranthene	ug/g	0.020	0.11	0.056	0.0050	5609438
Fluorene	ug/g	<0.0050	0.0087	<0.0050	0.0050	5609438
Indeno(1,2,3-cd)pyrene	ug/g	0.0080	0.024	0.014	0.0050	5609438
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	0.0050	5609438
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	0.0050	5609438
Naphthalene	ug/g	<0.0050	<0.0050	<0.0050	0.0050	5609438
Phenanthrene	ug/g	0.0085	0.074	0.034	0.0050	5609438
Pyrene	ug/g	0.017	0.083	0.045	0.0050	5609438
Surrogate Recovery (%)						
D10-Anthracene	%	81	79	82		5609438
D14-Terphenyl (FS)	%	82	78	79		5609438
D8-Acenaphthylene	%	82	78	83		5609438

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 PCBS (SOIL)

BV Labs ID		HBL773	HBL774	HBL775		
Sampling Date		2018/06/27 10:55	2018/06/27 11:10	2018/06/27 11:30		
COC Number		671312-01-01	671312-01-01	671312-01-01		
	UNITS	SS18-3	SS18-4	SS18-5	RDL	QC Batch
PCBs						
Aroclor 1242	ug/g	<0.010	<0.010	<0.010	0.010	5607578
Aroclor 1248	ug/g	<0.010	<0.010	<0.010	0.010	5607578
Aroclor 1254	ug/g	<0.010	<0.010	<0.010	0.010	5607578
Aroclor 1260	ug/g	<0.010	<0.010	<0.010	0.010	5607578
Total PCB	ug/g	<0.010	<0.010	<0.010	0.010	5607578
Surrogate Recovery (%)						
Decachlorobiphenyl	%	95	77	91		5607578

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

TEST SUMMARY

BV Labs ID: HBL773
Sample ID: SS18-3
Matrix: Soil

Collected: 2018/06/27
Shipped:
Received: 2018/06/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5600907	N/A	2018/07/05	Automated Statchk
Hot Water Extractable Boron	ICP	5606385	2018/06/29	2018/07/03	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	5605871	2018/06/29	2018/07/03	Xuanhong Qiu
Conductivity	AT	5610594	2018/07/04	2018/07/04	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5604705	2018/06/28	2018/07/04	Rupinder Sihota
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5603942	2018/06/28	2018/06/29	Mariana Vascan
Soluble Fluoride analysis in Soil	ISE	5609977	2018/07/03	2018/07/04	Surinder Rai
Acid Extractable Metals by ICPMS	ICP/MS	5606327	2018/06/29	2018/07/04	Matthew Ritenburg
Moisture	BAL	5603979	N/A	2018/06/29	Samantha Arachchige
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5609438	2018/07/03	2018/07/03	Mitesh Raj
Polychlorinated Biphenyl in Soil	GC/ECD	5607578	2018/06/30	2018/06/30	Dawn Howard
pH CaCl2 EXTRACT	AT	5609282	2018/07/03	2018/07/03	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	5600932	N/A	2018/07/04	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MS	5605449	N/A	2018/06/30	Manpreet Sarao

BV Labs ID: HBL774
Sample ID: SS18-4
Matrix: Soil

Collected: 2018/06/27
Shipped:
Received: 2018/06/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5600907	N/A	2018/07/05	Automated Statchk
Hot Water Extractable Boron	ICP	5606385	2018/06/29	2018/07/03	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	5605871	2018/06/29	2018/07/03	Xuanhong Qiu
Conductivity	AT	5610594	2018/07/04	2018/07/04	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5604705	2018/06/28	2018/07/04	Rupinder Sihota
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5603942	2018/06/28	2018/06/29	Mariana Vascan
Soluble Fluoride analysis in Soil	ISE	5609977	2018/07/03	2018/07/04	Surinder Rai
Acid Extractable Metals by ICPMS	ICP/MS	5606327	2018/06/29	2018/07/04	Matthew Ritenburg
Moisture	BAL	5603979	N/A	2018/06/29	Samantha Arachchige
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5609438	2018/07/03	2018/07/03	Mitesh Raj
Polychlorinated Biphenyl in Soil	GC/ECD	5607578	2018/06/30	2018/06/30	Dawn Howard
pH CaCl2 EXTRACT	AT	5609282	2018/07/03	2018/07/03	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	5600932	N/A	2018/07/04	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MS	5605449	N/A	2018/06/30	Manpreet Sarao

BV Labs ID: HBL774 Dup
Sample ID: SS18-4
Matrix: Soil

Collected: 2018/06/27
Shipped:
Received: 2018/06/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hexavalent Chromium in Soil by IC	IC/SPEC	5604705	2018/06/28	2018/07/04	Rupinder Sihota

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BV Labs Job #: B8F8535
Report Date: 2021/09/30

Stantec Consulting Ltd
Client Project #: 160410230.101.106
Sampler Initials: DM

TEST SUMMARY

BV Labs ID: HBL775
Sample ID: SS18-5
Matrix: Soil

Collected: 2018/06/27
Shipped:
Received: 2018/06/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5600907	N/A	2018/07/05	Automated Statchk
Hot Water Extractable Boron	ICP	5606385	2018/06/29	2018/07/03	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	5605871	2018/06/29	2018/07/03	Xuanhong Qiu
Conductivity	AT	5610594	2018/07/04	2018/07/04	Tahir Anwar
Hexavalent Chromium in Soil by IC	IC/SPEC	5604705	2018/06/28	2018/07/04	Rupinder Sihota
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5603942	2018/06/28	2018/06/29	Mariana Vascan
Soluble Fluoride analysis in Soil	ISE	5609977	2018/07/03	2018/07/04	Surinder Rai
Acid Extractable Metals by ICPMS	ICP/MS	5606327	2018/06/29	2018/07/04	Matthew Ritenburg
Moisture	BAL	5603979	N/A	2018/06/29	Samantha Arachchige
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5609438	2018/07/03	2018/07/03	Mitesh Raj
Polychlorinated Biphenyl in Soil	GC/ECD	5607578	2018/06/30	2018/06/30	Dawn Howard
pH CaCl2 EXTRACT	AT	5609282	2018/07/03	2018/07/03	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	5600932	N/A	2018/07/04	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MS	5605449	N/A	2018/06/30	Manpreet Sarao

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

GENERAL COMMENTS

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

Package 1	16.3°C

Revised report[2021/09/30] V2 and V3 - Split report as per client request.

Sample HBL773 [SS18-3] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample HBL774 [SS18-4] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample HBL775 [SS18-5] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5603942	o-Terphenyl	2018/06/29	108	30 - 130	107	30 - 130	101	%		
5605449	4-Bromofluorobenzene	2018/06/29	99	60 - 140	99	60 - 140	85	%		
5605449	D10-o-Xylene	2018/06/29	96	60 - 130	92	60 - 130	97	%		
5605449	D4-1,2-Dichloroethane	2018/06/29	98	60 - 140	98	60 - 140	99	%		
5605449	D8-Toluene	2018/06/29	104	60 - 140	103	60 - 140	101	%		
5607578	Decachlorobiphenyl	2018/06/30	78	60 - 130	95	60 - 130	86	%		
5609438	D10-Anthracene	2018/07/03	75	50 - 130	77	50 - 130	71	%		
5609438	D14-Terphenyl (FS)	2018/07/03	72	50 - 130	80	50 - 130	75	%		
5609438	D8-Acenaphthylene	2018/07/03	73	50 - 130	72	50 - 130	67	%		
5603942	F2 (C10-C16 Hydrocarbons)	2018/06/29	85	50 - 130	83	80 - 120	<10	ug/g	NC	50
5603942	F3 (C16-C34 Hydrocarbons)	2018/06/29	85	50 - 130	83	80 - 120	<50	ug/g	NC	50
5603942	F4 (C34-C50 Hydrocarbons)	2018/06/29	85	50 - 130	83	80 - 120	<50	ug/g	NC	50
5603979	Moisture	2018/06/29							7.5	50
5604705	Chromium (VI)	2018/07/04	3.9 (1)	70 - 130	88	80 - 120	<0.20	ug/g	NC	35
5605449	1,1,1,2-Tetrachloroethane	2018/06/29	97	60 - 140	95	60 - 130	<0.050	ug/g		
5605449	1,1,1-Trichloroethane	2018/06/29	97	60 - 140	95	60 - 130	<0.050	ug/g		
5605449	1,1,2,2-Tetrachloroethane	2018/06/29	95	60 - 140	94	60 - 130	<0.050	ug/g		
5605449	1,1,2-Trichloroethane	2018/06/29	96	60 - 140	94	60 - 130	<0.050	ug/g		
5605449	1,1-Dichloroethane	2018/06/29	99	60 - 140	96	60 - 130	<0.050	ug/g		
5605449	1,1-Dichloroethylene	2018/06/29	99	60 - 140	96	60 - 130	<0.050	ug/g		
5605449	1,2-Dichlorobenzene	2018/06/29	100	60 - 140	95	60 - 130	<0.050	ug/g		
5605449	1,2-Dichloroethane	2018/06/29	93	60 - 140	92	60 - 130	<0.050	ug/g		
5605449	1,2-Dichloropropane	2018/06/29	96	60 - 140	95	60 - 130	<0.050	ug/g		
5605449	1,3-Dichlorobenzene	2018/06/29	109	60 - 140	103	60 - 130	<0.050	ug/g		
5605449	1,4-Dichlorobenzene	2018/06/29	101	60 - 140	95	60 - 130	<0.050	ug/g		
5605449	Acetone (2-Propanone)	2018/06/29	95	60 - 140	96	60 - 140	<0.50	ug/g		
5605449	Benzene	2018/06/30	97	60 - 140	95	60 - 130	<0.0060	ug/g	NC	50
5605449	Bromodichloromethane	2018/06/29	92	60 - 140	90	60 - 130	<0.050	ug/g		
5605449	Bromoform	2018/06/29	89	60 - 140	88	60 - 130	<0.050	ug/g		
5605449	Bromomethane	2018/06/29	81	60 - 140	81	60 - 140	<0.050	ug/g		
5605449	Carbon Tetrachloride	2018/06/29	97	60 - 140	94	60 - 130	<0.050	ug/g		

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
5605449	Chlorobenzene	2018/06/29	96	60 - 140	93	60 - 130	<0.050	ug/g		
5605449	Chloroform	2018/06/29	96	60 - 140	94	60 - 130	<0.050	ug/g		
5605449	cis-1,2-Dichloroethylene	2018/06/29	98	60 - 140	96	60 - 130	<0.050	ug/g		
5605449	cis-1,3-Dichloropropene	2018/06/29	76	60 - 140	79	60 - 130	<0.030	ug/g		
5605449	Dibromochloromethane	2018/06/29	92	60 - 140	90	60 - 130	<0.050	ug/g		
5605449	Dichlorodifluoromethane (FREON 12)	2018/06/29	77	60 - 140	71	60 - 140	<0.050	ug/g		
5605449	Ethylbenzene	2018/06/30	100	60 - 140	96	60 - 130	<0.010	ug/g	NC	50
5605449	Ethylene Dibromide	2018/06/29	94	60 - 140	93	60 - 130	<0.050	ug/g		
5605449	F1 (C6-C10) - BTEX	2018/06/30					<10	ug/g	NC	30
5605449	F1 (C6-C10)	2018/06/30	98	60 - 140	97	80 - 120	<10	ug/g	NC	30
5605449	Hexane	2018/06/29	95	60 - 140	93	60 - 130	<0.050	ug/g		
5605449	Methyl Ethyl Ketone (2-Butanone)	2018/06/29	88	60 - 140	88	60 - 140	<0.50	ug/g		
5605449	Methyl Isobutyl Ketone	2018/06/29	89	60 - 140	88	60 - 130	<0.50	ug/g		
5605449	Methyl t-butyl ether (MTBE)	2018/06/29	91	60 - 140	90	60 - 130	<0.050	ug/g		
5605449	Methylene Chloride(Dichloromethane)	2018/06/29	98	60 - 140	96	60 - 130	<0.050	ug/g		
5605449	o-Xylene	2018/06/30	94	60 - 140	91	60 - 130	<0.020	ug/g	NC	50
5605449	p+m-Xylene	2018/06/30	96	60 - 140	92	60 - 130	<0.020	ug/g	NC	50
5605449	Styrene	2018/06/29	95	60 - 140	92	60 - 130	<0.050	ug/g		
5605449	Tetrachloroethylene	2018/06/29	95	60 - 140	92	60 - 130	<0.050	ug/g		
5605449	Toluene	2018/06/30	94	60 - 140	91	60 - 130	<0.020	ug/g	NC	50
5605449	Total Xylenes	2018/06/30					<0.020	ug/g	NC	50
5605449	trans-1,2-Dichloroethylene	2018/06/29	95	60 - 140	92	60 - 130	<0.050	ug/g		
5605449	trans-1,3-Dichloropropene	2018/06/29	77	60 - 140	82	60 - 130	<0.040	ug/g		
5605449	Trichloroethylene	2018/06/29	96	60 - 140	93	60 - 130	<0.010	ug/g		
5605449	Trichlorofluoromethane (FREON 11)	2018/06/29	97	60 - 140	93	60 - 130	<0.050	ug/g		
5605449	Vinyl Chloride	2018/06/29	97	60 - 140	93	60 - 130	<0.020	ug/g		
5605871	WAD Cyanide (Free)	2018/07/03	106	75 - 125	103	80 - 120	<0.01	ug/g	14	35
5606327	Acid Extractable Antimony (Sb)	2018/07/04	103	75 - 125	107	80 - 120	<0.20	ug/g	NC	30
5606327	Acid Extractable Arsenic (As)	2018/07/04	112	75 - 125	101	80 - 120	<1.0	ug/g	4.5	30
5606327	Acid Extractable Barium (Ba)	2018/07/04	NC	75 - 125	101	80 - 120	<0.50	ug/g	0.39	30
5606327	Acid Extractable Beryllium (Be)	2018/07/04	113	75 - 125	101	80 - 120	<0.20	ug/g	2.5	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
5606327	Acid Extractable Boron (B)	2018/07/04	109	75 - 125	97	80 - 120	<5.0	ug/g	NC	30
5606327	Acid Extractable Cadmium (Cd)	2018/07/04	109	75 - 125	102	80 - 120	<0.10	ug/g	12	30
5606327	Acid Extractable Chromium (Cr)	2018/07/04	114	75 - 125	104	80 - 120	<1.0	ug/g	4.0	30
5606327	Acid Extractable Cobalt (Co)	2018/07/04	112	75 - 125	102	80 - 120	<0.10	ug/g	3.7	30
5606327	Acid Extractable Copper (Cu)	2018/07/04	111	75 - 125	104	80 - 120	<0.50	ug/g	1.9	30
5606327	Acid Extractable Lead (Pb)	2018/07/04	107	75 - 125	101	80 - 120	<1.0	ug/g	0.47	30
5606327	Acid Extractable Manganese (Mn)	2018/07/04	NC	75 - 125	108	80 - 120	<1.0	ug/g		
5606327	Acid Extractable Mercury (Hg)	2018/07/04	104	75 - 125	101	80 - 120	<0.050	ug/g	NC	30
5606327	Acid Extractable Molybdenum (Mo)	2018/07/04	111	75 - 125	102	80 - 120	<0.50	ug/g	NC	30
5606327	Acid Extractable Nickel (Ni)	2018/07/04	115	75 - 125	106	80 - 120	<0.50	ug/g	0.20	30
5606327	Acid Extractable Selenium (Se)	2018/07/04	112	75 - 125	102	80 - 120	<0.50	ug/g	NC	30
5606327	Acid Extractable Silver (Ag)	2018/07/04	108	75 - 125	100	80 - 120	<0.20	ug/g	NC	30
5606327	Acid Extractable Thallium (Tl)	2018/07/04	107	75 - 125	100	80 - 120	<0.050	ug/g	0.74	30
5606327	Acid Extractable Tin (Sn)	2018/07/04	112	75 - 125	101	80 - 120	<1.0	ug/g		
5606327	Acid Extractable Uranium (U)	2018/07/04	107	75 - 125	98	80 - 120	<0.050	ug/g	3.1	30
5606327	Acid Extractable Vanadium (V)	2018/07/04	NC	75 - 125	103	80 - 120	<5.0	ug/g	1.0	30
5606327	Acid Extractable Zinc (Zn)	2018/07/04	NC	75 - 125	110	80 - 120	<5.0	ug/g	1.7	30
5606385	Hot Water Ext. Boron (B)	2018/07/03	93	75 - 125	100	75 - 125	<0.050	ug/g	5.5	40
5607578	Aroclor 1242	2018/06/30					<0.010	ug/g	NC	50
5607578	Aroclor 1248	2018/06/30					<0.010	ug/g	NC	50
5607578	Aroclor 1254	2018/06/30					<0.010	ug/g	NC	50
5607578	Aroclor 1260	2018/06/30	87	30 - 130	104	30 - 130	<0.010	ug/g	NC	50
5607578	Total PCB	2018/06/30	87	30 - 130	104	30 - 130	<0.010	ug/g	NC	50
5609282	Available (CaCl2) pH	2018/07/03			101	97 - 103			2.5	N/A
5609438	1-Methylnaphthalene	2018/07/03	95	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
5609438	2-Methylnaphthalene	2018/07/03	89	50 - 130	81	50 - 130	<0.0050	ug/g	NC	40
5609438	Acenaphthene	2018/07/03	85	50 - 130	81	50 - 130	<0.0050	ug/g	NC	40
5609438	Acenaphthylene	2018/07/03	92	50 - 130	74	50 - 130	<0.0050	ug/g	NC	40
5609438	Anthracene	2018/07/03	91	50 - 130	76	50 - 130	<0.0050	ug/g	NC	40
5609438	Benzo(a)anthracene	2018/07/03	99	50 - 130	79	50 - 130	<0.0050	ug/g	NC	40
5609438	Benzo(a)pyrene	2018/07/03	84	50 - 130	81	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
5609438	Benzo(b/j)fluoranthene	2018/07/03	71	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40
5609438	Benzo(g,h,i)perylene	2018/07/03	69	50 - 130	79	50 - 130	<0.0050	ug/g	NC	40
5609438	Benzo(k)fluoranthene	2018/07/03	74	50 - 130	81	50 - 130	<0.0050	ug/g	NC	40
5609438	Chrysene	2018/07/03	92	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
5609438	Dibenzo(a,h)anthracene	2018/07/03	73	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
5609438	Fluoranthene	2018/07/03	90	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
5609438	Fluorene	2018/07/03	86	50 - 130	79	50 - 130	<0.0050	ug/g	NC	40
5609438	Indeno(1,2,3-cd)pyrene	2018/07/03	79	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
5609438	Naphthalene	2018/07/03	86	50 - 130	81	50 - 130	<0.0050	ug/g	NC	40
5609438	Phenanthrene	2018/07/03	89	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
5609438	Pyrene	2018/07/03	90	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
5609977	Fluoride (F-)	2018/07/04	77 (2)	80 - 120	101	80 - 120	<5	ug/g	NC	25
5610594	Conductivity	2018/07/04			99	90 - 110	<0.002	mS/cm	2.9	10

N/A = Not Applicable

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

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

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

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

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

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

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

(1) The matrix spike recovery was below the lower control limit. This may be due in part to the reducing environment of the sample. The sample was reanalyzed with the same results.

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

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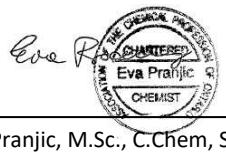
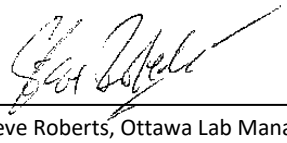
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



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

Liliana Gaburici, VOC Lab



Steve Roberts, Ottawa Lab Manager

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

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Maxxam
A Bureau Veritas Group Company

Your Project #: 160410230.101.106
Site Location: 2164 OLD PRESCOTT ROAD, OTTAWA ON
Your C.O.C. #: 695269-01-01

Attention: Grace Ferguson

Stantec Consulting Ltd
300 Hagey Blvd
Suite 100
Waterloo, ON
Canada N2L 0A4

Report Date: 2018/12/13
Report #: R5524307
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8W5985
Received: 2018/12/05, 17:20

Sample Matrix: Soil
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum (1)	2	N/A	2018/12/12	CAM SOP-00301	EPA 8270D m
Hot Water Extractable Boron (1)	2	2018/12/10	2018/12/10	CAM SOP-00408	R153 Ana. Prot. 2011
1,3-Dichloropropene Sum (1)	2	N/A	2018/12/12		EPA 8260C m
Free (WAD) Cyanide (1)	6	2018/12/11	2018/12/12	CAM SOP-00457	OMOE E3015 m
Conductivity (1)	2	2018/12/11	2018/12/11	CAM SOP-00414	OMOE E3530 v1 m
Hexavalent Chromium in Soil by IC (1, 2)	2	2018/12/10	2018/12/12	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	2	2018/12/11	2018/12/12	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS (1)	2	2018/12/10	2018/12/11	CAM SOP-00447	EPA 6020B m
Moisture (1)	2	N/A	2018/12/07	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture (1)	2	N/A	2018/12/08	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture (1)	2	N/A	2018/12/10	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM) (1)	2	2018/12/11	2018/12/12	CAM SOP-00318	EPA 8270D m
Polychlorinated Biphenyl in Soil (1)	2	2018/12/10	2018/12/10	CAM SOP-00309	EPA 8082A m
pH CaCl2 EXTRACT (1)	2	2018/12/11	2018/12/11	CAM SOP-00413	EPA 9045 D m
Sieve, 75um (1)	1	N/A	2018/12/12	CAM SOP-00467	Carter 2nd ed m
Sodium Adsorption Ratio (SAR) (1)	2	N/A	2018/12/12	CAM SOP-00102	EPA 6010C
Volatile Organic Compounds and F1 PHCs (1)	2	N/A	2018/12/11	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. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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

Your Project #: 160410230.101.106
Site Location: 2164 OLD PRESCOTT ROAD, OTTAWA ON
Your C.O.C. #: 695269-01-01

Attention: Grace Ferguson

Stantec Consulting Ltd
300 Hagey Blvd
Suite 100
Waterloo, ON
Canada N2L 0A4

Report Date: 2018/12/13
Report #: R5524307
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8W5985
Received: 2018/12/05, 17:20

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

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Maxxam Analytics Mississauga
(2) Soils are reported on a dry weight basis unless otherwise specified.
(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.
Jonathan Urben, Senior Project Manager
Email: jurben@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 #: B8W5985
Report Date: 2018/12/13

Stantec Consulting Ltd
Client Project #: 160410230.101.106
Site Location: 2164 OLD PRESCOTT ROAD, OTTAWA ON
Sampler Initials: TG

O.REG 153 METALS & INORGANICS PKG (SOIL)

Maxxam ID		IMC283	IMC284			IMC284		
Sampling Date		2018/12/05 11:15	2018/12/05			2018/12/05		
COC Number		695269-01-01	695269-01-01			695269-01-01		
	UNITS	SS18-8	QC-01	RDL	QC Batch	QC-01 Lab-Dup	RDL	QC Batch
Calculated Parameters								
Sodium Adsorption Ratio	N/A	0.21	0.20		5874413			
Inorganics								
Conductivity	mS/cm	0.21	0.20	0.002	5881813			
Available (CaCl2) pH	pH	7.42	7.51		5882165			
WAD Cyanide (Free)	ug/g	<0.01	<0.01	0.01	5881716			
Chromium (VI)	ug/g	<0.2	<0.2	0.2	5879869	<0.2	0.2	5879869
Metals								
Hot Water Ext. Boron (B)	ug/g	0.34	0.33	0.050	5879542			
Acid Extractable Antimony (Sb)	ug/g	<0.20	<0.20	0.20	5879405	<0.20	0.20	5879405
Acid Extractable Arsenic (As)	ug/g	1.9	1.9	1.0	5879405	1.8	1.0	5879405
Acid Extractable Barium (Ba)	ug/g	100	100	0.50	5879405	99	0.50	5879405
Acid Extractable Beryllium (Be)	ug/g	0.49	0.48	0.20	5879405	0.48	0.20	5879405
Acid Extractable Boron (B)	ug/g	5.2	5.2	5.0	5879405	5.1	5.0	5879405
Acid Extractable Cadmium (Cd)	ug/g	0.13	0.11	0.10	5879405	0.14	0.10	5879405
Acid Extractable Chromium (Cr)	ug/g	37	35	1.0	5879405	34	1.0	5879405
Acid Extractable Cobalt (Co)	ug/g	9.0	8.8	0.10	5879405	8.5	0.10	5879405
Acid Extractable Copper (Cu)	ug/g	18	19	0.50	5879405	18	0.50	5879405
Acid Extractable Lead (Pb)	ug/g	14	14	1.0	5879405	14	1.0	5879405
Acid Extractable Molybdenum (Mo)	ug/g	0.71	0.79	0.50	5879405	0.76	0.50	5879405
Acid Extractable Nickel (Ni)	ug/g	22	22	0.50	5879405	21	0.50	5879405
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	0.50	5879405	<0.50	0.50	5879405
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	0.20	5879405	<0.20	0.20	5879405
Acid Extractable Thallium (Tl)	ug/g	0.16	0.15	0.050	5879405	0.16	0.050	5879405
Acid Extractable Uranium (U)	ug/g	0.87	0.83	0.050	5879405	0.77	0.050	5879405
Acid Extractable Vanadium (V)	ug/g	40	38	5.0	5879405	36	5.0	5879405
Acid Extractable Zinc (Zn)	ug/g	59	54	5.0	5879405	52	5.0	5879405
Acid Extractable Mercury (Hg)	ug/g	<0.050	<0.050	0.050	5879405	<0.050	0.050	5879405

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

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Maxxam Job #: B8W5985
Report Date: 2018/12/13

Stantec Consulting Ltd
Client Project #: 160410230.101.106
Site Location: 2164 OLD PRESCOTT ROAD, OTTAWA ON
Sampler Initials: TG

O.REG 153 PAHS (SOIL)

Maxxam ID		IMC283	IMC284		
Sampling Date		2018/12/05 11:15	2018/12/05		
COC Number		695269-01-01	695269-01-01		
	UNITS	SS18-8	QC-01	RDL	QC Batch
Calculated Parameters					
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	0.0071	5874629
Polyaromatic Hydrocarbons					
Acenaphthene	ug/g	<0.0050	0.0051	0.0050	5882220
Acenaphthylene	ug/g	0.029	0.016	0.0050	5882220
Anthracene	ug/g	0.028	0.021	0.0050	5882220
Benzo(a)anthracene	ug/g	0.096	0.090	0.0050	5882220
Benzo(a)pyrene	ug/g	0.11	0.083	0.0050	5882220
Benzo(b/j)fluoranthene	ug/g	0.12	0.098	0.0050	5882220
Benzo(g,h,i)perylene	ug/g	0.056	0.043	0.0050	5882220
Benzo(k)fluoranthene	ug/g	0.044	0.036	0.0050	5882220
Chrysene	ug/g	0.070	0.066	0.0050	5882220
Dibenz(a,h)anthracene	ug/g	0.014	0.011	0.0050	5882220
Fluoranthene	ug/g	0.15	0.15	0.0050	5882220
Fluorene	ug/g	0.0058	0.0063	0.0050	5882220
Indeno(1,2,3-cd)pyrene	ug/g	0.062	0.050	0.0050	5882220
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.0050	5882220
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.0050	5882220
Naphthalene	ug/g	<0.0050	<0.0050	0.0050	5882220
Phenanthrene	ug/g	0.055	0.066	0.0050	5882220
Pyrene	ug/g	0.12	0.12	0.0050	5882220
Surrogate Recovery (%)					
D10-Anthracene	%	98	93		5882220
D14-Terphenyl (FS)	%	86	83		5882220
D8-Acenaphthylene	%	105	102		5882220

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B8W5985
Report Date: 2018/12/13

Stantec Consulting Ltd
Client Project #: 160410230.101.106
Site Location: 2164 OLD PRESCOTT ROAD, OTTAWA ON
Sampler Initials: TG

O.REG 153 PCBS (SOIL)

Maxxam ID		IMC283	IMC284		
Sampling Date		2018/12/05 11:15	2018/12/05		
COC Number		695269-01-01	695269-01-01		
	UNITS	SS18-8	QC-01	RDL	QC Batch
PCBs					
Aroclor 1242	ug/g	<0.010	<0.010	0.010	5880109
Aroclor 1248	ug/g	<0.010	<0.010	0.010	5880109
Aroclor 1254	ug/g	<0.010	<0.010	0.010	5880109
Aroclor 1260	ug/g	<0.010	<0.010	0.010	5880109
Total PCB	ug/g	<0.010	<0.010	0.010	5880109
Surrogate Recovery (%)					
Decachlorobiphenyl	%	88	92		5880109

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B8W5985
Report Date: 2018/12/13

Stantec Consulting Ltd
Client Project #: 160410230.101.106
Site Location: 2164 OLD PRESCOTT ROAD, OTTAWA ON
Sampler Initials: TG

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

Maxxam ID		IMC283	IMC284		
Sampling Date		2018/12/05 11:15	2018/12/05		
COC Number		695269-01-01	695269-01-01		
	UNITS	SS18-8	QC-01	RDL	QC Batch
Inorganics					
Moisture	%	16	19	1.0	5877243
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	<0.050	0.050	5874077
Volatile Organics					
Acetone (2-Propanone)	ug/g	<0.50	<0.50	0.50	5877293
Benzene	ug/g	<0.020	<0.020	0.020	5877293
Bromodichloromethane	ug/g	<0.050	<0.050	0.050	5877293
Bromoform	ug/g	<0.050	<0.050	0.050	5877293
Bromomethane	ug/g	<0.050	<0.050	0.050	5877293
Carbon Tetrachloride	ug/g	<0.050	<0.050	0.050	5877293
Chlorobenzene	ug/g	<0.050	<0.050	0.050	5877293
Chloroform	ug/g	<0.050	<0.050	0.050	5877293
Dibromochloromethane	ug/g	<0.050	<0.050	0.050	5877293
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	0.050	5877293
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	0.050	5877293
1,4-Dichlorobenzene	ug/g	<0.050	<0.050	0.050	5877293
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	0.050	5877293
1,1-Dichloroethane	ug/g	<0.050	<0.050	0.050	5877293
1,2-Dichloroethane	ug/g	<0.050	<0.050	0.050	5877293
1,1-Dichloroethylene	ug/g	<0.050	<0.050	0.050	5877293
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	0.050	5877293
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	0.050	5877293
1,2-Dichloropropane	ug/g	<0.050	<0.050	0.050	5877293
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	0.030	5877293
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	0.040	5877293
Ethylbenzene	ug/g	<0.020	<0.020	0.020	5877293
Ethylene Dibromide	ug/g	<0.050	<0.050	0.050	5877293
Hexane	ug/g	<0.050	<0.050	0.050	5877293
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	0.050	5877293
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	0.50	5877293
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	0.50	5877293

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Stantec Consulting Ltd
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Site Location: 2164 OLD PRESCOTT ROAD, OTTAWA ON
Sampler Initials: TG

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

Maxxam ID		IMC283	IMC284		
Sampling Date		2018/12/05 11:15	2018/12/05		
COC Number		695269-01-01	695269-01-01		
	UNITS	SS18-8	QC-01	RDL	QC Batch
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	0.050	5877293
Styrene	ug/g	<0.050	<0.050	0.050	5877293
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	0.050	5877293
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	0.050	5877293
Tetrachloroethylene	ug/g	<0.050	<0.050	0.050	5877293
Toluene	ug/g	<0.020	<0.020	0.020	5877293
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	0.050	5877293
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	0.050	5877293
Trichloroethylene	ug/g	<0.050	<0.050	0.050	5877293
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	0.050	5877293
Vinyl Chloride	ug/g	<0.020	<0.020	0.020	5877293
p+m-Xylene	ug/g	<0.020	<0.020	0.020	5877293
o-Xylene	ug/g	<0.020	<0.020	0.020	5877293
Total Xylenes	ug/g	<0.020	<0.020	0.020	5877293
F1 (C6-C10)	ug/g	<10	<10	10	5877293
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	5877293
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	10	5882188
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	50	5882188
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	50	5882188
Reached Baseline at C50	ug/g	Yes	Yes		5882188
Surrogate Recovery (%)					
o-Terphenyl	%	96	97		5882188
4-Bromofluorobenzene	%	90	90		5877293
D10-o-Xylene	%	84	85		5877293
D4-1,2-Dichloroethane	%	100	101		5877293
D8-Toluene	%	92	93		5877293

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B8W5985
Report Date: 2018/12/13

Stantec Consulting Ltd
Client Project #: 160410230.101.106
Site Location: 2164 OLD PRESCOTT ROAD, OTTAWA ON
Sampler Initials: TG

RESULTS OF ANALYSES OF SOIL

Maxxam ID		IMC279	IMC280		IMC281	IMC282		
Sampling Date		2018/12/05 10:45	2018/12/05 10:45		2018/12/05 11:00	2018/12/05 11:00		
COC Number		695269-01-01	695269-01-01		695269-01-01	695269-01-01		
	UNITS	SS18-9	SS18-10	QC Batch	SS18-11	SS18-12	RDL	QC Batch
Inorganics								
Moisture	%	21	17	5878843	19	20	1.0	5879489
WAD Cyanide (Free)	ug/g	<0.01	<0.01	5881716	<0.01	0.01	0.01	5881716

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		IMC285		
Sampling Date		2018/12/05 11:30		
COC Number		695269-01-01		
	UNITS	COMP	RDL	QC Batch
Miscellaneous Parameters				
Grain Size	%	FINE	N/A	5882226
Sieve - #200 (<0.075mm)	%	63	1	5882226
Sieve - #200 (>0.075mm)	%	37	1	5882226

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Report Date: 2018/12/13

Stantec Consulting Ltd
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Site Location: 2164 OLD PRESCOTT ROAD, OTTAWA ON
Sampler Initials: TG

TEST SUMMARY

Maxxam ID: IMC279 **Collected:** 2018/12/05
Sample ID: SS18-9 **Shipped:**
Matrix: Soil **Received:** 2018/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5881716	2018/12/11	2018/12/12	Louise Harding
Moisture	BAL	5878843	N/A	2018/12/08	Prgya Panchal

Maxxam ID: IMC280 **Collected:** 2018/12/05
Sample ID: SS18-10 **Shipped:**
Matrix: Soil **Received:** 2018/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5881716	2018/12/11	2018/12/12	Louise Harding
Moisture	BAL	5878843	N/A	2018/12/08	Prgya Panchal

Maxxam ID: IMC281 **Collected:** 2018/12/05
Sample ID: SS18-11 **Shipped:**
Matrix: Soil **Received:** 2018/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5881716	2018/12/11	2018/12/12	Louise Harding
Moisture	BAL	5879489	N/A	2018/12/10	Min Yang

Maxxam ID: IMC282 **Collected:** 2018/12/05
Sample ID: SS18-12 **Shipped:**
Matrix: Soil **Received:** 2018/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5881716	2018/12/11	2018/12/12	Louise Harding
Moisture	BAL	5879489	N/A	2018/12/10	Min Yang

Maxxam ID: IMC283 **Collected:** 2018/12/05
Sample ID: SS18-8 **Shipped:**
Matrix: Soil **Received:** 2018/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5874629	N/A	2018/12/12	Automated Statchk
Hot Water Extractable Boron	ICP	5879542	2018/12/10	2018/12/10	Suban Kanapathippllai
1,3-Dichloropropene Sum	CALC	5874077	N/A	2018/12/12	Automated Statchk
Free (WAD) Cyanide	TECH	5881716	2018/12/11	2018/12/12	Louise Harding
Conductivity	AT	5881813	2018/12/11	2018/12/11	Kazzandra Adeva
Hexavalent Chromium in Soil by IC	IC/SPEC	5879869	2018/12/10	2018/12/12	Sally Norouz
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5882188	2018/12/11	2018/12/12	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5879405	2018/12/10	2018/12/11	Daniel Teclu
Moisture	BAL	5877243	N/A	2018/12/07	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5882220	2018/12/11	2018/12/12	Mitesh Raj
Polychlorinated Biphenyl in Soil	GC/ECD	5880109	2018/12/10	2018/12/10	Sarah Huang
pH CaCl2 EXTRACT	AT	5882165	2018/12/11	2018/12/11	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	5874413	N/A	2018/12/12	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5877293	N/A	2018/12/11	Denis Reid

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Report Date: 2018/12/13

Stantec Consulting Ltd
Client Project #: 160410230.101.106
Site Location: 2164 OLD PRESCOTT ROAD, OTTAWA ON
Sampler Initials: TG

TEST SUMMARY

Maxxam ID: IMC284
Sample ID: QC-01
Matrix: Soil

Collected: 2018/12/05
Shipped:
Received: 2018/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	5874629	N/A	2018/12/12	Automated Statchk
Hot Water Extractable Boron	ICP	5879542	2018/12/10	2018/12/10	Suban Kanapathippllai
1,3-Dichloropropene Sum	CALC	5874077	N/A	2018/12/12	Automated Statchk
Free (WAD) Cyanide	TECH	5881716	2018/12/11	2018/12/12	Louise Harding
Conductivity	AT	5881813	2018/12/11	2018/12/11	Kazzandra Adeva
Hexavalent Chromium in Soil by IC	IC/SPEC	5879869	2018/12/10	2018/12/12	Sally Norouz
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5882188	2018/12/11	2018/12/12	Zhiyue (Frank) Zhu
Strong Acid Leachable Metals by ICPMS	ICP/MS	5879405	2018/12/10	2018/12/11	Daniel Teclu
Moisture	BAL	5877243	N/A	2018/12/07	Chun Yan
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	5882220	2018/12/11	2018/12/12	Mitesh Raj
Polychlorinated Biphenyl in Soil	GC/ECD	5880109	2018/12/10	2018/12/10	Sarah Huang
pH CaCl2 EXTRACT	AT	5882165	2018/12/11	2018/12/11	Gnana Thomas
Sodium Adsorption Ratio (SAR)	CALC/MET	5874413	N/A	2018/12/12	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5877293	N/A	2018/12/11	Denis Reid

Maxxam ID: IMC284 Dup
Sample ID: QC-01
Matrix: Soil

Collected: 2018/12/05
Shipped:
Received: 2018/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hexavalent Chromium in Soil by IC	IC/SPEC	5879869	2018/12/10	2018/12/12	Sally Norouz
Strong Acid Leachable Metals by ICPMS	ICP/MS	5879405	2018/12/10	2018/12/11	Daniel Teclu

Maxxam ID: IMC285
Sample ID: COMP
Matrix: Soil

Collected: 2018/12/05
Shipped:
Received: 2018/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sieve, 75um	SIEV	5882226	N/A	2018/12/12	Chun Yan

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Site Location: 2164 OLD PRESCOTT ROAD, OTTAWA ON
Sampler Initials: TG

GENERAL COMMENTS

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

Package 1	1.0°C

Sample IMC283 [SS18-8] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Sample IMC284 [QC-01] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

Stantec Consulting Ltd
Client Project #: 160410230.101.106
Site Location: 2164 OLD PRESCOTT ROAD, OTTAWA ON
Sampler Initials: TG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5877293	4-Bromofluorobenzene	2018/12/11	107	60 - 140	106	60 - 140	89	%				
5877293	D10-o-Xylene	2018/12/11	102	60 - 130	108	60 - 130	84	%				
5877293	D4-1,2-Dichloroethane	2018/12/11	96	60 - 140	100	60 - 140	96	%				
5877293	D8-Toluene	2018/12/11	104	60 - 140	102	60 - 140	95	%				
5880109	Decachlorobiphenyl	2018/12/10	86	60 - 130	94	60 - 130	96	%				
5882188	o-Terphenyl	2018/12/11	104	60 - 130	110	60 - 130	95	%				
5882220	D10-Anthracene	2018/12/11	96	50 - 130	98	50 - 130	96	%				
5882220	D14-Terphenyl (FS)	2018/12/11	87	50 - 130	90	50 - 130	92	%				
5882220	D8-Acenaphthylene	2018/12/11	108	50 - 130	103	50 - 130	102	%				
5877243	Moisture	2018/12/07							1.8	20		
5877293	1,1,1,2-Tetrachloroethane	2018/12/11	91	60 - 140	96	60 - 130	<0.050	ug/g	NC	50		
5877293	1,1,1-Trichloroethane	2018/12/11	96	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
5877293	1,1,2,2-Tetrachloroethane	2018/12/11	89	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
5877293	1,1,2-Trichloroethane	2018/12/11	88	60 - 140	94	60 - 130	<0.050	ug/g	NC	50		
5877293	1,1-Dichloroethane	2018/12/11	87	60 - 140	99	60 - 130	<0.050	ug/g	NC	50		
5877293	1,1-Dichloroethylene	2018/12/11	90	60 - 140	92	60 - 130	<0.050	ug/g	NC	50		
5877293	1,2-Dichlorobenzene	2018/12/11	87	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
5877293	1,2-Dichloroethane	2018/12/11	87	60 - 140	94	60 - 130	<0.050	ug/g	NC	50		
5877293	1,2-Dichloropropane	2018/12/11	87	60 - 140	93	60 - 130	<0.050	ug/g	NC	50		
5877293	1,3-Dichlorobenzene	2018/12/11	95	60 - 140	102	60 - 130	<0.050	ug/g	NC	50		
5877293	1,4-Dichlorobenzene	2018/12/11	103	60 - 140	112	60 - 130	<0.050	ug/g	NC	50		
5877293	Acetone (2-Propanone)	2018/12/11	89	60 - 140	81	60 - 140	<0.50	ug/g	NC	50		
5877293	Benzene	2018/12/11	88	60 - 140	92	60 - 130	<0.020	ug/g	NC	50		
5877293	Bromodichloromethane	2018/12/11	85	60 - 140	91	60 - 130	<0.050	ug/g	NC	50		
5877293	Bromoform	2018/12/11	89	60 - 140	96	60 - 130	<0.050	ug/g	NC	50		
5877293	Bromomethane	2018/12/11	88	60 - 140	91	60 - 140	<0.050	ug/g	NC	50		
5877293	Carbon Tetrachloride	2018/12/11	93	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
5877293	Chlorobenzene	2018/12/11	89	60 - 140	94	60 - 130	<0.050	ug/g	NC	50		
5877293	Chloroform	2018/12/11	92	60 - 140	96	60 - 130	<0.050	ug/g	NC	50		
5877293	cis-1,2-Dichloroethylene	2018/12/11	99	60 - 140	103	60 - 130	<0.050	ug/g	NC	50		
5877293	cis-1,3-Dichloropropene	2018/12/11	87	60 - 140	97	60 - 130	<0.030	ug/g	NC	50		
5877293	Dibromochloromethane	2018/12/11	83	60 - 140	86	60 - 130	<0.050	ug/g	NC	50		

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Maxxam
A Bureau Veritas Group Company

Maxxam Job #: B8W5985
Report Date: 2018/12/13

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 160410230.101.106
Site Location: 2164 OLD PRESCOTT ROAD, OTTAWA ON
Sampler Initials: TG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5877293	Dichlorodifluoromethane (FREON 12)	2018/12/11	58 (1)	60 - 140	57 (1)	60 - 140	<0.050	ug/g	NC	50		
5877293	Ethylbenzene	2018/12/11	93	60 - 140	95	60 - 130	<0.020	ug/g	NC	50		
5877293	Ethylene Dibromide	2018/12/11	91	60 - 140	98	60 - 130	<0.050	ug/g	NC	50		
5877293	F1 (C6-C10) - BTEX	2018/12/11					<10	ug/g	NC	30		
5877293	F1 (C6-C10)	2018/12/11	96	60 - 140	101	80 - 120	<10	ug/g	NC	30		
5877293	Hexane	2018/12/11	91	60 - 140	90	60 - 130	<0.050	ug/g	NC	50		
5877293	Methyl Ethyl Ketone (2-Butanone)	2018/12/11	102	60 - 140	98	60 - 140	<0.50	ug/g	NC	50		
5877293	Methyl Isobutyl Ketone	2018/12/11	91	60 - 140	99	60 - 130	<0.50	ug/g	NC	50		
5877293	Methyl t-butyl ether (MTBE)	2018/12/11	100	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
5877293	Methylene Chloride(Dichloromethane)	2018/12/11	97	60 - 140	102	60 - 130	<0.050	ug/g	NC	50		
5877293	o-Xylene	2018/12/11	94	60 - 140	97	60 - 130	<0.020	ug/g	NC	50		
5877293	p+m-Xylene	2018/12/11	93	60 - 140	97	60 - 130	<0.020	ug/g	NC	50		
5877293	Styrene	2018/12/11	97	60 - 140	103	60 - 130	<0.050	ug/g	NC	50		
5877293	Tetrachloroethylene	2018/12/11	90	60 - 140	94	60 - 130	<0.050	ug/g	NC	50		
5877293	Toluene	2018/12/11	87	60 - 140	91	60 - 130	<0.020	ug/g	NC	50		
5877293	Total Xylenes	2018/12/11					<0.020	ug/g	NC	50		
5877293	trans-1,2-Dichloroethylene	2018/12/11	93	60 - 140	96	60 - 130	<0.050	ug/g	NC	50		
5877293	trans-1,3-Dichloropropene	2018/12/11	97	60 - 140	103	60 - 130	<0.040	ug/g	NC	50		
5877293	Trichloroethylene	2018/12/11	87	60 - 140	91	60 - 130	<0.050	ug/g	NC	50		
5877293	Trichlorofluoromethane (FREON 11)	2018/12/11	93	60 - 140	93	60 - 130	<0.050	ug/g	NC	50		
5877293	Vinyl Chloride	2018/12/11	73	60 - 140	81	60 - 130	<0.020	ug/g	NC	50		
5878843	Moisture	2018/12/08							1.4	20		
5879405	Acid Extractable Antimony (Sb)	2018/12/11	88	75 - 125	101	80 - 120	<0.20	ug/g	NC	30		
5879405	Acid Extractable Arsenic (As)	2018/12/11	92	75 - 125	103	80 - 120	<1.0	ug/g	6.5	30		
5879405	Acid Extractable Barium (Ba)	2018/12/11	NC	75 - 125	106	80 - 120	<0.50	ug/g	1.6	30		
5879405	Acid Extractable Beryllium (Be)	2018/12/11	97	75 - 125	100	80 - 120	<0.20	ug/g	1.5	30		
5879405	Acid Extractable Boron (B)	2018/12/11	93	75 - 125	98	80 - 120	<5.0	ug/g	2.1	30		
5879405	Acid Extractable Cadmium (Cd)	2018/12/11	94	75 - 125	100	80 - 120	<0.10	ug/g	24	30		
5879405	Acid Extractable Chromium (Cr)	2018/12/11	NC	75 - 125	103	80 - 120	<1.0	ug/g	4.1	30		
5879405	Acid Extractable Cobalt (Co)	2018/12/11	93	75 - 125	104	80 - 120	<0.10	ug/g	3.5	30		
5879405	Acid Extractable Copper (Cu)	2018/12/11	86	75 - 125	99	80 - 120	<0.50	ug/g	5.1	30		
5879405	Acid Extractable Lead (Pb)	2018/12/11	95	75 - 125	101	80 - 120	<1.0	ug/g	0.25	30		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5879405	Acid Extractable Mercury (Hg)	2018/12/11	88	75 - 125	101	80 - 120	<0.050	ug/g	NC	30		
5879405	Acid Extractable Molybdenum (Mo)	2018/12/11	95	75 - 125	100	80 - 120	<0.50	ug/g	4.0	30		
5879405	Acid Extractable Nickel (Ni)	2018/12/11	88	75 - 125	103	80 - 120	<0.50	ug/g	5.6	30		
5879405	Acid Extractable Selenium (Se)	2018/12/11	97	75 - 125	103	80 - 120	<0.50	ug/g	NC	30		
5879405	Acid Extractable Silver (Ag)	2018/12/11	94	75 - 125	99	80 - 120	<0.20	ug/g	NC	30		
5879405	Acid Extractable Thallium (Tl)	2018/12/11	95	75 - 125	102	80 - 120	<0.050	ug/g	7.9	30		
5879405	Acid Extractable Uranium (U)	2018/12/11	90	75 - 125	96	80 - 120	<0.050	ug/g	6.9	30		
5879405	Acid Extractable Vanadium (V)	2018/12/11	NC	75 - 125	103	80 - 120	<5.0	ug/g	5.3	30		
5879405	Acid Extractable Zinc (Zn)	2018/12/11	NC	75 - 125	106	80 - 120	<5.0	ug/g	3.1	30		
5879489	Moisture	2018/12/10							5.4	20		
5879542	Hot Water Ext. Boron (B)	2018/12/10	97	75 - 125	99	75 - 125	<0.050	ug/g	4.3	40		
5879869	Chromium (VI)	2018/12/12	43 (2)	70 - 130	86	80 - 120	<0.2	ug/g	NC	35		
5880109	Aroclor 1242	2018/12/10					<0.010	ug/g	NC	50		
5880109	Aroclor 1248	2018/12/10					<0.010	ug/g	NC	50		
5880109	Aroclor 1254	2018/12/10					<0.010	ug/g	NC	50		
5880109	Aroclor 1260	2018/12/10	95	30 - 130	112	30 - 130	<0.010	ug/g	NC	50		
5880109	Total PCB	2018/12/10	95	30 - 130	112	30 - 130	<0.010	ug/g	NC	50		
5881716	WAD Cyanide (Free)	2018/12/12	98	75 - 125	98	80 - 120	<0.01	ug/g	NC	35		
5881813	Conductivity	2018/12/11			105	90 - 110	<0.002	mS/cm	1.6	10		
5882165	Available (CaCl2) pH	2018/12/11			100	97 - 103			2.1	N/A		
5882188	F2 (C10-C16 Hydrocarbons)	2018/12/12	105	50 - 130	99	80 - 120	<10	ug/g	NC	30		
5882188	F3 (C16-C34 Hydrocarbons)	2018/12/12	104	50 - 130	93	80 - 120	<50	ug/g	NC	30		
5882188	F4 (C34-C50 Hydrocarbons)	2018/12/12	107	50 - 130	103	80 - 120	<50	ug/g	NC	30		
5882220	1-Methylnaphthalene	2018/12/11	103	50 - 130	105	50 - 130	<0.0050	ug/g	NC	40		
5882220	2-Methylnaphthalene	2018/12/11	92	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40		
5882220	Acenaphthene	2018/12/11	91	50 - 130	104	50 - 130	<0.0050	ug/g	5.0	40		
5882220	Acenaphthylene	2018/12/11	106	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40		
5882220	Anthracene	2018/12/11	96	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40		
5882220	Benzo(a)anthracene	2018/12/11	113	50 - 130	111	50 - 130	<0.0050	ug/g	NC	40		
5882220	Benzo(a)pyrene	2018/12/11	94	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40		
5882220	Benzo(b/j)fluoranthene	2018/12/11	85	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40		
5882220	Benzo(g,h,i)perylene	2018/12/11	74	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5882220	Benzo(k)fluoranthene	2018/12/11	80	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40		
5882220	Chrysene	2018/12/11	100	50 - 130	101	50 - 130	<0.0050	ug/g	NC	40		
5882220	Dibenz(a,h)anthracene	2018/12/11	83	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40		
5882220	Fluoranthene	2018/12/11	97	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40		
5882220	Fluorene	2018/12/11	102	50 - 130	102	50 - 130	<0.0050	ug/g	NC	40		
5882220	Indeno(1,2,3-cd)pyrene	2018/12/11	84	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40		
5882220	Naphthalene	2018/12/11	84	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40		
5882220	Phenanthrene	2018/12/11	96	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40		
5882220	Pyrene	2018/12/11	97	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40		
5882226	Sieve - #200 (<0.075mm)	2018/12/12							2.0	20	56	53 - 58
5882226	Sieve - #200 (>0.075mm)	2018/12/12							4.4	20	44	42 - 47

N/A = Not Applicable

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

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

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

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

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

(1) The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.

(2) The matrix spike recovery was below the lower control limit. This may be due in part to the reducing environment of the sample. The sample was reanalyzed with the same results.

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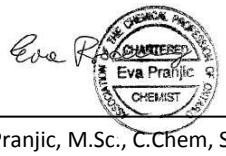
Maxxam Job #: B8W5985
Report Date: 2018/12/13

Stantec Consulting Ltd
Client Project #: 160410230.101.106
Site Location: 2164 OLD PRESCOTT ROAD, OTTAWA ON
Sampler Initials: TG

VALIDATION SIGNATURE PAGE

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



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

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

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Your Project #: 160410230.102
Your C.O.C. #: 775023-01-01

Attention: Steve Hannington

Stantec Consulting Ltd
1331 Clyde Avenue
Suite 400
Ottawa, ON
CANADA K2C 3G4

Report Date: 2021/09/30
Report #: R6833778
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C0E0800
Received: 2020/06/08, 16:13

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum	2	N/A	2020/06/12	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum	3	N/A	2020/06/12		EPA 8260C m
Chloride by Automated Colourimetry	2	N/A	2020/06/10	CAM SOP-00463	SM 23 4500-Cl E m
Chromium (VI) in Water	2	N/A	2020/06/12	CAM SOP-00436	EPA 7199 m
Free (WAD) Cyanide	2	N/A	2020/06/10	CAM SOP-00457	OMOE E3015 m
Petroleum Hydrocarbons F2-F4 in Water (1)	2	2020/06/11	2020/06/12	CAM SOP-00316	CCME PHC-CWS m
Mercury	2	2020/06/11	2020/06/11	CAM SOP-00453	EPA 7470A m
Dissolved Metals by ICPMS	2	N/A	2020/06/11	CAM SOP-00447	EPA 6020B m
PAH Compounds in Water by GC/MS (SIM)	2	2020/06/11	2020/06/12	CAM SOP-00318	EPA 8270D m
Volatile Organic Compounds and F1 PHCs	2	N/A	2020/06/11	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Water	1	N/A	2020/06/11	CAM SOP-00228	EPA 8260C m

Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

Your Project #: 160410230.102
Your C.O.C. #: 775023-01-01

Attention: Steve Hannington

Stantec Consulting Ltd
1331 Clyde Avenue
Suite 400
Ottawa, ON
CANADA K2C 3G4

Report Date: 2021/09/30
Report #: R6833778
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C0E0800

Received: 2020/06/08, 16:13

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 Bureau Veritas Laboratories 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.
Julie Clement, Technical Account Manager
Email: Julie.CLEMENT@bureauveritas.com
Phone# (613)868-6079

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O.REG 153 METALS & INORGANICS PKG (WTR)

BV Labs ID		MVA520			MVA520			MVA522		
Sampling Date		2020/06/08 10:45			2020/06/08 10:45			2020/06/08		
COC Number		775023-01-01			775023-01-01			775023-01-01		
	UNITS	MW20-2	RDL	QC Batch	MW20-2 Lab-Dup	RDL	QC Batch	DUP-1	RDL	QC Batch
Inorganics										
WAD Cyanide (Free)	ug/L	<1	1	6779166				<1	1	6779166
Dissolved Chloride (Cl-)	mg/L	25	1.0	6777612				26	1.0	6777612
Metals										
Chromium (VI)	ug/L	<0.50	0.50	6781738				<0.50	0.50	6781738
Mercury (Hg)	ug/L	<0.10	0.10	6781327				<0.10	0.10	6781327
Dissolved Antimony (Sb)	ug/L	<0.50	0.50	6779165	<0.50	0.50	6779165	<0.50	0.50	6779165
Dissolved Arsenic (As)	ug/L	<1.0	1.0	6779165	<1.0	1.0	6779165	<1.0	1.0	6779165
Dissolved Barium (Ba)	ug/L	160	2.0	6779165	160	2.0	6779165	150	2.0	6779165
Dissolved Beryllium (Be)	ug/L	<0.40	0.40	6779165	<0.40	0.40	6779165	<0.40	0.40	6779165
Dissolved Boron (B)	ug/L	41	10	6779165	41	10	6779165	41	10	6779165
Dissolved Cadmium (Cd)	ug/L	<0.090	0.090	6779165	<0.090	0.090	6779165	<0.090	0.090	6779165
Dissolved Chromium (Cr)	ug/L	<5.0	5.0	6779165	<5.0	5.0	6779165	<5.0	5.0	6779165
Dissolved Cobalt (Co)	ug/L	6.3	0.50	6779165	6.5	0.50	6779165	6.2	0.50	6779165
Dissolved Copper (Cu)	ug/L	3.5	0.90	6779165	3.4	0.90	6779165	<0.90	0.90	6779165
Dissolved Lead (Pb)	ug/L	<0.50	0.50	6779165	<0.50	0.50	6779165	<0.50	0.50	6779165
Dissolved Molybdenum (Mo)	ug/L	15	0.50	6779165	15	0.50	6779165	15	0.50	6779165
Dissolved Nickel (Ni)	ug/L	8.6	1.0	6779165	8.7	1.0	6779165	8.4	1.0	6779165
Dissolved Selenium (Se)	ug/L	<2.0	2.0	6779165	<2.0	2.0	6779165	<2.0	2.0	6779165
Dissolved Silver (Ag)	ug/L	<0.090	0.090	6779165	<0.090	0.090	6779165	<0.090	0.090	6779165
Dissolved Sodium (Na)	ug/L	31000	100	6779165	31000	100	6779165	32000	100	6779165
Dissolved Thallium (Tl)	ug/L	0.065	0.050	6779165	0.059	0.050	6779165	0.056	0.050	6779165
Dissolved Uranium (U)	ug/L	0.73	0.10	6779165	0.71	0.10	6779165	0.71	0.10	6779165
Dissolved Vanadium (V)	ug/L	<0.50	0.50	6779165	<0.50	0.50	6779165	<0.50	0.50	6779165
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	6779165	<5.0	5.0	6779165	<5.0	5.0	6779165

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

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O.REG 153 PAHS (WATER)

BV Labs ID		MVA520	MVA522		
Sampling Date		2020/06/08 10:45	2020/06/08		
COC Number		775023-01-01	775023-01-01		
	UNITS	MW20-2	DUP-1	RDL	QC Batch
Calculated Parameters					
Methylnaphthalene, 2-(1-)	ug/L	<0.071	<0.071	0.071	6777035
Polyaromatic Hydrocarbons					
Acenaphthene	ug/L	<0.050	<0.050	0.050	6782239
Acenaphthylene	ug/L	<0.050	<0.050	0.050	6782239
Anthracene	ug/L	<0.050	<0.050	0.050	6782239
Benzo(a)anthracene	ug/L	<0.050	<0.050	0.050	6782239
Benzo(a)pyrene	ug/L	<0.0090	<0.0090	0.0090	6782239
Benzo(b/j)fluoranthene	ug/L	<0.050	<0.050	0.050	6782239
Benzo(g,h,i)perylene	ug/L	<0.050	<0.050	0.050	6782239
Benzo(k)fluoranthene	ug/L	<0.050	<0.050	0.050	6782239
Chrysene	ug/L	<0.050	<0.050	0.050	6782239
Dibenzo(a,h)anthracene	ug/L	<0.050	<0.050	0.050	6782239
Fluoranthene	ug/L	<0.050	<0.050	0.050	6782239
Fluorene	ug/L	<0.050	<0.050	0.050	6782239
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	<0.050	0.050	6782239
1-Methylnaphthalene	ug/L	<0.050	<0.050	0.050	6782239
2-Methylnaphthalene	ug/L	<0.050	<0.050	0.050	6782239
Naphthalene	ug/L	<0.050	<0.050	0.050	6782239
Phenanthrene	ug/L	<0.030	<0.030	0.030	6782239
Pyrene	ug/L	<0.050	<0.050	0.050	6782239
Surrogate Recovery (%)					
D10-Anthracene	%	111	106		6782239
D14-Terphenyl (FS)	%	84	86		6782239
D8-Acenaphthylene	%	89	88		6782239

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

BV Labs ID		MVA520			MVA520			MVA522		
Sampling Date		2020/06/08 10:45			2020/06/08 10:45			2020/06/08		
COC Number		775023-01-01			775023-01-01			775023-01-01		
	UNITS	MW20-2	RDL	QC Batch	MW20-2 Lab-Dup	RDL	QC Batch	DUP-1	RDL	QC Batch
Calculated Parameters										
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	6777036				<0.50	0.50	6777036
Volatile Organics										
Acetone (2-Propanone)	ug/L	<10	10	6779548	11	10	6779548	<10	10	6779548
Benzene	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
Bromodichloromethane	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548
Bromoform	ug/L	<1.0	1.0	6779548	<1.0	1.0	6779548	<1.0	1.0	6779548
Bromomethane	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548
Carbon Tetrachloride	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
Chlorobenzene	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
Chloroform	ug/L	1.5	0.20	6779548	1.4	0.20	6779548	1.2	0.20	6779548
Dibromochloromethane	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548
1,2-Dichlorobenzene	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548
1,3-Dichlorobenzene	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548
1,4-Dichlorobenzene	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	6779548	<1.0	1.0	6779548	<1.0	1.0	6779548
1,1-Dichloroethane	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
1,2-Dichloroethane	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548
1,1-Dichloroethylene	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548
1,2-Dichloropropane	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	6779548	<0.30	0.30	6779548	<0.30	0.30	6779548
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	6779548	<0.40	0.40	6779548	<0.40	0.40	6779548
Ethylbenzene	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
Ethylene Dibromide	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
Hexane	ug/L	<1.0	1.0	6779548	<1.0	1.0	6779548	<1.0	1.0	6779548
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	6779548	<2.0	2.0	6779548	<2.0	2.0	6779548
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	6779548	<10	10	6779548	<10	10	6779548
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	6779548	<5.0	5.0	6779548	<5.0	5.0	6779548
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548
Styrene	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548

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

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

BV Labs ID		MVA520			MVA520			MVA522		
Sampling Date		2020/06/08 10:45			2020/06/08 10:45			2020/06/08		
COC Number		775023-01-01			775023-01-01			775023-01-01		
	UNITS	MW20-2	RDL	QC Batch	MW20-2 Lab-Dup	RDL	QC Batch	DUP-1	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548
Tetrachloroethylene	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
Toluene	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
1,1,1-Trichloroethane	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
1,1,2-Trichloroethane	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548
Trichloroethylene	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	6779548	<0.50	0.50	6779548	<0.50	0.50	6779548
Vinyl Chloride	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
p+m-Xylene	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
o-Xylene	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
Total Xylenes	ug/L	<0.20	0.20	6779548	<0.20	0.20	6779548	<0.20	0.20	6779548
F1 (C6-C10)	ug/L	<25	25	6779548	<25	25	6779548	<25	25	6779548
F1 (C6-C10) - BTEX	ug/L	<25	25	6779548	<25	25	6779548	<25	25	6779548
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	6782240				<100	100	6782240
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	6782240				<200	200	6782240
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	6782240				<200	200	6782240
Reached Baseline at C50	ug/L	Yes		6782240				Yes		6782240
Surrogate Recovery (%)										
o-Terphenyl	%	88		6782240				84		6782240
4-Bromofluorobenzene	%	96		6779548	98		6779548	96		6779548
D4-1,2-Dichloroethane	%	99		6779548	101		6779548	102		6779548
D8-Toluene	%	98		6779548	97		6779548	97		6779548

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

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O.REG 153 VOCS BY HS (WATER)

BV Labs ID		MVA523		
Sampling Date		2020/06/08		
COC Number		775023-01-01		
	UNITS	TRIP BLANK	RDL	QC Batch
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	6777036
Volatile Organics				
Acetone (2-Propanone)	ug/L	<10	10	6779046
Benzene	ug/L	<0.20	0.20	6779046
Bromodichloromethane	ug/L	<0.50	0.50	6779046
Bromoform	ug/L	<1.0	1.0	6779046
Bromomethane	ug/L	<0.50	0.50	6779046
Carbon Tetrachloride	ug/L	<0.19	0.19	6779046
Chlorobenzene	ug/L	<0.20	0.20	6779046
Chloroform	ug/L	<0.20	0.20	6779046
Dibromochloromethane	ug/L	<0.50	0.50	6779046
1,2-Dichlorobenzene	ug/L	<0.40	0.40	6779046
1,3-Dichlorobenzene	ug/L	<0.40	0.40	6779046
1,4-Dichlorobenzene	ug/L	<0.40	0.40	6779046
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	6779046
1,1-Dichloroethane	ug/L	<0.20	0.20	6779046
1,2-Dichloroethane	ug/L	<0.49	0.49	6779046
1,1-Dichloroethylene	ug/L	<0.20	0.20	6779046
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	6779046
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	6779046
1,2-Dichloropropane	ug/L	<0.20	0.20	6779046
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	6779046
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	6779046
Ethylbenzene	ug/L	<0.20	0.20	6779046
Ethylene Dibromide	ug/L	<0.19	0.19	6779046
Hexane	ug/L	<1.0	1.0	6779046
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	6779046
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	6779046
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	6779046
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	6779046
Styrene	ug/L	<0.40	0.40	6779046
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	6779046

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 VOCS BY HS (WATER)

BV Labs ID		MVA523		
Sampling Date		2020/06/08		
COC Number		775023-01-01		
	UNITS	TRIP BLANK	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/L	<0.40	0.40	6779046
Tetrachloroethylene	ug/L	<0.20	0.20	6779046
Toluene	ug/L	<0.20	0.20	6779046
1,1,1-Trichloroethane	ug/L	<0.20	0.20	6779046
1,1,2-Trichloroethane	ug/L	<0.40	0.40	6779046
Trichloroethylene	ug/L	<0.20	0.20	6779046
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	6779046
Vinyl Chloride	ug/L	<0.20	0.20	6779046
p+m-Xylene	ug/L	<0.20	0.20	6779046
o-Xylene	ug/L	<0.20	0.20	6779046
Total Xylenes	ug/L	<0.20	0.20	6779046
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	94		6779046
D4-1,2-Dichloroethane	%	116		6779046
D8-Toluene	%	94		6779046

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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TEST SUMMARY

BV Labs ID: MVA520
Sample ID: MW20-2
Matrix: Water

Collected: 2020/06/08
Shipped:
Received: 2020/06/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6777035	N/A	2020/06/12	Automated Statchk
1,3-Dichloropropene Sum	CALC	6777036	N/A	2020/06/12	Automated Statchk
Chloride by Automated Colourimetry	KONE	6777612	N/A	2020/06/10	Deonarine Ramnarine
Chromium (VI) in Water	IC	6781738	N/A	2020/06/12	Lang Le
Free (WAD) Cyanide	SKAL/CN	6779166	N/A	2020/06/10	Louise Harding
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6782240	2020/06/11	2020/06/12	Prabhjot Gulati
Mercury	CV/AA	6781327	2020/06/11	2020/06/11	Meghaben Patel
Dissolved Metals by ICPMS	ICP/MS	6779165	N/A	2020/06/11	Arefa Dabhad
PAH Compounds in Water by GC/MS (SIM)	GC/MS	6782239	2020/06/11	2020/06/12	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6779548	N/A	2020/06/11	Karen Hughes

BV Labs ID: MVA520 Dup
Sample ID: MW20-2
Matrix: Water

Collected: 2020/06/08
Shipped:
Received: 2020/06/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	6779165	N/A	2020/06/11	Arefa Dabhad
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6779548	N/A	2020/06/11	Karen Hughes

BV Labs ID: MVA522
Sample ID: DUP-1
Matrix: Water

Collected: 2020/06/08
Shipped:
Received: 2020/06/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6777035	N/A	2020/06/12	Automated Statchk
1,3-Dichloropropene Sum	CALC	6777036	N/A	2020/06/12	Automated Statchk
Chloride by Automated Colourimetry	KONE	6777612	N/A	2020/06/10	Deonarine Ramnarine
Chromium (VI) in Water	IC	6781738	N/A	2020/06/12	Lang Le
Free (WAD) Cyanide	SKAL/CN	6779166	N/A	2020/06/10	Louise Harding
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6782240	2020/06/11	2020/06/12	Prabhjot Gulati
Mercury	CV/AA	6781327	2020/06/11	2020/06/11	Meghaben Patel
Dissolved Metals by ICPMS	ICP/MS	6779165	N/A	2020/06/11	Arefa Dabhad
PAH Compounds in Water by GC/MS (SIM)	GC/MS	6782239	2020/06/11	2020/06/12	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6779548	N/A	2020/06/11	Karen Hughes

BV Labs ID: MVA523
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2020/06/08
Shipped:
Received: 2020/06/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6777036	N/A	2020/06/12	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6779046	N/A	2020/06/11	Juan Pangilinan

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GENERAL COMMENTS

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

Package 1	8.7°C
Package 2	7.3°C

Revised report[2021/09/30] V2 and V3 - Split report as per client request.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6779046	4-Bromofluorobenzene	2020/06/11	102	70 - 130	103	70 - 130	100	%		
6779046	D4-1,2-Dichloroethane	2020/06/11	112	70 - 130	106	70 - 130	111	%		
6779046	D8-Toluene	2020/06/11	100	70 - 130	101	70 - 130	91	%		
6779548	4-Bromofluorobenzene	2020/06/11	100	70 - 130	99	70 - 130	99	%		
6779548	D4-1,2-Dichloroethane	2020/06/11	98	70 - 130	94	70 - 130	103	%		
6779548	D8-Toluene	2020/06/11	101	70 - 130	103	70 - 130	95	%		
6782239	D10-Anthracene	2020/06/11	106	50 - 130	113	50 - 130	120	%		
6782239	D14-Terphenyl (FS)	2020/06/11	91	50 - 130	96	50 - 130	103	%		
6782239	D8-Acenaphthylene	2020/06/11	93	50 - 130	101	50 - 130	95	%		
6782240	o-Terphenyl	2020/06/12	88	60 - 130	88	60 - 130	87	%		
6777612	Dissolved Chloride (Cl-)	2020/06/10	103	80 - 120	105	80 - 120	<1.0	mg/L	1.2	20
6779046	1,1,1,2-Tetrachloroethane	2020/06/11	98	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
6779046	1,1,1-Trichloroethane	2020/06/11	96	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
6779046	1,1,2,2-Tetrachloroethane	2020/06/11	105	70 - 130	97	70 - 130	<0.40	ug/L	NC	30
6779046	1,1,2-Trichloroethane	2020/06/11	103	70 - 130	96	70 - 130	<0.40	ug/L	NC	30
6779046	1,1-Dichloroethane	2020/06/11	94	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
6779046	1,1-Dichloroethylene	2020/06/11	99	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
6779046	1,2-Dichlorobenzene	2020/06/11	88	70 - 130	86	70 - 130	<0.40	ug/L	NC	30
6779046	1,2-Dichloroethane	2020/06/11	102	70 - 130	96	70 - 130	<0.49	ug/L	NC	30
6779046	1,2-Dichloropropane	2020/06/11	88	70 - 130	85	70 - 130	<0.20	ug/L	NC	30
6779046	1,3-Dichlorobenzene	2020/06/11	85	70 - 130	85	70 - 130	<0.40	ug/L	NC	30
6779046	1,4-Dichlorobenzene	2020/06/11	91	70 - 130	91	70 - 130	<0.40	ug/L	NC	30
6779046	Acetone (2-Propanone)	2020/06/11	120	60 - 140	99	60 - 140	<10	ug/L	NC	30
6779046	Benzene	2020/06/11	93	70 - 130	91	70 - 130	<0.20	ug/L	NC	30
6779046	Bromodichloromethane	2020/06/11	98	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
6779046	Bromoform	2020/06/11	104	70 - 130	97	70 - 130	<1.0	ug/L	NC	30
6779046	Bromomethane	2020/06/11	94	60 - 140	90	60 - 140	<0.50	ug/L	NC	30
6779046	Carbon Tetrachloride	2020/06/11	95	70 - 130	96	70 - 130	<0.19	ug/L	NC	30
6779046	Chlorobenzene	2020/06/11	87	70 - 130	86	70 - 130	<0.20	ug/L	NC	30
6779046	Chloroform	2020/06/11	94	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
6779046	cis-1,2-Dichloroethylene	2020/06/11	90	70 - 130	88	70 - 130	<0.50	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6779046	cis-1,3-Dichloropropene	2020/06/11	95	70 - 130	90	70 - 130	<0.30	ug/L	NC	30
6779046	Dibromochloromethane	2020/06/11	103	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
6779046	Dichlorodifluoromethane (FREON 12)	2020/06/11	94	60 - 140	94	60 - 140	<1.0	ug/L	NC	30
6779046	Ethylbenzene	2020/06/11	83	70 - 130	84	70 - 130	<0.20	ug/L	NC	30
6779046	Ethylene Dibromide	2020/06/11	101	70 - 130	94	70 - 130	<0.19	ug/L	NC	30
6779046	Hexane	2020/06/11	97	70 - 130	98	70 - 130	<1.0	ug/L	NC	30
6779046	Methyl Ethyl Ketone (2-Butanone)	2020/06/11	119	60 - 140	102	60 - 140	<10	ug/L	NC	30
6779046	Methyl Isobutyl Ketone	2020/06/11	111	70 - 130	100	70 - 130	<5.0	ug/L	NC	30
6779046	Methyl t-butyl ether (MTBE)	2020/06/11	87	70 - 130	85	70 - 130	<0.50	ug/L	NC	30
6779046	Methylene Chloride(Dichloromethane)	2020/06/11	89	70 - 130	85	70 - 130	<2.0	ug/L	NC	30
6779046	o-Xylene	2020/06/11	83	70 - 130	87	70 - 130	<0.20	ug/L	NC	30
6779046	p+m-Xylene	2020/06/11	90	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
6779046	Styrene	2020/06/11	89	70 - 130	91	70 - 130	<0.40	ug/L	NC	30
6779046	Tetrachloroethylene	2020/06/11	84	70 - 130	86	70 - 130	<0.20	ug/L	NC	30
6779046	Toluene	2020/06/11	85	70 - 130	85	70 - 130	<0.20	ug/L	NC	30
6779046	Total Xylenes	2020/06/11					<0.20	ug/L	NC	30
6779046	trans-1,2-Dichloroethylene	2020/06/11	94	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
6779046	trans-1,3-Dichloropropene	2020/06/11	103	70 - 130	94	70 - 130	<0.40	ug/L	NC	30
6779046	Trichloroethylene	2020/06/11	93	70 - 130	94	70 - 130	<0.20	ug/L	21	30
6779046	Trichlorofluoromethane (FREON 11)	2020/06/11	100	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
6779046	Vinyl Chloride	2020/06/11	92	70 - 130	91	70 - 130	<0.20	ug/L	NC	30
6779165	Dissolved Antimony (Sb)	2020/06/11	103	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
6779165	Dissolved Arsenic (As)	2020/06/11	98	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
6779165	Dissolved Barium (Ba)	2020/06/11	98	80 - 120	97	80 - 120	<2.0	ug/L	0.95	20
6779165	Dissolved Beryllium (Be)	2020/06/11	99	80 - 120	99	80 - 120	<0.40	ug/L	NC	20
6779165	Dissolved Boron (B)	2020/06/11	99	80 - 120	101	80 - 120	<10	ug/L	1.3	20
6779165	Dissolved Cadmium (Cd)	2020/06/11	102	80 - 120	100	80 - 120	<0.090	ug/L	NC	20
6779165	Dissolved Chromium (Cr)	2020/06/11	94	80 - 120	94	80 - 120	<5.0	ug/L	NC	20
6779165	Dissolved Cobalt (Co)	2020/06/11	97	80 - 120	101	80 - 120	<0.50	ug/L	3.1	20
6779165	Dissolved Copper (Cu)	2020/06/11	102	80 - 120	103	80 - 120	<0.90	ug/L	0.96	20
6779165	Dissolved Lead (Pb)	2020/06/11	97	80 - 120	99	80 - 120	<0.50	ug/L	NC	20

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6779165	Dissolved Molybdenum (Mo)	2020/06/11	103	80 - 120	99	80 - 120	<0.50	ug/L	0.23	20
6779165	Dissolved Nickel (Ni)	2020/06/11	94	80 - 120	96	80 - 120	<1.0	ug/L	1.2	20
6779165	Dissolved Selenium (Se)	2020/06/11	98	80 - 120	98	80 - 120	<2.0	ug/L	NC	20
6779165	Dissolved Silver (Ag)	2020/06/11	95	80 - 120	96	80 - 120	<0.090	ug/L	NC	20
6779165	Dissolved Sodium (Na)	2020/06/11	NC	80 - 120	98	80 - 120	<100	ug/L	2.3	20
6779165	Dissolved Thallium (Tl)	2020/06/11	98	80 - 120	99	80 - 120	<0.050	ug/L	9.7	20
6779165	Dissolved Uranium (U)	2020/06/11	100	80 - 120	100	80 - 120	<0.10	ug/L	3.1	20
6779165	Dissolved Vanadium (V)	2020/06/11	95	80 - 120	94	80 - 120	<0.50	ug/L	NC	20
6779165	Dissolved Zinc (Zn)	2020/06/11	96	80 - 120	95	80 - 120	<5.0	ug/L	NC	20
6779166	WAD Cyanide (Free)	2020/06/10	103	80 - 120	100	80 - 120	<1	ug/L	0	20
6779548	1,1,1,2-Tetrachloroethane	2020/06/11	101	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
6779548	1,1,1-Trichloroethane	2020/06/11	95	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
6779548	1,1,2,2-Tetrachloroethane	2020/06/11	98	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
6779548	1,1,2-Trichloroethane	2020/06/11	98	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
6779548	1,1-Dichloroethane	2020/06/11	94	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
6779548	1,1-Dichloroethylene	2020/06/11	103	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
6779548	1,2-Dichlorobenzene	2020/06/11	94	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
6779548	1,2-Dichloroethane	2020/06/11	91	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
6779548	1,2-Dichloropropane	2020/06/11	93	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
6779548	1,3-Dichlorobenzene	2020/06/11	97	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
6779548	1,4-Dichlorobenzene	2020/06/11	105	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
6779548	Acetone (2-Propanone)	2020/06/11	99	60 - 140	92	60 - 140	<10	ug/L	5.3	30
6779548	Benzene	2020/06/11	97	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
6779548	Bromodichloromethane	2020/06/11	93	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
6779548	Bromoform	2020/06/11	97	70 - 130	93	70 - 130	<1.0	ug/L	NC	30
6779548	Bromomethane	2020/06/11	91	60 - 140	92	60 - 140	<0.50	ug/L	NC	30
6779548	Carbon Tetrachloride	2020/06/11	93	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
6779548	Chlorobenzene	2020/06/11	94	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
6779548	Chloroform	2020/06/11	93	70 - 130	93	70 - 130	<0.20	ug/L	2.9	30
6779548	cis-1,2-Dichloroethylene	2020/06/11	92	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
6779548	cis-1,3-Dichloropropene	2020/06/11	95	70 - 130	93	70 - 130	<0.30	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6779548	Dibromochloromethane	2020/06/11	101	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
6779548	Dichlorodifluoromethane (FREON 12)	2020/06/11	80	60 - 140	89	60 - 140	<1.0	ug/L	NC	30
6779548	Ethylbenzene	2020/06/11	96	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
6779548	Ethylene Dibromide	2020/06/11	99	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
6779548	F1 (C6-C10) - BTEX	2020/06/11					<25	ug/L	NC	30
6779548	F1 (C6-C10)	2020/06/11	96	60 - 140	91	60 - 140	<25	ug/L	NC	30
6779548	Hexane	2020/06/11	101	70 - 130	104	70 - 130	<1.0	ug/L	NC	30
6779548	Methyl Ethyl Ketone (2-Butanone)	2020/06/11	104	60 - 140	98	60 - 140	<10	ug/L	NC	30
6779548	Methyl Isobutyl Ketone	2020/06/11	95	70 - 130	91	70 - 130	<5.0	ug/L	NC	30
6779548	Methyl t-butyl ether (MTBE)	2020/06/11	88	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
6779548	Methylene Chloride(Dichloromethane)	2020/06/11	88	70 - 130	86	70 - 130	<2.0	ug/L	NC	30
6779548	o-Xylene	2020/06/11	97	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
6779548	p+m-Xylene	2020/06/11	99	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
6779548	Styrene	2020/06/11	95	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
6779548	Tetrachloroethylene	2020/06/11	93	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
6779548	Toluene	2020/06/11	91	70 - 130	91	70 - 130	<0.20	ug/L	NC	30
6779548	Total Xylenes	2020/06/11					<0.20	ug/L	NC	30
6779548	trans-1,2-Dichloroethylene	2020/06/11	96	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
6779548	trans-1,3-Dichloropropene	2020/06/11	100	70 - 130	99	70 - 130	<0.40	ug/L	NC	30
6779548	Trichloroethylene	2020/06/11	98	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
6779548	Trichlorofluoromethane (FREON 11)	2020/06/11	98	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
6779548	Vinyl Chloride	2020/06/11	93	70 - 130	114	70 - 130	<0.20	ug/L	NC	30
6781327	Mercury (Hg)	2020/06/11	100	75 - 125	98	80 - 120	<0.10	ug/L	NC	20
6781738	Chromium (VI)	2020/06/12	98	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
6782239	1-Methylnaphthalene	2020/06/11	109	50 - 130	111	50 - 130	<0.050	ug/L	NC	30
6782239	2-Methylnaphthalene	2020/06/11	106	50 - 130	109	50 - 130	<0.050	ug/L	NC	30
6782239	Acenaphthene	2020/06/11	102	50 - 130	105	50 - 130	<0.050	ug/L	NC	30
6782239	Acenaphthylene	2020/06/11	98	50 - 130	100	50 - 130	<0.050	ug/L	NC	30
6782239	Anthracene	2020/06/11	107	50 - 130	107	50 - 130	<0.050	ug/L	NC	30
6782239	Benzo(a)anthracene	2020/06/11	102	50 - 130	101	50 - 130	<0.050	ug/L	NC	30
6782239	Benzo(a)pyrene	2020/06/11	100	50 - 130	100	50 - 130	<0.0090	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6782239	Benzo(b/j)fluoranthene	2020/06/11	112	50 - 130	112	50 - 130	<0.050	ug/L	NC	30
6782239	Benzo(g,h,i)perylene	2020/06/11	107	50 - 130	109	50 - 130	<0.050	ug/L	NC	30
6782239	Benzo(k)fluoranthene	2020/06/11	99	50 - 130	97	50 - 130	<0.050	ug/L	NC	30
6782239	Chrysene	2020/06/11	106	50 - 130	106	50 - 130	<0.050	ug/L	NC	30
6782239	Dibenzo(a,h)anthracene	2020/06/11	112	50 - 130	91	50 - 130	<0.050	ug/L	NC	30
6782239	Fluoranthene	2020/06/11	112	50 - 130	112	50 - 130	<0.050	ug/L	NC	30
6782239	Fluorene	2020/06/11	100	50 - 130	102	50 - 130	<0.050	ug/L	NC	30
6782239	Indeno(1,2,3-cd)pyrene	2020/06/11	108	50 - 130	109	50 - 130	<0.050	ug/L	NC	30
6782239	Naphthalene	2020/06/11	98	50 - 130	99	50 - 130	<0.050	ug/L	NC	30
6782239	Phenanthrene	2020/06/11	107	50 - 130	108	50 - 130	<0.030	ug/L	NC	30
6782239	Pyrene	2020/06/11	112	50 - 130	112	50 - 130	<0.050	ug/L	NC	30
6782240	F2 (C10-C16 Hydrocarbons)	2020/06/12	96	60 - 130	94	60 - 130	<100	ug/L	NC	30
6782240	F3 (C16-C34 Hydrocarbons)	2020/06/12	98	60 - 130	97	60 - 130	<200	ug/L	NC	30
6782240	F4 (C34-C50 Hydrocarbons)	2020/06/12	90	60 - 130	88	60 - 130	<200	ug/L	NC	30

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

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

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

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

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

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

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

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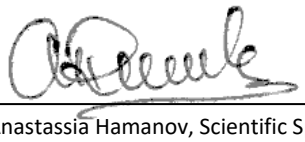
BV Labs Job #: C0E0800
Report Date: 2021/09/30

Stantec Consulting Ltd
Client Project #: 160410230.102
Sampler Initials: RG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

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Your Project #: 160410230.102
Site Location: 2164 PRESCOTT RD.
Your C.O.C. #: 806449-01-01

Attention: Steve Hannington

Stantec Consulting Ltd
1331 Clyde Avenue
Suite 400
Ottawa, ON
CANADA K2C 3G4

Report Date: 2021/09/30
Report #: R6833777
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C0X7774
Received: 2020/12/17, 16:30

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Dissolved Metals by ICPMS	1	N/A	2020/12/21	CAM SOP-00447	EPA 6020B m

Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

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

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Your Project #: 160410230.102
Site Location: 2164 PRESCOTT RD.
Your C.O.C. #: 806449-01-01

Attention: Steve Hannington

Stantec Consulting Ltd
1331 Clyde Avenue
Suite 400
Ottawa, ON
CANADA K2C 3G4

Report Date: 2021/09/30
Report #: R6833777
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C0X7774
Received: 2020/12/17, 16:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Julie Clement, Technical Account Manager
Email: Julie.CLEMENT@bureauveritas.com
Phone# (613)868-6079

==========

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

BV Labs Job #: C0X7774
Report Date: 2021/09/30

Stantec Consulting Ltd
Client Project #: 160410230.102
Site Location: 2164 PRESCOTT RD.
Sampler Initials: DG

O.REG 153 DISSOLVED ICPMS METALS (WATER)

BV Labs ID		OLJ292		
Sampling Date		2020/12/17 14:50		
COC Number		806449-01-01		
	UNITS	MW20-2	RDL	QC Batch
Metals				
Dissolved Cobalt (Co)	ug/L	0.53	0.50	7119204

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C0X7774
Report Date: 2021/09/30

Stantec Consulting Ltd
Client Project #: 160410230.102
Site Location: 2164 PRESCOTT RD.
Sampler Initials: DG

TEST SUMMARY

BV Labs ID: OLJ292
Sample ID: MW20-2
Matrix: Water

Collected: 2020/12/17
Shipped:
Received: 2020/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	7119204	N/A	2020/12/21	Arefa Dabhad

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BV Labs Job #: C0X7774
Report Date: 2021/09/30

Stantec Consulting Ltd
Client Project #: 160410230.102
Site Location: 2164 PRESCOTT RD.
Sampler Initials: DG

GENERAL COMMENTS

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

Package 1	4.0°C

Revised report[2021/09/30] V2 and V3 - Split report as per client request.

Results relate only to the items tested.

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BV Labs Job #: C0X7774
Report Date: 2021/09/30

QUALITY ASSURANCE REPORT

Stantec Consulting Ltd
Client Project #: 160410230.102
Site Location: 2164 PRESCOTT RD.
Sampler Initials: DG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7119204	Dissolved Cobalt (Co)	2020/12/21	96	80 - 120	100	80 - 120	<0.50	ug/L	NC	20

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

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

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

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

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

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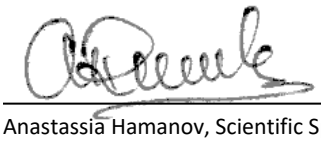
BV Labs Job #: C0X7774
Report Date: 2021/09/30

Stantec Consulting Ltd
Client Project #: 160410230.102
Site Location: 2164 PRESCOTT RD.
Sampler Initials: DG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

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

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Your Project #: 122170434
Your C.O.C. #: 815858-01-01

Attention: Steve Hannington

Stantec Consulting Ltd
1331 Clyde Avenue
Suite 400
Ottawa, ON
CANADA K2C 3G4

Report Date: 2021/03/19
Report #: R6561553
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: C161488
Received: 2021/03/08, 09:00

Sample Matrix: Soil
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum (1)	4	N/A	2021/03/12	CAM SOP-00301	EPA 8270D m
Hot Water Extractable Boron (1)	4	2021/03/10	2021/03/10	CAM SOP-00408	R153 Ana. Prot. 2011
1,3-Dichloropropene Sum (1)	4	N/A	2021/03/12		EPA 8260C m
Free (WAD) Cyanide (1)	4	2021/03/10	2021/03/11	CAM SOP-00457	OMOE E3015 m
Conductivity (1)	4	2021/03/11	2021/03/11	CAM SOP-00414	OMOE E3530 v1 m
Hexavalent Chromium in Soil by IC (1, 2)	4	2021/03/10	2021/03/10	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	4	2021/03/11	2021/03/11	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS (1)	3	2021/03/11	2021/03/11	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS (1)	1	2021/03/11	2021/03/12	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS (1)	1	2021/03/19	2021/03/19	CAM SOP-00447	EPA 6020B m
Moisture (1)	8	N/A	2021/03/10	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM) (1)	4	2021/03/11	2021/03/12	CAM SOP-00318	EPA 8270D m
Polychlorinated Biphenyl in Soil (1)	4	2021/03/11	2021/03/12	CAM SOP-00309	EPA 8082A m
pH CaCl2 EXTRACT (1)	4	2021/03/10	2021/03/10	CAM SOP-00413	EPA 9045 D m
Sieve, 75um (1)	2	N/A	2021/03/11	CAM SOP-00467	ASTM D1140 -17 m
Sodium Adsorption Ratio (SAR) (1)	4	N/A	2021/03/11	CAM SOP-00102	EPA 6010C
Volatile Organic Compounds and F1 PHCs (1)	4	N/A	2021/03/11	CAM SOP-00230	EPA 8260C m

Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Your Project #: 122170434
Your C.O.C. #: 815858-01-01

Attention: Steve Hannington

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

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Laboratories Mississauga
(2) Soils are reported on a dry weight basis unless otherwise specified.
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories 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.
Julie Clement, Technical Account Manager
Email: Julie.CLEMENT@bureauveritas.com
Phone# (613)868-6079
==========
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

O.REG 153 METALS & INORGANICS PKG (SOIL)

BV Labs ID		PAE313			PAE313			PAE317		
Sampling Date		2021/03/05 13:10			2021/03/05 13:10			2021/03/05 14:45		
COC Number		815858-01-01			815858-01-01			815858-01-01		
	UNITS	MW20-4-SS3	RDL	QC Batch	MW20-4-SS3 Lab-Dup	RDL	QC Batch	MW20-5-SS1	RDL	QC Batch
Calculated Parameters										
Sodium Adsorption Ratio	N/A	0.56		7236519				0.23 (1)		7236519
Inorganics										
Conductivity	mS/cm	0.24	0.002	7241043	0.23	0.002	7241043	0.17	0.002	7241043
Available (CaCl2) pH	pH	7.59		7239271				7.50		7238768
WAD Cyanide (Free)	ug/g	0.01	0.01	7239685				<0.01	0.01	7239685
Chromium (VI)	ug/g	<0.18	0.18	7238678				<0.18	0.18	7238678
Metals										
Hot Water Ext. Boron (B)	ug/g	0.27	0.050	7239618				0.15	0.050	7239618
Acid Extractable Antimony (Sb)	ug/g	<0.20	0.20	7241105				<0.20	0.20	7241105
Acid Extractable Arsenic (As)	ug/g	2.7	1.0	7241105				2.3	1.0	7241105
Acid Extractable Barium (Ba)	ug/g	140	0.50	7241105				120	0.50	7241105
Acid Extractable Beryllium (Be)	ug/g	0.50	0.20	7241105				0.46	0.20	7241105
Acid Extractable Boron (B)	ug/g	6.5	5.0	7241105				5.1	5.0	7241105
Acid Extractable Cadmium (Cd)	ug/g	0.17	0.10	7241105				0.12	0.10	7241105
Acid Extractable Chromium (Cr)	ug/g	39	1.0	7241105				32	1.0	7241105
Acid Extractable Cobalt (Co)	ug/g	8.4	0.10	7241105				8.6	0.10	7241105
Acid Extractable Copper (Cu)	ug/g	22	0.50	7241105				20	0.50	7241105
Acid Extractable Lead (Pb)	ug/g	13	1.0	7241105				11	1.0	7241105
Acid Extractable Molybdenum (Mo)	ug/g	2.9	0.50	7241105				1.1	0.50	7241105
Acid Extractable Nickel (Ni)	ug/g	21	0.50	7241105				20	0.50	7241105
Acid Extractable Selenium (Se)	ug/g	<0.50	0.50	7241105				<0.50	0.50	7241105
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	7241105				<0.20	0.20	7241105
Acid Extractable Thallium (Tl)	ug/g	0.16	0.050	7241105				0.16	0.050	7241105
Acid Extractable Uranium (U)	ug/g	0.87	0.050	7241105				0.79	0.050	7241105
Acid Extractable Vanadium (V)	ug/g	41	5.0	7241105				40	5.0	7241105
Acid Extractable Zinc (Zn)	ug/g	55	5.0	7241105				52	5.0	7241105
Acid Extractable Mercury (Hg)	ug/g	0.050	0.050	7241105				<0.050	0.050	7241105

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
(1) Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

BV Labs Job #: C161488
Report Date: 2021/03/19

Stantec Consulting Ltd
Client Project #: 122170434
Sampler Initials: RG

O.REG 153 METALS & INORGANICS PKG (SOIL)

BV Labs ID		PAE320			PAE320			PAE323		
Sampling Date		2021/03/05 09:30			2021/03/05 09:30			2021/03/05		
COC Number		815858-01-01			815858-01-01			815858-01-01		
	UNITS	MW20-6-SS1	RDL	QC Batch	MW20-6-SS1 Lab-Dup	RDL	QC Batch	DUP-2	RDL	QC Batch
Calculated Parameters										
Sodium Adsorption Ratio	N/A	0.23 (1)		7236519				0.38		7236519
Inorganics										
Conductivity	mS/cm	0.18	0.002	7241043				0.35	0.002	7241043
Available (CaCl2) pH	pH	7.22		7239271				7.33		7239271
WAD Cyanide (Free)	ug/g	0.01	0.01	7239685				0.02	0.01	7239685
Chromium (VI)	ug/g	<0.18	0.18	7238678				<0.18	0.18	7238678
Metals										
Hot Water Ext. Boron (B)	ug/g	0.22	0.050	7239618				0.47	0.050	7239618
Acid Extractable Antimony (Sb)	ug/g	<0.20	0.20	7241173	<0.20	0.20	7241173	<0.20	0.20	7241105
Acid Extractable Arsenic (As)	ug/g	3.5	1.0	7241173	3.5	1.0	7241173	2.4	1.0	7241105
Acid Extractable Barium (Ba)	ug/g	79	0.50	7241173	82	0.50	7241173	110	0.50	7241105
Acid Extractable Beryllium (Be)	ug/g	0.59	0.20	7241173	0.57	0.20	7241173	0.37	0.20	7241105
Acid Extractable Boron (B)	ug/g	7.2	5.0	7241173	7.4	5.0	7241173	<5.0	5.0	7241105
Acid Extractable Cadmium (Cd)	ug/g	0.14	0.10	7241173	0.15	0.10	7241173	0.39	0.10	7241105
Acid Extractable Chromium (Cr)	ug/g	32	1.0	7241173	32	1.0	7241173	22	1.0	7241105
Acid Extractable Cobalt (Co)	ug/g	8.8	0.10	7241173	8.8	0.10	7241173	6.5	0.10	7241105
Acid Extractable Copper (Cu)	ug/g	26	0.50	7241173	26	0.50	7241173	15	0.50	7241105
Acid Extractable Lead (Pb)	ug/g	13	1.0	7241173	12	1.0	7241173	40	1.0	7241105
Acid Extractable Molybdenum (Mo)	ug/g	2.1	0.50	7241173	2.1	0.50	7241173	1.1	0.50	7241105
Acid Extractable Nickel (Ni)	ug/g	20	0.50	7241173	20	0.50	7241173	14	0.50	7241105
Acid Extractable Selenium (Se)	ug/g	<0.50	0.50	7241173	<0.50	0.50	7241173	<0.50	0.50	7241105
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	7241173	<0.20	0.20	7241173	<0.20	0.20	7241105
Acid Extractable Thallium (Tl)	ug/g	0.13	0.050	7241173	0.13	0.050	7241173	0.10	0.050	7241105
Acid Extractable Uranium (U)	ug/g	0.93	0.050	7241173	0.93	0.050	7241173	1.0	0.050	7241105
Acid Extractable Vanadium (V)	ug/g	36	5.0	7241173	36	5.0	7241173	35	5.0	7241105
Acid Extractable Zinc (Zn)	ug/g	57	5.0	7241173	59	5.0	7241173	57	5.0	7241105
Acid Extractable Mercury (Hg)	ug/g	0.070	0.050	7241173	0.052	0.050	7241173	0.078	0.050	7241105

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
(1) Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

O.REG 153 PAHS (SOIL)

BV Labs ID		PAE313	PAE317	PAE320	PAE323		
Sampling Date		2021/03/05 13:10	2021/03/05 14:45	2021/03/05 09:30	2021/03/05		
COC Number		815858-01-01	815858-01-01	815858-01-01	815858-01-01		
	UNITS	MW20-4-SS3	MW20-5-SS1	MW20-6-SS1	DUP-2	RDL	QC Batch
Inorganics							
Moisture	%	11	13	22	20	1.0	7238875
Calculated Parameters							
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	<0.0071	<0.0071	0.0071	7236785
Polyaromatic Hydrocarbons							
Acenaphthene	ug/g	<0.0050	0.015	<0.0050	<0.0050	0.0050	7242291
Acenaphthylene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7242291
Anthracene	ug/g	<0.0050	0.051	<0.0050	<0.0050	0.0050	7242291
Benzo(a)anthracene	ug/g	<0.0050	0.14	<0.0050	0.015	0.0050	7242291
Benzo(a)pyrene	ug/g	<0.0050	0.096	<0.0050	0.017	0.0050	7242291
Benzo(b/j)fluoranthene	ug/g	<0.0050	0.14	<0.0050	0.024	0.0050	7242291
Benzo(g,h,i)perylene	ug/g	<0.0050	0.057	<0.0050	0.013	0.0050	7242291
Benzo(k)fluoranthene	ug/g	<0.0050	0.045	<0.0050	0.0070	0.0050	7242291
Chrysene	ug/g	<0.0050	0.11	<0.0050	0.015	0.0050	7242291
Dibenzo(a,h)anthracene	ug/g	<0.0050	0.014	<0.0050	<0.0050	0.0050	7242291
Fluoranthene	ug/g	<0.0050	0.27	0.0054	0.039	0.0050	7242291
Fluorene	ug/g	<0.0050	0.019	<0.0050	<0.0050	0.0050	7242291
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	0.066	<0.0050	0.013	0.0050	7242291
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7242291
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7242291
Naphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7242291
Phenanthrene	ug/g	<0.0050	0.17	<0.0050	0.022	0.0050	7242291
Pyrene	ug/g	<0.0050	0.20	<0.0050	0.032	0.0050	7242291
Surrogate Recovery (%)							
D10-Anthracene	%	99	97	95	96		7242291
D14-Terphenyl (FS)	%	93	93	91	93		7242291
D8-Acenaphthylene	%	91	97	93	95		7242291

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 PCBS (SOIL)

BV Labs ID		PAE313	PAE317	PAE320	PAE323		
Sampling Date		2021/03/05 13:10	2021/03/05 14:45	2021/03/05 09:30	2021/03/05		
COC Number		815858-01-01	815858-01-01	815858-01-01	815858-01-01		
	UNITS	MW20-4-SS3	MW20-5-SS1	MW20-6-SS1	DUP-2	RDL	QC Batch
PCBs							
Aroclor 1242	ug/g	<0.010	<0.010	<0.010	<0.010	0.010	7242728
Aroclor 1248	ug/g	0.22	<0.010	<0.010	0.010	0.010	7242728
Aroclor 1254	ug/g	<0.010	<0.010	<0.010	<0.010	0.010	7242728
Aroclor 1260	ug/g	<0.010	<0.010	<0.010	<0.010	0.010	7242728
Total PCB	ug/g	0.22	<0.010	<0.010	0.010	0.010	7242728
Surrogate Recovery (%)							
Decachlorobiphenyl	%	121	109	128	119		7242728

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

BV Labs ID		PAE315			PAE315			PAE316		
Sampling Date		2021/03/05 13:55			2021/03/05 13:55			2021/03/05		
COC Number		815858-01-01			815858-01-01			815858-01-01		
	UNITS	MW20-4-SS10	RDL	QC Batch	MW20-4-SS10 Lab-Dup	RDL	QC Batch	DUP-1	RDL	QC Batch
Inorganics										
Moisture	%	6.4	1.0	7238875	6.2	1.0	7238875	14	1.0	7238875
Calculated Parameters										
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	0.050	7236954				<0.050	0.050	7236954
Volatile Organics										
Acetone (2-Propanone)	ug/g	<0.50	0.50	7239604				<0.50	0.50	7239604
Benzene	ug/g	<0.020	0.020	7239604				<0.020	0.020	7239604
Bromodichloromethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Bromoform	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Bromomethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Carbon Tetrachloride	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Chlorobenzene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Chloroform	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Dibromochloromethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,2-Dichlorobenzene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,3-Dichlorobenzene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,4-Dichlorobenzene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,1-Dichloroethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,2-Dichloroethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,1-Dichloroethylene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
cis-1,2-Dichloroethylene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
trans-1,2-Dichloroethylene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,2-Dichloropropane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	7239604				<0.030	0.030	7239604
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	7239604				<0.040	0.040	7239604
Ethylbenzene	ug/g	<0.020	0.020	7239604				<0.020	0.020	7239604
Ethylene Dibromide	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Hexane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Methylene Chloride(Dichloromethane)	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	0.50	7239604				<0.50	0.50	7239604
Methyl Isobutyl Ketone	ug/g	<0.50	0.50	7239604				<0.50	0.50	7239604

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

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

BV Labs ID		PAE315			PAE315			PAE316		
Sampling Date		2021/03/05 13:55			2021/03/05 13:55			2021/03/05		
COC Number		815858-01-01			815858-01-01			815858-01-01		
	UNITS	MW20-4-SS10	RDL	QC Batch	MW20-4-SS10 Lab-Dup	RDL	QC Batch	DUP-1	RDL	QC Batch
Methyl t-butyl ether (MTBE)	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Styrene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,1,1,2-Tetrachloroethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,1,2,2-Tetrachloroethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Tetrachloroethylene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Toluene	ug/g	<0.020	0.020	7239604				<0.020	0.020	7239604
1,1,1-Trichloroethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,1,2-Trichloroethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Trichloroethylene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Vinyl Chloride	ug/g	<0.020	0.020	7239604				<0.020	0.020	7239604
p+m-Xylene	ug/g	<0.020	0.020	7239604				<0.020	0.020	7239604
o-Xylene	ug/g	<0.020	0.020	7239604				<0.020	0.020	7239604
Total Xylenes	ug/g	<0.020	0.020	7239604				<0.020	0.020	7239604
F1 (C6-C10)	ug/g	<10	10	7239604				<10	10	7239604
F1 (C6-C10) - BTEX	ug/g	<10	10	7239604				<10	10	7239604
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	7241065				<10	10	7241065
F3 (C16-C34 Hydrocarbons)	ug/g	<50	50	7241065				<50	50	7241065
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	7241065				<50	50	7241065
Reached Baseline at C50	ug/g	Yes		7241065				Yes		7241065
Surrogate Recovery (%)										
o-Terphenyl	%	90		7241065				92		7241065
4-Bromofluorobenzene	%	97		7239604				97		7239604
D10-o-Xylene	%	99		7239604				102		7239604
D4-1,2-Dichloroethane	%	98		7239604				98		7239604
D8-Toluene	%	100		7239604				99		7239604

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

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

BV Labs ID		PAE319			PAE319			PAE322		
Sampling Date		2021/03/05 15:40			2021/03/05 15:40			2021/03/05 10:35		
COC Number		815858-01-01			815858-01-01			815858-01-01		
	UNITS	MW20-5-SS9	RDL	QC Batch	MW20-5-SS9 Lab-Dup	RDL	QC Batch	MW20-6-SS9	RDL	QC Batch
Inorganics										
Moisture	%	2.7	1.0	7238875				6.3	1.0	7238875
Calculated Parameters										
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	0.050	7236954				<0.050	0.050	7236954
Volatile Organics										
Acetone (2-Propanone)	ug/g	<0.50	0.50	7239604				<0.50	0.50	7239604
Benzene	ug/g	<0.020	0.020	7239604				<0.020	0.020	7239604
Bromodichloromethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Bromoform	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Bromomethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Carbon Tetrachloride	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Chlorobenzene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Chloroform	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Dibromochloromethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,2-Dichlorobenzene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,3-Dichlorobenzene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,4-Dichlorobenzene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,1-Dichloroethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,2-Dichloroethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,1-Dichloroethylene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
cis-1,2-Dichloroethylene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
trans-1,2-Dichloroethylene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,2-Dichloropropane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	7239604				<0.030	0.030	7239604
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	7239604				<0.040	0.040	7239604
Ethylbenzene	ug/g	<0.020	0.020	7239604				<0.020	0.020	7239604
Ethylene Dibromide	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Hexane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Methylene Chloride(Dichloromethane)	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	0.50	7239604				<0.50	0.50	7239604
Methyl Isobutyl Ketone	ug/g	<0.50	0.50	7239604				<0.50	0.50	7239604

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

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

BV Labs ID		PAE319			PAE319			PAE322		
Sampling Date		2021/03/05 15:40			2021/03/05 15:40			2021/03/05 10:35		
COC Number		815858-01-01			815858-01-01			815858-01-01		
	UNITS	MW20-5-SS9	RDL	QC Batch	MW20-5-SS9 Lab-Dup	RDL	QC Batch	MW20-6-SS9	RDL	QC Batch
Methyl t-butyl ether (MTBE)	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Styrene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,1,1,2-Tetrachloroethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,1,2,2-Tetrachloroethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Tetrachloroethylene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Toluene	ug/g	<0.020	0.020	7239604				<0.020	0.020	7239604
1,1,1-Trichloroethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
1,1,2-Trichloroethane	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Trichloroethylene	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	0.050	7239604				<0.050	0.050	7239604
Vinyl Chloride	ug/g	<0.020	0.020	7239604				<0.020	0.020	7239604
p+m-Xylene	ug/g	<0.020	0.020	7239604				<0.020	0.020	7239604
o-Xylene	ug/g	<0.020	0.020	7239604				<0.020	0.020	7239604
Total Xylenes	ug/g	<0.020	0.020	7239604				<0.020	0.020	7239604
F1 (C6-C10)	ug/g	<10	10	7239604				<10	10	7239604
F1 (C6-C10) - BTEX	ug/g	<10	10	7239604				<10	10	7239604
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	7241065	<10	10	7241065	<10	10	7241065
F3 (C16-C34 Hydrocarbons)	ug/g	<50	50	7241065	<50	50	7241065	<50	50	7241065
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	7241065	<50	50	7241065	<50	50	7241065
Reached Baseline at C50	ug/g	Yes		7241065	Yes		7241065	Yes		7241065
Surrogate Recovery (%)										
o-Terphenyl	%	87		7241065	83		7241065	91		7241065
4-Bromofluorobenzene	%	98		7239604				97		7239604
D10-o-Xylene	%	97		7239604				93		7239604
D4-1,2-Dichloroethane	%	98		7239604				97		7239604
D8-Toluene	%	101		7239604				100		7239604

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

Stantec Consulting Ltd
Client Project #: 122170434
Sampler Initials: RG

RESULTS OF ANALYSES OF SOIL

BV Labs ID		PAE324	PAE325		
Sampling Date		2021/03/05 15:00	2021/03/05 15:05		
COC Number		815858-01-01	815858-01-01		
	UNITS	GRAIN SIZE TOP	GRAIN SIZE BOTTOM	RDL	QC Batch
Miscellaneous Parameters					
Grain Size	%	FINE	COARSE	N/A	7238691
Sieve - #200 (<0.075mm)	%	51	12	1	7238691
Sieve - #200 (>0.075mm)	%	49	88	1	7238691

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

BV Labs ID		PAE321		
Sampling Date		2021/03/05 09:40		
COC Number		815858-01-01		
	UNITS	MW20-6-SS2	RDL	QC Batch
Metals				
Acid Extractable Molybdenum (Mo)	ug/g	0.61	0.50	7255967

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

TEST SUMMARY

BV Labs ID: PAE313
Sample ID: MW20-4-SS3
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7236785	N/A	2021/03/12	Automated Statchk
Hot Water Extractable Boron	ICP	7239618	2021/03/10	2021/03/10	Archana Patel
Free (WAD) Cyanide	TECH	7239685	2021/03/10	2021/03/11	Aditiben Patel
Conductivity	AT	7241043	2021/03/11	2021/03/11	Tarunpreet Kaur
Hexavalent Chromium in Soil by IC	IC/SPEC	7238678	2021/03/10	2021/03/10	Violeta Porcila
Strong Acid Leachable Metals by ICPMS	ICP/MS	7241105	2021/03/11	2021/03/11	Viviana Canzonieri
Moisture	BAL	7238875	N/A	2021/03/10	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7242291	2021/03/11	2021/03/12	Mitesh Raj
Polychlorinated Biphenyl in Soil	GC/ECD	7242728	2021/03/11	2021/03/12	Sarah Huang
pH CaCl2 EXTRACT	AT	7239271	2021/03/10	2021/03/10	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	7236519	N/A	2021/03/11	Automated Statchk

BV Labs ID: PAE313 Dup
Sample ID: MW20-4-SS3
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	7241043	2021/03/11	2021/03/11	Tarunpreet Kaur

BV Labs ID: PAE315
Sample ID: MW20-4-SS10
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7236954	N/A	2021/03/12	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7241065	2021/03/11	2021/03/11	Anna Stuglik Rolland
Moisture	BAL	7238875	N/A	2021/03/10	Prgya Panchal
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7239604	N/A	2021/03/11	Manpreet Sarao

BV Labs ID: PAE315 Dup
Sample ID: MW20-4-SS10
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	7238875	N/A	2021/03/10	Prgya Panchal

BV Labs ID: PAE316
Sample ID: DUP-1
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7236954	N/A	2021/03/12	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7241065	2021/03/11	2021/03/11	Anna Stuglik Rolland
Moisture	BAL	7238875	N/A	2021/03/10	Prgya Panchal
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7239604	N/A	2021/03/11	Manpreet Sarao

TEST SUMMARY

BV Labs ID: PAE317
Sample ID: MW20-5-SS1
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7236785	N/A	2021/03/12	Automated Statchk
Hot Water Extractable Boron	ICP	7239618	2021/03/10	2021/03/10	Archana Patel
Free (WAD) Cyanide	TECH	7239685	2021/03/10	2021/03/11	Aditiben Patel
Conductivity	AT	7241043	2021/03/11	2021/03/11	Tarunpreet Kaur
Hexavalent Chromium in Soil by IC	IC/SPEC	7238678	2021/03/10	2021/03/10	Violeta Porcila
Strong Acid Leachable Metals by ICPMS	ICP/MS	7241105	2021/03/11	2021/03/11	Viviana Canzonieri
Moisture	BAL	7238875	N/A	2021/03/10	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7242291	2021/03/11	2021/03/12	Mitesh Raj
Polychlorinated Biphenyl in Soil	GC/ECD	7242728	2021/03/11	2021/03/12	Sarah Huang
pH CaCl2 EXTRACT	AT	7238768	2021/03/10	2021/03/10	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	7236519	N/A	2021/03/11	Automated Statchk

BV Labs ID: PAE319
Sample ID: MW20-5-SS9
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7236954	N/A	2021/03/12	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7241065	2021/03/11	2021/03/11	Anna Stuglik Rolland
Moisture	BAL	7238875	N/A	2021/03/10	Prgya Panchal
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7239604	N/A	2021/03/11	Manpreet Sarao

BV Labs ID: PAE319 Dup
Sample ID: MW20-5-SS9
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7241065	2021/03/11	2021/03/11	Anna Stuglik Rolland

BV Labs ID: PAE320
Sample ID: MW20-6-SS1
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7236785	N/A	2021/03/12	Automated Statchk
Hot Water Extractable Boron	ICP	7239618	2021/03/10	2021/03/10	Archana Patel
Free (WAD) Cyanide	TECH	7239685	2021/03/10	2021/03/11	Aditiben Patel
Conductivity	AT	7241043	2021/03/11	2021/03/11	Tarunpreet Kaur
Hexavalent Chromium in Soil by IC	IC/SPEC	7238678	2021/03/10	2021/03/10	Violeta Porcila
Strong Acid Leachable Metals by ICPMS	ICP/MS	7241173	2021/03/11	2021/03/12	Viviana Canzonieri
Moisture	BAL	7238875	N/A	2021/03/10	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7242291	2021/03/11	2021/03/12	Mitesh Raj
Polychlorinated Biphenyl in Soil	GC/ECD	7242728	2021/03/11	2021/03/12	Sarah Huang
pH CaCl2 EXTRACT	AT	7239271	2021/03/10	2021/03/10	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	7236519	N/A	2021/03/11	Automated Statchk

TEST SUMMARY

BV Labs ID: PAE320 Dup
Sample ID: MW20-6-SS1
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	7241173	2021/03/11	2021/03/12	Viviana Canzonieri

BV Labs ID: PAE321
Sample ID: MW20-6-SS2
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	7255967	2021/03/19	2021/03/19	Viviana Canzonieri

BV Labs ID: PAE322
Sample ID: MW20-6-SS9
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7236954	N/A	2021/03/12	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7241065	2021/03/11	2021/03/11	Anna Stuglik Rolland
Moisture	BAL	7238875	N/A	2021/03/10	Prgya Panchal
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7239604	N/A	2021/03/11	Manpreet Sarao

BV Labs ID: PAE323
Sample ID: DUP-2
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7236785	N/A	2021/03/12	Automated Statchk
Hot Water Extractable Boron	ICP	7239618	2021/03/10	2021/03/10	Archana Patel
Free (WAD) Cyanide	TECH	7239685	2021/03/10	2021/03/11	Aditiben Patel
Conductivity	AT	7241043	2021/03/11	2021/03/11	Tarunpreet Kaur
Hexavalent Chromium in Soil by IC	IC/SPEC	7238678	2021/03/10	2021/03/10	Violeta Porcila
Strong Acid Leachable Metals by ICPMS	ICP/MS	7241105	2021/03/11	2021/03/11	Viviana Canzonieri
Moisture	BAL	7238875	N/A	2021/03/10	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7242291	2021/03/11	2021/03/12	Mitesh Raj
Polychlorinated Biphenyl in Soil	GC/ECD	7242728	2021/03/11	2021/03/12	Sarah Huang
pH CaCl2 EXTRACT	AT	7239271	2021/03/10	2021/03/10	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	7236519	N/A	2021/03/11	Automated Statchk

BV Labs ID: PAE324
Sample ID: GRAIN SIZE TOP
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sieve, 75um	SIEV	7238691	N/A	2021/03/11	Min Yang

TEST SUMMARY

BV Labs ID: PAE325
Sample ID: GRAIN SIZE BOTTOM
Matrix: Soil

Collected: 2021/03/05
Shipped:
Received: 2021/03/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sieve, 75um	SIEV	7238691	N/A	2021/03/11	Min Yang

GENERAL COMMENTS

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

Package 1	3.7°C
Package 2	5.0°C

Results relate only to the items tested.

BV Labs Job #: C161488
Report Date: 2021/03/19

QUALITY ASSURANCE REPORT

Stantec Consulting Ltd
Client Project #: 122170434
Sampler Initials: RG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7239604	4-Bromofluorobenzene	2021/03/11	100	60 - 140	100	60 - 140	96	%				
7239604	D10-o-Xylene	2021/03/11	95	60 - 130	107	60 - 130	95	%				
7239604	D4-1,2-Dichloroethane	2021/03/11	98	60 - 140	96	60 - 140	96	%				
7239604	D8-Toluene	2021/03/11	102	60 - 140	102	60 - 140	102	%				
7241065	o-Terphenyl	2021/03/11	92	60 - 130	92	60 - 130	97	%				
7242291	D10-Anthracene	2021/03/12	100	50 - 130	99	50 - 130	101	%				
7242291	D14-Terphenyl (FS)	2021/03/12	95	50 - 130	93	50 - 130	95	%				
7242291	D8-Acenaphthylene	2021/03/12	97	50 - 130	97	50 - 130	99	%				
7242728	Decachlorobiphenyl	2021/03/11	109	60 - 130	100	60 - 130	106	%				
7238678	Chromium (VI)	2021/03/10	12 (1)	70 - 130	92	80 - 120	<0.18	ug/g	NC	35		
7238691	Sieve - #200 (<0.075mm)	2021/03/11							4.2	20	55	53 - 58
7238691	Sieve - #200 (>0.075mm)	2021/03/11							6.2	20	45	42 - 47
7238768	Available (CaCl2) pH	2021/03/10			100	97 - 103			0.13	N/A		
7238875	Moisture	2021/03/10							3.2	20		
7239271	Available (CaCl2) pH	2021/03/10			100	97 - 103			0.19	N/A		
7239604	1,1,1,2-Tetrachloroethane	2021/03/11	104	60 - 140	103	60 - 130	<0.050	ug/g	NC	50		
7239604	1,1,1-Trichloroethane	2021/03/11	105	60 - 140	105	60 - 130	<0.050	ug/g	NC	50		
7239604	1,1,2,2-Tetrachloroethane	2021/03/11	96	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
7239604	1,1,2-Trichloroethane	2021/03/11	102	60 - 140	101	60 - 130	<0.050	ug/g	NC	50		
7239604	1,1-Dichloroethane	2021/03/11	99	60 - 140	98	60 - 130	<0.050	ug/g	NC	50		
7239604	1,1-Dichloroethylene	2021/03/11	104	60 - 140	104	60 - 130	<0.050	ug/g	NC	50		
7239604	1,2-Dichlorobenzene	2021/03/11	100	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
7239604	1,2-Dichloroethane	2021/03/11	96	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
7239604	1,2-Dichloropropane	2021/03/11	100	60 - 140	99	60 - 130	<0.050	ug/g	NC	50		
7239604	1,3-Dichlorobenzene	2021/03/11	104	60 - 140	104	60 - 130	<0.050	ug/g	NC	50		
7239604	1,4-Dichlorobenzene	2021/03/11	123	60 - 140	123	60 - 130	<0.050	ug/g	NC	50		
7239604	Acetone (2-Propanone)	2021/03/11	99	60 - 140	98	60 - 140	<0.50	ug/g	NC	50		
7239604	Benzene	2021/03/11	96	60 - 140	95	60 - 130	<0.020	ug/g	NC	50		
7239604	Bromodichloromethane	2021/03/11	103	60 - 140	102	60 - 130	<0.050	ug/g	NC	50		
7239604	Bromoform	2021/03/11	100	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
7239604	Bromomethane	2021/03/11	102	60 - 140	101	60 - 140	<0.050	ug/g	NC	50		
7239604	Carbon Tetrachloride	2021/03/11	101	60 - 140	102	60 - 130	<0.050	ug/g	NC	50		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7239604	Chlorobenzene	2021/03/11	101	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
7239604	Chloroform	2021/03/11	101	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
7239604	cis-1,2-Dichloroethylene	2021/03/11	104	60 - 140	103	60 - 130	<0.050	ug/g	NC	50		
7239604	cis-1,3-Dichloropropene	2021/03/11	100	60 - 140	100	60 - 130	<0.030	ug/g	NC	50		
7239604	Dibromochloromethane	2021/03/11	99	60 - 140	98	60 - 130	<0.050	ug/g	NC	50		
7239604	Dichlorodifluoromethane (FREON 12)	2021/03/11	84	60 - 140	85	60 - 140	<0.050	ug/g	NC	50		
7239604	Ethylbenzene	2021/03/11	97	60 - 140	97	60 - 130	<0.020	ug/g	NC	50		
7239604	Ethylene Dibromide	2021/03/11	96	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
7239604	F1 (C6-C10) - BTEX	2021/03/11					<10	ug/g	NC	30		
7239604	F1 (C6-C10)	2021/03/11	98	60 - 140	98	80 - 120	<10	ug/g	NC	30		
7239604	Hexane	2021/03/11	105	60 - 140	104	60 - 130	<0.050	ug/g	NC	50		
7239604	Methyl Ethyl Ketone (2-Butanone)	2021/03/11	100	60 - 140	99	60 - 140	<0.50	ug/g	NC	50		
7239604	Methyl Isobutyl Ketone	2021/03/11	100	60 - 140	101	60 - 130	<0.50	ug/g	NC	50		
7239604	Methyl t-butyl ether (MTBE)	2021/03/11	96	60 - 140	96	60 - 130	<0.050	ug/g	NC	50		
7239604	Methylene Chloride(Dichloromethane)	2021/03/11	105	60 - 140	104	60 - 130	<0.050	ug/g	NC	50		
7239604	o-Xylene	2021/03/11	97	60 - 140	97	60 - 130	<0.020	ug/g	NC	50		
7239604	p+m-Xylene	2021/03/11	101	60 - 140	101	60 - 130	<0.020	ug/g	NC	50		
7239604	Styrene	2021/03/11	109	60 - 140	109	60 - 130	<0.050	ug/g	NC	50		
7239604	Tetrachloroethylene	2021/03/11	98	60 - 140	98	60 - 130	<0.050	ug/g	NC	50		
7239604	Toluene	2021/03/11	96	60 - 140	96	60 - 130	<0.020	ug/g	NC	50		
7239604	Total Xylenes	2021/03/11					<0.020	ug/g	NC	50		
7239604	trans-1,2-Dichloroethylene	2021/03/11	103	60 - 140	103	60 - 130	<0.050	ug/g	NC	50		
7239604	trans-1,3-Dichloropropene	2021/03/11	101	60 - 140	101	60 - 130	<0.040	ug/g	NC	50		
7239604	Trichloroethylene	2021/03/11	107	60 - 140	107	60 - 130	<0.050	ug/g	NC	50		
7239604	Trichlorofluoromethane (FREON 11)	2021/03/11	103	60 - 140	103	60 - 130	<0.050	ug/g	NC	50		
7239604	Vinyl Chloride	2021/03/11	101	60 - 140	101	60 - 130	<0.020	ug/g	NC	50		
7239618	Hot Water Ext. Boron (B)	2021/03/10	94	75 - 125	95	75 - 125	<0.050	ug/g	13	40		
7239685	WAD Cyanide (Free)	2021/03/11	92	75 - 125	93	80 - 120	<0.01	ug/g	NC	35		
7241043	Conductivity	2021/03/11			103	90 - 110	<0.002	mS/cm	3.9	10		
7241065	F2 (C10-C16 Hydrocarbons)	2021/03/11	97	50 - 130	101	80 - 120	<10	ug/g	NC	30		
7241065	F3 (C16-C34 Hydrocarbons)	2021/03/11	94	50 - 130	97	80 - 120	<50	ug/g	NC	30		
7241065	F4 (C34-C50 Hydrocarbons)	2021/03/11	91	50 - 130	95	80 - 120	<50	ug/g	NC	30		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7241105	Acid Extractable Antimony (Sb)	2021/03/11	94	75 - 125	105	80 - 120	<0.20	ug/g	0.60	30		
7241105	Acid Extractable Arsenic (As)	2021/03/11	NC	75 - 125	101	80 - 120	<1.0	ug/g				
7241105	Acid Extractable Barium (Ba)	2021/03/11	NC	75 - 125	107	80 - 120	<0.50	ug/g	3.0	30		
7241105	Acid Extractable Beryllium (Be)	2021/03/11	97	75 - 125	104	80 - 120	<0.20	ug/g	4.7	30		
7241105	Acid Extractable Boron (B)	2021/03/11	94	75 - 125	101	80 - 120	<5.0	ug/g	NC	30		
7241105	Acid Extractable Cadmium (Cd)	2021/03/11	96	75 - 125	103	80 - 120	<0.10	ug/g	NC	30		
7241105	Acid Extractable Chromium (Cr)	2021/03/11	97	75 - 125	103	80 - 120	<1.0	ug/g				
7241105	Acid Extractable Cobalt (Co)	2021/03/11	94	75 - 125	102	80 - 120	<0.10	ug/g	3.5	30		
7241105	Acid Extractable Copper (Cu)	2021/03/11	96	75 - 125	103	80 - 120	<0.50	ug/g	7.0	30		
7241105	Acid Extractable Lead (Pb)	2021/03/11	90	75 - 125	99	80 - 120	<1.0	ug/g	4.0	30		
7241105	Acid Extractable Mercury (Hg)	2021/03/11	79	75 - 125	87	80 - 120	<0.050	ug/g	NC	30		
7241105	Acid Extractable Molybdenum (Mo)	2021/03/11	94	75 - 125	101	80 - 120	<0.50	ug/g	NC	30		
7241105	Acid Extractable Nickel (Ni)	2021/03/11	97	75 - 125	107	80 - 120	<0.50	ug/g	0.27	30		
7241105	Acid Extractable Selenium (Se)	2021/03/11	94	75 - 125	104	80 - 120	<0.50	ug/g	NC	30		
7241105	Acid Extractable Silver (Ag)	2021/03/11	95	75 - 125	103	80 - 120	<0.20	ug/g	NC	30		
7241105	Acid Extractable Thallium (Tl)	2021/03/11	92	75 - 125	99	80 - 120	<0.050	ug/g				
7241105	Acid Extractable Uranium (U)	2021/03/11	94	75 - 125	101	80 - 120	<0.050	ug/g				
7241105	Acid Extractable Vanadium (V)	2021/03/11	99	75 - 125	104	80 - 120	<5.0	ug/g	3.4	30		
7241105	Acid Extractable Zinc (Zn)	2021/03/11	98	75 - 125	105	80 - 120	<5.0	ug/g	5.0	30		
7241173	Acid Extractable Antimony (Sb)	2021/03/12	99	75 - 125	106	80 - 120	<0.20	ug/g	NC	30		
7241173	Acid Extractable Arsenic (As)	2021/03/12	104	75 - 125	104	80 - 120	<1.0	ug/g	0.44	30		
7241173	Acid Extractable Barium (Ba)	2021/03/12	NC	75 - 125	103	80 - 120	<0.50	ug/g	3.0	30		
7241173	Acid Extractable Beryllium (Be)	2021/03/12	105	75 - 125	102	80 - 120	<0.20	ug/g	3.2	30		
7241173	Acid Extractable Boron (B)	2021/03/12	96	75 - 125	100	80 - 120	<5.0	ug/g	2.1	30		
7241173	Acid Extractable Cadmium (Cd)	2021/03/12	103	75 - 125	102	80 - 120	<0.10	ug/g	6.2	30		
7241173	Acid Extractable Chromium (Cr)	2021/03/12	NC	75 - 125	106	80 - 120	<1.0	ug/g	0.82	30		
7241173	Acid Extractable Cobalt (Co)	2021/03/12	105	75 - 125	106	80 - 120	<0.10	ug/g	1.0	30		
7241173	Acid Extractable Copper (Cu)	2021/03/12	NC	75 - 125	103	80 - 120	<0.50	ug/g	1.0	30		
7241173	Acid Extractable Lead (Pb)	2021/03/12	98	75 - 125	99	80 - 120	<1.0	ug/g	0.61	30		
7241173	Acid Extractable Mercury (Hg)	2021/03/12	84	75 - 125	90	80 - 120	<0.050	ug/g	29	30		
7241173	Acid Extractable Molybdenum (Mo)	2021/03/12	102	75 - 125	101	80 - 120	<0.50	ug/g	1.5	30		
7241173	Acid Extractable Nickel (Ni)	2021/03/12	107	75 - 125	109	80 - 120	<0.50	ug/g	1.4	30		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7241173	Acid Extractable Selenium (Se)	2021/03/12	108	75 - 125	106	80 - 120	<0.50	ug/g	NC	30		
7241173	Acid Extractable Silver (Ag)	2021/03/12	102	75 - 125	101	80 - 120	<0.20	ug/g	NC	30		
7241173	Acid Extractable Thallium (Tl)	2021/03/12	98	75 - 125	101	80 - 120	<0.050	ug/g	3.6	30		
7241173	Acid Extractable Uranium (U)	2021/03/12	102	75 - 125	102	80 - 120	<0.050	ug/g	0.51	30		
7241173	Acid Extractable Vanadium (V)	2021/03/12	NC	75 - 125	105	80 - 120	<5.0	ug/g	1.1	30		
7241173	Acid Extractable Zinc (Zn)	2021/03/12	NC	75 - 125	107	80 - 120	<5.0	ug/g	2.0	30		
7242291	1-Methylnaphthalene	2021/03/12	99	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40		
7242291	2-Methylnaphthalene	2021/03/12	96	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40		
7242291	Acenaphthene	2021/03/12	96	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40		
7242291	Acenaphthylene	2021/03/12	97	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40		
7242291	Anthracene	2021/03/12	98	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40		
7242291	Benzo(a)anthracene	2021/03/12	96	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40		
7242291	Benzo(a)pyrene	2021/03/12	76	50 - 130	76	50 - 130	<0.0050	ug/g	NC	40		
7242291	Benzo(b/j)fluoranthene	2021/03/12	88	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40		
7242291	Benzo(g,h,i)perylene	2021/03/12	87	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40		
7242291	Benzo(k)fluoranthene	2021/03/12	92	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40		
7242291	Chrysene	2021/03/12	86	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40		
7242291	Dibenzo(a,h)anthracene	2021/03/12	90	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40		
7242291	Fluoranthene	2021/03/12	97	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40		
7242291	Fluorene	2021/03/12	96	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40		
7242291	Indeno(1,2,3-cd)pyrene	2021/03/12	89	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40		
7242291	Naphthalene	2021/03/12	85	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40		
7242291	Phenanthrene	2021/03/12	93	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40		
7242291	Pyrene	2021/03/12	93	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40		
7242728	Aroclor 1242	2021/03/11					<0.010	ug/g	NC	50		
7242728	Aroclor 1248	2021/03/11					<0.010	ug/g	NC	50		
7242728	Aroclor 1254	2021/03/11					<0.010	ug/g	NC	50		
7242728	Aroclor 1260	2021/03/11	113	30 - 130	104	30 - 130	<0.010	ug/g	NC	50		
7242728	Total PCB	2021/03/11	113	30 - 130	104	30 - 130	<0.010	ug/g	NC	50		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7255967	Acid Extractable Molybdenum (Mo)	2021/03/19	96	75 - 125	100	80 - 120	<0.50	ug/g				

N/A = Not Applicable

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

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

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

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

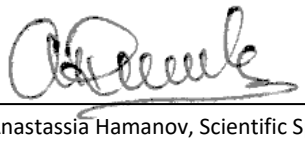
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

(1) The matrix spike recovery was below the lower control limit. This may be due in part to the reducing environment of the sample. The sample was reanalyzed with the same results

VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, Scientific Specialist

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

Bureau Veritas Laboratories 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvlabs.com

Your Project #: 122170434.200
Your C.O.C. #: 819748-01-01

Attention: Steve Hannington

Stantec Consulting Ltd
1331 Clyde Avenue
Suite 400
Ottawa, ON
CANADA K2C 3G4

Report Date: 2021/04/06
Report #: R6583214
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C184479
Received: 2021/03/30, 12:20

Sample Matrix: Soil
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Strong Acid Leachable Metals by ICPMS (1)	4	2021/04/03	2021/04/05	CAM SOP-00447	EPA 6020B m

Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Laboratories Mississauga

Your Project #: 122170434.200
Your C.O.C. #: 819748-01-01

Attention: Steve Hannington

Stantec Consulting Ltd
1331 Clyde Avenue
Suite 400
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CANADA K2C 3G4

Report Date: 2021/04/06
Report #: R6583214
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C184479
Received: 2021/03/30, 12:20

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Julie Clement, Technical Account Manager
Email: Julie.CLEMENT@bureauveritas.com
Phone# (613)868-6079
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

BV Labs Job #: C184479
Report Date: 2021/04/06

Stantec Consulting Ltd
Client Project #: 122170434.200
Sampler Initials: RG

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

BV Labs ID		PFA640	PFA641	PFA642	PFA643		
Sampling Date		2021/03/30 09:30	2021/03/30 10:00	2021/03/30 10:15	2021/03/30 10:30		
COC Number		819748-01-01	819748-01-01	819748-01-01	819748-01-01		
	UNITS	**TP21-1**	**TP21-2**	**TP21-3**	**TP21-4**	**RDL**	**QC Batch**
Metals							
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	<0.50	<0.50	<0.50	0.50	7280686

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs Job #: C184479
Report Date: 2021/04/06

Stantec Consulting Ltd
Client Project #: 122170434.200
Sampler Initials: RG

TEST SUMMARY

BV Labs ID: PFA640
Sample ID: TP21-1
Matrix: Soil

Collected: 2021/03/30
Shipped:
Received: 2021/03/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	7280686	2021/04/03	2021/04/05	Daniel Teclu

BV Labs ID: PFA641
Sample ID: TP21-2
Matrix: Soil

Collected: 2021/03/30
Shipped:
Received: 2021/03/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	7280686	2021/04/03	2021/04/05	Daniel Teclu

BV Labs ID: PFA642
Sample ID: TP21-3
Matrix: Soil

Collected: 2021/03/30
Shipped:
Received: 2021/03/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	7280686	2021/04/03	2021/04/05	Daniel Teclu

BV Labs ID: PFA643
Sample ID: TP21-4
Matrix: Soil

Collected: 2021/03/30
Shipped:
Received: 2021/03/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	7280686	2021/04/03	2021/04/05	Daniel Teclu

BV Labs Job #: C184479
Report Date: 2021/04/06

Stantec Consulting Ltd
Client Project #: 122170434.200
Sampler Initials: RG

GENERAL COMMENTS

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

Package 1	5.0°C

Results relate only to the items tested.

BV Labs Job #: C184479
Report Date: 2021/04/06

QUALITY ASSURANCE REPORT

Stantec Consulting Ltd
Client Project #: 122170434.200
Sampler Initials: RG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7280686	Acid Extractable Molybdenum (Mo)	2021/04/05	102	75 - 125	99	80 - 120	<0.50	ug/g	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.

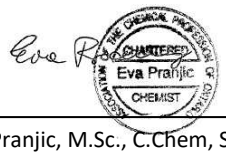
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

BV Labs Job #: C184479
Report Date: 2021/04/06

Stantec Consulting Ltd
Client Project #: 122170434.200
Sampler Initials: RG

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

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

Your Project #: 122170434.200
Your C.O.C. #: 819748-02-01

Attention: Steve Hannington

Stantec Consulting Ltd
1331 Clyde Avenue
Suite 400
Ottawa, ON
CANADA K2C 3G4

Report Date: 2021/04/08
Report #: R6586778
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C185813
Received: 2021/03/31, 14:15

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum (1)	1	N/A	2021/04/06	CAM SOP-00301	EPA 8270D m
Hot Water Extractable Boron (1)	1	2021/04/05	2021/04/06	CAM SOP-00408	R153 Ana. Prot. 2011
1,3-Dichloropropene Sum (1)	1	N/A	2021/04/07		EPA 8260C m
Free (WAD) Cyanide (1)	1	2021/04/06	2021/04/07	CAM SOP-00457	OMOE E3015 m
Conductivity (1)	1	2021/04/06	2021/04/06	CAM SOP-00414	OMOE E3530 v1 m
Hexavalent Chromium in Soil by IC (1, 2)	1	2021/04/05	2021/04/07	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydrocarbons F2-F4 in Soil (1, 3)	1	2021/04/06	2021/04/07	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS (1)	1	2021/04/05	2021/04/07	CAM SOP-00447	EPA 6020B m
Moisture (1)	1	N/A	2021/04/05	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM) (1)	1	2021/04/05	2021/04/06	CAM SOP-00318	EPA 8270D m
Polychlorinated Biphenyl in Soil (1)	1	2021/04/06	2021/04/06	CAM SOP-00309	EPA 8082A m
pH CaCl2 EXTRACT (1)	1	2021/04/06	2021/04/06	CAM SOP-00413	EPA 9045 D m
Sodium Adsorption Ratio (SAR) (1)	1	N/A	2021/04/06	CAM SOP-00102	EPA 6010C
Volatile Organic Compounds and F1 PHCs (1)	1	N/A	2021/04/06	CAM SOP-00230	EPA 8260C m

Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

Your Project #: 122170434.200
Your C.O.C. #: 819748-02-01

Attention: Steve Hannington

Stantec Consulting Ltd
1331 Clyde Avenue
Suite 400
Ottawa, ON
CANADA K2C 3G4

Report Date: 2021/04/08
Report #: R6586778
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C185813

Received: 2021/03/31, 14:15

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Bureau Veritas Laboratories Mississauga

(2) Soils are reported on a dry weight basis unless otherwise specified.

(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories 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.
Julie Clement, Technical Account Manager
Email: Julie.CLEMENT@bureauveritas.com
Phone# (613)868-6079

==========

This report has been generated and distributed using a secure automated process.

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

O.REG 153 METALS & INORGANICS PKG (SOIL)

BV Labs ID		PFH642		
Sampling Date		2021/03/30		
COC Number		819748-02-01		
	UNITS	TP21-5-SHALLOW	RDL	QC Batch
Calculated Parameters				
Sodium Adsorption Ratio	N/A	0.23 (1)		7278082
Inorganics				
Conductivity	mS/cm	0.17	0.002	7283282
Available (CaCl2) pH	pH	7.64		7283201
WAD Cyanide (Free)	ug/g	<0.01	0.01	7284883
Chromium (VI)	ug/g	<0.18	0.18	7281268
Metals				
Hot Water Ext. Boron (B)	ug/g	0.23	0.050	7282141
Acid Extractable Antimony (Sb)	ug/g	<0.20	0.20	7282133
Acid Extractable Arsenic (As)	ug/g	4.0	1.0	7282133
Acid Extractable Barium (Ba)	ug/g	51	0.50	7282133
Acid Extractable Beryllium (Be)	ug/g	0.27	0.20	7282133
Acid Extractable Boron (B)	ug/g	<5.0	5.0	7282133
Acid Extractable Cadmium (Cd)	ug/g	<0.10	0.10	7282133
Acid Extractable Chromium (Cr)	ug/g	14	1.0	7282133
Acid Extractable Cobalt (Co)	ug/g	5.9	0.10	7282133
Acid Extractable Copper (Cu)	ug/g	12	0.50	7282133
Acid Extractable Lead (Pb)	ug/g	11	1.0	7282133
Acid Extractable Molybdenum (Mo)	ug/g	1.6	0.50	7282133
Acid Extractable Nickel (Ni)	ug/g	13	0.50	7282133
Acid Extractable Selenium (Se)	ug/g	<0.50	0.50	7282133
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	7282133
Acid Extractable Thallium (Tl)	ug/g	0.14	0.050	7282133
Acid Extractable Uranium (U)	ug/g	0.58	0.050	7282133
Acid Extractable Vanadium (V)	ug/g	21	5.0	7282133
Acid Extractable Zinc (Zn)	ug/g	31	5.0	7282133
Acid Extractable Mercury (Hg)	ug/g	<0.050	0.050	7282133

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

O.REG 153 PAHS (SOIL)

BV Labs ID		PFH642		
Sampling Date		2021/03/30		
COC Number		819748-02-01		
	UNITS	TP21-5-SHALLOW	RDL	QC Batch
Calculated Parameters				
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	0.0071	7278111
Polyaromatic Hydrocarbons				
Acenaphthene	ug/g	<0.0050	0.0050	7282929
Acenaphthylene	ug/g	0.011	0.0050	7282929
Anthracene	ug/g	0.015	0.0050	7282929
Benzo(a)anthracene	ug/g	0.058	0.0050	7282929
Benzo(a)pyrene	ug/g	0.057	0.0050	7282929
Benzo(b/j)fluoranthene	ug/g	0.074	0.0050	7282929
Benzo(g,h,i)perylene	ug/g	0.039	0.0050	7282929
Benzo(k)fluoranthene	ug/g	0.022	0.0050	7282929
Chrysene	ug/g	0.054	0.0050	7282929
Dibenzo(a,h)anthracene	ug/g	0.0070	0.0050	7282929
Fluoranthene	ug/g	0.12	0.0050	7282929
Fluorene	ug/g	<0.0050	0.0050	7282929
Indeno(1,2,3-cd)pyrene	ug/g	0.043	0.0050	7282929
1-Methylnaphthalene	ug/g	<0.0050	0.0050	7282929
2-Methylnaphthalene	ug/g	<0.0050	0.0050	7282929
Naphthalene	ug/g	<0.0050	0.0050	7282929
Phenanthrene	ug/g	0.049	0.0050	7282929
Pyrene	ug/g	0.098	0.0050	7282929
Surrogate Recovery (%)				
D10-Anthracene	%	89		7282929
D14-Terphenyl (FS)	%	88		7282929
D8-Acenaphthylene	%	89		7282929

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 PCBS (SOIL)

BV Labs ID		PFH642		
Sampling Date		2021/03/30		
COC Number		819748-02-01		
	UNITS	TP21-5-SHALLOW	RDL	QC Batch
PCBs				
Aroclor 1242	ug/g	<0.010	0.010	7284192
Aroclor 1248	ug/g	<0.010	0.010	7284192
Aroclor 1254	ug/g	<0.010	0.010	7284192
Aroclor 1260	ug/g	<0.010	0.010	7284192
Total PCB	ug/g	<0.010	0.010	7284192
Surrogate Recovery (%)				
Decachlorobiphenyl	%	102		7284192

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

BV Labs ID		PFH642		
Sampling Date		2021/03/30		
COC Number		819748-02-01		
	UNITS	TP21-5-SHALLOW	RDL	QC Batch
Inorganics				
Moisture	%	19	1.0	7281896
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	0.050	7278384
Volatile Organics				
Acetone (2-Propanone)	ug/g	<0.50	0.50	7283273
Benzene	ug/g	<0.020	0.020	7283273
Bromodichloromethane	ug/g	<0.050	0.050	7283273
Bromoform	ug/g	<0.050	0.050	7283273
Bromomethane	ug/g	<0.050	0.050	7283273
Carbon Tetrachloride	ug/g	<0.050	0.050	7283273
Chlorobenzene	ug/g	<0.050	0.050	7283273
Chloroform	ug/g	<0.050	0.050	7283273
Dibromochloromethane	ug/g	<0.050	0.050	7283273
1,2-Dichlorobenzene	ug/g	<0.050	0.050	7283273
1,3-Dichlorobenzene	ug/g	<0.050	0.050	7283273
1,4-Dichlorobenzene	ug/g	<0.050	0.050	7283273
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	0.050	7283273
1,1-Dichloroethane	ug/g	<0.050	0.050	7283273
1,2-Dichloroethane	ug/g	<0.050	0.050	7283273
1,1-Dichloroethylene	ug/g	<0.050	0.050	7283273
cis-1,2-Dichloroethylene	ug/g	<0.050	0.050	7283273
trans-1,2-Dichloroethylene	ug/g	<0.050	0.050	7283273
1,2-Dichloropropane	ug/g	<0.050	0.050	7283273
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	7283273
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	7283273
Ethylbenzene	ug/g	<0.020	0.020	7283273
Ethylene Dibromide	ug/g	<0.050	0.050	7283273
Hexane	ug/g	<0.050	0.050	7283273
Methylene Chloride(Dichloromethane)	ug/g	<0.050	0.050	7283273
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	0.50	7283273
Methyl Isobutyl Ketone	ug/g	<0.50	0.50	7283273
Methyl t-butyl ether (MTBE)	ug/g	<0.050	0.050	7283273

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

BV Labs ID		PFH642		
Sampling Date		2021/03/30		
COC Number		819748-02-01		
	UNITS	TP21-5-SHALLOW	RDL	QC Batch
Styrene	ug/g	<0.050	0.050	7283273
1,1,1,2-Tetrachloroethane	ug/g	<0.050	0.050	7283273
1,1,2,2-Tetrachloroethane	ug/g	<0.050	0.050	7283273
Tetrachloroethylene	ug/g	<0.050	0.050	7283273
Toluene	ug/g	<0.020	0.020	7283273
1,1,1-Trichloroethane	ug/g	<0.050	0.050	7283273
1,1,2-Trichloroethane	ug/g	<0.050	0.050	7283273
Trichloroethylene	ug/g	<0.050	0.050	7283273
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	0.050	7283273
Vinyl Chloride	ug/g	<0.020	0.020	7283273
p+m-Xylene	ug/g	<0.020	0.020	7283273
o-Xylene	ug/g	<0.020	0.020	7283273
Total Xylenes	ug/g	<0.020	0.020	7283273
F1 (C6-C10)	ug/g	<10	10	7283273
F1 (C6-C10) - BTEX	ug/g	<10	10	7283273
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/g	<10	10	7283018
F3 (C16-C34 Hydrocarbons)	ug/g	<50	50	7283018
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	7283018
Reached Baseline at C50	ug/g	Yes		7283018
Surrogate Recovery (%)				
o-Terphenyl	%	91		7283018
4-Bromofluorobenzene	%	96		7283273
D10-o-Xylene	%	107		7283273
D4-1,2-Dichloroethane	%	102		7283273
D8-Toluene	%	99		7283273

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs Job #: C185813
Report Date: 2021/04/08

Stantec Consulting Ltd
Client Project #: 122170434.200
Sampler Initials: RG

TEST SUMMARY

BV Labs ID: PFH642
Sample ID: TP21-5-SHALLOW
Matrix: Soil

Collected: 2021/03/30
Shipped:
Received: 2021/03/31

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7278111	N/A	2021/04/06	Automated Statchk
Hot Water Extractable Boron	ICP	7282141	2021/04/05	2021/04/06	Suban Kanapathippllai
1,3-Dichloropropene Sum	CALC	7278384	N/A	2021/04/07	Automated Statchk
Free (WAD) Cyanide	TECH	7284883	2021/04/06	2021/04/07	Aditiben Patel
Conductivity	AT	7283282	2021/04/06	2021/04/06	Tarunpreet Kaur
Hexavalent Chromium in Soil by IC	IC/SPEC	7281268	2021/04/05	2021/04/07	Violeta Porcila
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7283018	2021/04/06	2021/04/07	Ksenia Trofimova
Strong Acid Leachable Metals by ICPMS	ICP/MS	7282133	2021/04/05	2021/04/07	Daniel Teclu
Moisture	BAL	7281896	N/A	2021/04/05	Manpreet Kaur
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7282929	2021/04/05	2021/04/06	Mitesh Raj
Polychlorinated Biphenyl in Soil	GC/ECD	7284192	2021/04/06	2021/04/06	Sarah Huang
pH CaCl2 EXTRACT	AT	7283201	2021/04/06	2021/04/06	Yogesh Patel
Sodium Adsorption Ratio (SAR)	CALC/MET	7278082	N/A	2021/04/06	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7283273	N/A	2021/04/06	Denis Reid

GENERAL COMMENTS

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

Package 1	6.7°C

Results relate only to the items tested.

Bureau Veritas Laboratories 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvlabs.com

BV Labs Job #: C185813
Report Date: 2021/04/08

QUALITY ASSURANCE REPORT

Stantec Consulting Ltd
Client Project #: 122170434.200
Sampler Initials: RG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7282929	D10-Anthracene	2021/04/06	92	50 - 130	94	50 - 130	92	%		
7282929	D14-Terphenyl (FS)	2021/04/06	91	50 - 130	93	50 - 130	90	%		
7282929	D8-Acenaphthylene	2021/04/06	88	50 - 130	94	50 - 130	90	%		
7283018	o-Terphenyl	2021/04/07	93	60 - 130	94	60 - 130	96	%		
7283273	4-Bromofluorobenzene	2021/04/06	101	60 - 140	103	60 - 140	100	%		
7283273	D10-o-Xylene	2021/04/06	110	60 - 130	97	60 - 130	109	%		
7283273	D4-1,2-Dichloroethane	2021/04/06	110	60 - 140	116	60 - 140	115	%		
7283273	D8-Toluene	2021/04/06	103	60 - 140	103	60 - 140	99	%		
7284192	Decachlorobiphenyl	2021/04/06	95	60 - 130	102	60 - 130	94	%		
7281268	Chromium (VI)	2021/04/07	83	70 - 130	91	80 - 120	<0.18	ug/g	NC	35
7281896	Moisture	2021/04/05							3.9	20
7282133	Acid Extractable Antimony (Sb)	2021/04/07	99	75 - 125	104	80 - 120	<0.20	ug/g		
7282133	Acid Extractable Arsenic (As)	2021/04/07	99	75 - 125	101	80 - 120	<1.0	ug/g		
7282133	Acid Extractable Barium (Ba)	2021/04/07	99	75 - 125	97	80 - 120	<0.50	ug/g		
7282133	Acid Extractable Beryllium (Be)	2021/04/07	100	75 - 125	98	80 - 120	<0.20	ug/g		
7282133	Acid Extractable Boron (B)	2021/04/07	95	75 - 125	94	80 - 120	<5.0	ug/g		
7282133	Acid Extractable Cadmium (Cd)	2021/04/07	96	75 - 125	101	80 - 120	<0.10	ug/g		
7282133	Acid Extractable Chromium (Cr)	2021/04/07	100	75 - 125	98	80 - 120	<1.0	ug/g		
7282133	Acid Extractable Cobalt (Co)	2021/04/07	98	75 - 125	100	80 - 120	<0.10	ug/g		
7282133	Acid Extractable Copper (Cu)	2021/04/07	102	75 - 125	98	80 - 120	<0.50	ug/g		
7282133	Acid Extractable Lead (Pb)	2021/04/07	91	75 - 125	94	80 - 120	<1.0	ug/g	26	30
7282133	Acid Extractable Mercury (Hg)	2021/04/07	85	75 - 125	91	80 - 120	<0.050	ug/g		
7282133	Acid Extractable Molybdenum (Mo)	2021/04/07	93	75 - 125	97	80 - 120	<0.50	ug/g		
7282133	Acid Extractable Nickel (Ni)	2021/04/07	100	75 - 125	102	80 - 120	<0.50	ug/g		
7282133	Acid Extractable Selenium (Se)	2021/04/07	97	75 - 125	101	80 - 120	<0.50	ug/g		
7282133	Acid Extractable Silver (Ag)	2021/04/07	98	75 - 125	103	80 - 120	<0.20	ug/g		
7282133	Acid Extractable Thallium (Tl)	2021/04/07	93	75 - 125	98	80 - 120	<0.050	ug/g		
7282133	Acid Extractable Uranium (U)	2021/04/07	95	75 - 125	99	80 - 120	<0.050	ug/g		
7282133	Acid Extractable Vanadium (V)	2021/04/07	111	75 - 125	98	80 - 120	<5.0	ug/g		
7282133	Acid Extractable Zinc (Zn)	2021/04/07	100	75 - 125	99	80 - 120	<5.0	ug/g		
7282141	Hot Water Ext. Boron (B)	2021/04/06	100	75 - 125	101	75 - 125	<0.050	ug/g	3.4	40
7282929	1-Methylnaphthalene	2021/04/06	87	50 - 130	88	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
7282929	2-Methylnaphthalene	2021/04/06	81	50 - 130	84	50 - 130	<0.0050	ug/g	NC	40
7282929	Acenaphthene	2021/04/06	91	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
7282929	Acenaphthylene	2021/04/06	86	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40
7282929	Anthracene	2021/04/06	95	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
7282929	Benzo(a)anthracene	2021/04/06	104	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
7282929	Benzo(a)pyrene	2021/04/06	84	50 - 130	80	50 - 130	<0.0050	ug/g	26	40
7282929	Benzo(b/j)fluoranthene	2021/04/06	83	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
7282929	Benzo(g,h,i)perylene	2021/04/06	87	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40
7282929	Benzo(k)fluoranthene	2021/04/06	83	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
7282929	Chrysene	2021/04/06	101	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40
7282929	Dibenzo(a,h)anthracene	2021/04/06	91	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
7282929	Fluoranthene	2021/04/06	112	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
7282929	Fluorene	2021/04/06	91	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
7282929	Indeno(1,2,3-cd)pyrene	2021/04/06	91	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
7282929	Naphthalene	2021/04/06	74	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40
7282929	Phenanthrene	2021/04/06	114	50 - 130	94	50 - 130	<0.0050	ug/g	18	40
7282929	Pyrene	2021/04/06	109	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40
7283018	F2 (C10-C16 Hydrocarbons)	2021/04/07	100	50 - 130	99	80 - 120	<10	ug/g	NC	30
7283018	F3 (C16-C34 Hydrocarbons)	2021/04/07	100	50 - 130	99	80 - 120	<50	ug/g	NC	30
7283018	F4 (C34-C50 Hydrocarbons)	2021/04/07	102	50 - 130	101	80 - 120	<50	ug/g	NC	30
7283201	Available (CaCl2) pH	2021/04/06			101	97 - 103			1.5	N/A
7283273	1,1,1,2-Tetrachloroethane	2021/04/06	101	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
7283273	1,1,1-Trichloroethane	2021/04/06	106	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
7283273	1,1,2,2-Tetrachloroethane	2021/04/06	82	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
7283273	1,1,2-Trichloroethane	2021/04/06	96	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
7283273	1,1-Dichloroethane	2021/04/06	91	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
7283273	1,1-Dichloroethylene	2021/04/06	101	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
7283273	1,2-Dichlorobenzene	2021/04/06	89	60 - 140	88	60 - 130	<0.050	ug/g	NC	50
7283273	1,2-Dichloroethane	2021/04/06	92	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
7283273	1,2-Dichloropropane	2021/04/06	84	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
7283273	1,3-Dichlorobenzene	2021/04/06	92	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
7283273	1,4-Dichlorobenzene	2021/04/06	108	60 - 140	104	60 - 130	<0.050	ug/g	NC	50

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
7283273	Acetone (2-Propanone)	2021/04/06	85	60 - 140	102	60 - 140	<0.50	ug/g	NC	50
7283273	Benzene	2021/04/06	84	60 - 140	86	60 - 130	<0.020	ug/g	NC	50
7283273	Bromodichloromethane	2021/04/06	99	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
7283273	Bromoform	2021/04/06	105	60 - 140	117	60 - 130	<0.050	ug/g	NC	50
7283273	Bromomethane	2021/04/06	102	60 - 140	98	60 - 140	<0.050	ug/g	NC	50
7283273	Carbon Tetrachloride	2021/04/06	111	60 - 140	110	60 - 130	<0.050	ug/g	NC	50
7283273	Chlorobenzene	2021/04/06	91	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
7283273	Chloroform	2021/04/06	98	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
7283273	cis-1,2-Dichloroethylene	2021/04/06	94	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
7283273	cis-1,3-Dichloropropene	2021/04/06	89	60 - 140	89	60 - 130	<0.030	ug/g	NC	50
7283273	Dibromochloromethane	2021/04/06	97	60 - 140	103	60 - 130	<0.050	ug/g	NC	50
7283273	Dichlorodifluoromethane (FREON 12)	2021/04/06	110	60 - 140	108	60 - 140	<0.050	ug/g	NC	50
7283273	Ethylbenzene	2021/04/06	89	60 - 140	86	60 - 130	<0.020	ug/g	NC	50
7283273	Ethylene Dibromide	2021/04/06	84	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
7283273	F1 (C6-C10) - BTEX	2021/04/06					<10	ug/g	19	30
7283273	F1 (C6-C10)	2021/04/06	81	60 - 140	92	80 - 120	<10	ug/g	19	30
7283273	Hexane	2021/04/06	89	60 - 140	86	60 - 130	<0.050	ug/g	26	50
7283273	Methyl Ethyl Ketone (2-Butanone)	2021/04/06	83	60 - 140	103	60 - 140	<0.50	ug/g	NC	50
7283273	Methyl Isobutyl Ketone	2021/04/06	82	60 - 140	100	60 - 130	<0.50	ug/g	NC	50
7283273	Methyl t-butyl ether (MTBE)	2021/04/06	89	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
7283273	Methylene Chloride(Dichloromethane)	2021/04/06	98	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
7283273	o-Xylene	2021/04/06	90	60 - 140	88	60 - 130	<0.020	ug/g	NC	50
7283273	p+m-Xylene	2021/04/06	94	60 - 140	90	60 - 130	<0.020	ug/g	31	50
7283273	Styrene	2021/04/06	96	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
7283273	Tetrachloroethylene	2021/04/06	88	60 - 140	85	60 - 130	<0.050	ug/g	NC	50
7283273	Toluene	2021/04/06	89	60 - 140	88	60 - 130	<0.020	ug/g	NC	50
7283273	Total Xylenes	2021/04/06					<0.020	ug/g	31	50
7283273	trans-1,2-Dichloroethylene	2021/04/06	90	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
7283273	trans-1,3-Dichloropropene	2021/04/06	102	60 - 140	96	60 - 130	<0.040	ug/g	NC	50
7283273	Trichloroethylene	2021/04/06	95	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
7283273	Trichlorofluoromethane (FREON 11)	2021/04/06	116	60 - 140	112	60 - 130	<0.050	ug/g	NC	50
7283273	Vinyl Chloride	2021/04/06	99	60 - 140	99	60 - 130	<0.020	ug/g	NC	50

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
7283282	Conductivity	2021/04/06			100	90 - 110	<0.002	mS/cm	3.2	10
7284192	Aroclor 1242	2021/04/06					<0.010	ug/g	NC	50
7284192	Aroclor 1248	2021/04/06					<0.010	ug/g	3.1	50
7284192	Aroclor 1254	2021/04/06					<0.010	ug/g	13	50
7284192	Aroclor 1260	2021/04/06	76	30 - 130	101	30 - 130	<0.010	ug/g	3.2	50
7284192	Total PCB	2021/04/06	76	30 - 130	101	30 - 130	<0.010	ug/g	5.3	50
7284883	WAD Cyanide (Free)	2021/04/07	98	75 - 125	93	80 - 120	<0.01	ug/g	NC	35

N/A = Not Applicable

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

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

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

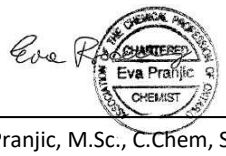
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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

NC (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).

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

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

Bureau Veritas Laboratories 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvlabs.com

Your Project #: 122170434
Your C.O.C. #: 815870-01-01

Attention: Steve Hannington

Stantec Consulting Ltd
1331 Clyde Avenue
Suite 400
Ottawa, ON
CANADA K2C 3G4

Report Date: 2021/06/14
Report #: R6675523
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1F5620
Received: 2021/06/07, 09:00

Sample Matrix: Ground Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum (1)	4	N/A	2021/06/11	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum (1)	5	N/A	2021/06/12		EPA 8260C m
Chloride by Automated Colourimetry (1)	4	N/A	2021/06/10	CAM SOP-00463	SM 23 4500-Cl E m
Chromium (VI) in Water (1)	4	N/A	2021/06/10	CAM SOP-00436	EPA 7199 m
Free (WAD) Cyanide (1)	4	N/A	2021/06/11	CAM SOP-00457	OMOE E3015 m
Petroleum Hydrocarbons F2-F4 in Water (1, 2)	4	2021/06/10	2021/06/11	CAM SOP-00316	CCME PHC-CWS m
Mercury (1)	3	2021/06/10	2021/06/10	CAM SOP-00453	EPA 7470A m
Mercury (1)	1	2021/06/09	2021/06/10	CAM SOP-00453	EPA 7470A m
Dissolved Metals by ICPMS (1)	4	N/A	2021/06/11	CAM SOP-00447	EPA 6020B m
PAH Compounds in Water by GC/MS (SIM) (1)	4	2021/06/10	2021/06/11	CAM SOP-00318	EPA 8270D m
Polychlorinated Biphenyl in Water (1)	4	2021/06/10	2021/06/11	CAM SOP-00309	EPA 8082A m
Volatile Organic Compounds and F1 PHCs (1)	5	N/A	2021/06/11	CAM SOP-00230	EPA 8260C m

Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas 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 Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

Your Project #: 122170434
Your C.O.C. #: 815870-01-01

Attention: Steve Hannington

Stantec Consulting Ltd
1331 Clyde Avenue
Suite 400
Ottawa, ON
CANADA K2C 3G4

Report Date: 2021/06/14
Report #: R6675523
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1F5620

Received: 2021/06/07, 09:00

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 Bureau Veritas Mississauga

(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories 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.
Julie Clement, Technical Account Manager
Email: Julie.CLEMENT@bureauveritas.com
Phone# (613)868-6079

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This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Stantec Consulting Ltd
Client Project #: 122170434
Sampler Initials: RG

VOLATILE ORGANICS BY GC/MS (GROUND WATER)

BV Labs ID		PTT821		
Sampling Date		2021/06/04 16:00		
COC Number		815870-01-01		
	UNITS	TRIP BLANK	RDL	QC Batch
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	7395293
Volatile Organics				
Acetone (2-Propanone)	ug/L	<10	10	7398575
Benzene	ug/L	<0.20	0.20	7398575
Bromodichloromethane	ug/L	<0.50	0.50	7398575
Bromoform	ug/L	<1.0	1.0	7398575
Bromomethane	ug/L	<0.50	0.50	7398575
Carbon Tetrachloride	ug/L	<0.20	0.20	7398575
Chlorobenzene	ug/L	<0.20	0.20	7398575
Chloroform	ug/L	<0.20	0.20	7398575
Dibromochloromethane	ug/L	<0.50	0.50	7398575
1,2-Dichlorobenzene	ug/L	<0.50	0.50	7398575
1,3-Dichlorobenzene	ug/L	<0.50	0.50	7398575
1,4-Dichlorobenzene	ug/L	<0.50	0.50	7398575
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	7398575
1,1-Dichloroethane	ug/L	<0.20	0.20	7398575
1,2-Dichloroethane	ug/L	<0.50	0.50	7398575
1,1-Dichloroethylene	ug/L	<0.20	0.20	7398575
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	7398575
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	7398575
1,2-Dichloropropane	ug/L	<0.20	0.20	7398575
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	7398575
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	7398575
Ethylbenzene	ug/L	<0.20	0.20	7398575
Ethylene Dibromide	ug/L	<0.20	0.20	7398575
Hexane	ug/L	<1.0	1.0	7398575
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	7398575
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	7398575
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	7398575
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	7398575
Styrene	ug/L	<0.50	0.50	7398575

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Stantec Consulting Ltd
Client Project #: 122170434
Sampler Initials: RG

VOLATILE ORGANICS BY GC/MS (GROUND WATER)

BV Labs ID		PTT821		
Sampling Date		2021/06/04 16:00		
COC Number		815870-01-01		
	UNITS	TRIP BLANK	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	7398575
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	7398575
Tetrachloroethylene	ug/L	<0.20	0.20	7398575
Toluene	ug/L	<0.20	0.20	7398575
1,1,1-Trichloroethane	ug/L	<0.20	0.20	7398575
1,1,2-Trichloroethane	ug/L	<0.50	0.50	7398575
Trichloroethylene	ug/L	<0.20	0.20	7398575
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	7398575
Vinyl Chloride	ug/L	<0.20	0.20	7398575
p+m-Xylene	ug/L	<0.20	0.20	7398575
o-Xylene	ug/L	<0.20	0.20	7398575
Total Xylenes	ug/L	<0.20	0.20	7398575
F1 (C6-C10)	ug/L	<25	25	7398575
F1 (C6-C10) - BTEX	ug/L	<25	25	7398575
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	84		7398575
D4-1,2-Dichloroethane	%	128		7398575
D8-Toluene	%	87		7398575

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs Job #: C1F5620
Report Date: 2021/06/14

Stantec Consulting Ltd
Client Project #: 122170434
Sampler Initials: RG

O.REG 153 METALS & INORGANICS PKG (WTR)

BV Labs ID		PTT817			PTT817			PTT818	PTT819		
Sampling Date		2021/06/04 11:30			2021/06/04 11:30			2021/06/04 12:30	2021/06/04 14:30		
COC Number		815870-01-01			815870-01-01			815870-01-01	815870-01-01		
	UNITS	MW20-2	RDL	QC Batch	MW20-2 Lab-Dup	RDL	QC Batch	MW20-6	MW20-4	RDL	QC Batch
Inorganics											
WAD Cyanide (Free)	ug/L	<1	1	7403583	<1	1	7403583	2	<1	1	7403583
Dissolved Chloride (Cl-)	mg/L	34	1.0	7398978				48	41	1.0	7398978
Metals											
Chromium (VI)	ug/L	<0.50	0.50	7398327	<0.50	0.50	7398327	<0.50	<0.50	0.50	7398327
Mercury (Hg)	ug/L	<0.10	0.10	7399950				<0.10	<0.10	0.10	7399950
Dissolved Antimony (Sb)	ug/L	<0.50	0.50	7401617				<0.50	<0.50	0.50	7401617
Dissolved Arsenic (As)	ug/L	<1.0	1.0	7401617				<1.0	<1.0	1.0	7401617
Dissolved Barium (Ba)	ug/L	170	2.0	7401617				130	69	2.0	7401617
Dissolved Beryllium (Be)	ug/L	<0.40	0.40	7401617				<0.40	<0.40	0.40	7401617
Dissolved Boron (B)	ug/L	28	10	7401617				36	12	10	7401617
Dissolved Cadmium (Cd)	ug/L	<0.090	0.090	7401617				<0.090	<0.090	0.090	7401617
Dissolved Chromium (Cr)	ug/L	<5.0	5.0	7401617				<5.0	<5.0	5.0	7401617
Dissolved Cobalt (Co)	ug/L	<0.50	0.50	7401617				<0.50	<0.50	0.50	7401617
Dissolved Copper (Cu)	ug/L	1.2	0.90	7401617				15	<0.90	0.90	7401617
Dissolved Lead (Pb)	ug/L	<0.50	0.50	7401617				<0.50	<0.50	0.50	7401617
Dissolved Molybdenum (Mo)	ug/L	2.7	0.50	7401617				4.3	<0.50	0.50	7401617
Dissolved Nickel (Ni)	ug/L	1.3	1.0	7401617				1.0	1.7	1.0	7401617
Dissolved Selenium (Se)	ug/L	<2.0	2.0	7401617				<2.0	<2.0	2.0	7401617
Dissolved Silver (Ag)	ug/L	<0.090	0.090	7401617				<0.090	<0.090	0.090	7401617
Dissolved Sodium (Na)	ug/L	33000	100	7401617				27000	27000	100	7401617
Dissolved Thallium (Tl)	ug/L	<0.050	0.050	7401617				<0.050	<0.050	0.050	7401617
Dissolved Uranium (U)	ug/L	1.3	0.10	7401617				0.89	0.51	0.10	7401617
Dissolved Vanadium (V)	ug/L	<0.50	0.50	7401617				<0.50	<0.50	0.50	7401617
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	7401617				<5.0	<5.0	5.0	7401617

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

O.REG 153 METALS & INORGANICS PKG (WTR)

BV Labs ID		PTT820		
Sampling Date		2021/06/04		
COC Number		815870-01-01		
	UNITS	QC-1	RDL	QC Batch
Inorganics				
WAD Cyanide (Free)	ug/L	<1	1	7403583
Dissolved Chloride (Cl-)	mg/L	34	1.0	7398978
Metals				
Chromium (VI)	ug/L	<0.50	0.50	7398327
Mercury (Hg)	ug/L	<0.10	0.10	7398258
Dissolved Antimony (Sb)	ug/L	<0.50	0.50	7401617
Dissolved Arsenic (As)	ug/L	<1.0	1.0	7401617
Dissolved Barium (Ba)	ug/L	180	2.0	7401617
Dissolved Beryllium (Be)	ug/L	<0.40	0.40	7401617
Dissolved Boron (B)	ug/L	29	10	7401617
Dissolved Cadmium (Cd)	ug/L	<0.090	0.090	7401617
Dissolved Chromium (Cr)	ug/L	<5.0	5.0	7401617
Dissolved Cobalt (Co)	ug/L	<0.50	0.50	7401617
Dissolved Copper (Cu)	ug/L	3.7	0.90	7401617
Dissolved Lead (Pb)	ug/L	<0.50	0.50	7401617
Dissolved Molybdenum (Mo)	ug/L	2.6	0.50	7401617
Dissolved Nickel (Ni)	ug/L	1.4	1.0	7401617
Dissolved Selenium (Se)	ug/L	<2.0	2.0	7401617
Dissolved Silver (Ag)	ug/L	<0.090	0.090	7401617
Dissolved Sodium (Na)	ug/L	34000	100	7401617
Dissolved Thallium (Tl)	ug/L	<0.050	0.050	7401617
Dissolved Uranium (U)	ug/L	1.2	0.10	7401617
Dissolved Vanadium (V)	ug/L	<0.50	0.50	7401617
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	7401617

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 PAHS (GROUND WATER)

BV Labs ID		PTT817	PTT818	PTT819	PTT820		
Sampling Date		2021/06/04 11:30	2021/06/04 12:30	2021/06/04 14:30	2021/06/04		
COC Number		815870-01-01	815870-01-01	815870-01-01	815870-01-01		
	UNITS	MW20-2	MW20-6	MW20-4	QC-1	RDL	QC Batch
Calculated Parameters							
Methylnaphthalene, 2-(1-)	ug/L	<0.071	<0.071	<0.071	<0.071	0.071	7394831
Polyaromatic Hydrocarbons							
Acenaphthene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
Acenaphthylene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
Anthracene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
Benzo(a)anthracene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
Benzo(a)pyrene	ug/L	<0.0090	<0.0090	<0.0090	<0.0090	0.0090	7399709
Benzo(b/j)fluoranthene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
Benzo(g,h,i)perylene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
Benzo(k)fluoranthene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
Chrysene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
Dibenzo(a,h)anthracene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
Fluoranthene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
Fluorene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
1-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
2-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
Naphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
Phenanthrene	ug/L	<0.030	<0.030	<0.030	<0.030	0.030	7399709
Pyrene	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7399709
Surrogate Recovery (%)							
D10-Anthracene	%	90	109	113	107		7399709
D14-Terphenyl (FS)	%	114	124	129	121		7399709
D8-Acenaphthylene	%	97	105	111	105		7399709

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

O.REG 153 PCBS (WATER)

BV Labs ID		PTT817	PTT818	PTT819	PTT820		
Sampling Date		2021/06/04 11:30	2021/06/04 12:30	2021/06/04 14:30	2021/06/04		
COC Number		815870-01-01	815870-01-01	815870-01-01	815870-01-01		
	UNITS	MW20-2	MW20-6	MW20-4	QC-1	RDL	QC Batch
PCBs							
Aroclor 1242	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7400288
Aroclor 1248	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7400288
Aroclor 1254	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7400288
Aroclor 1260	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7400288
Total PCB	ug/L	<0.05	<0.05	<0.05	<0.05	0.05	7400288
Surrogate Recovery (%)							
Decachlorobiphenyl	%	100	108	90	108		7400288

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

BV Labs ID		PTT817			PTT817			PTT818		
Sampling Date		2021/06/04 11:30			2021/06/04 11:30			2021/06/04 12:30		
COC Number		815870-01-01			815870-01-01			815870-01-01		
	UNITS	MW20-2	RDL	QC Batch	MW20-2 Lab-Dup	RDL	QC Batch	MW20-6	RDL	QC Batch
Calculated Parameters										
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	7395293				<0.50	0.50	7395293
Volatile Organics										
Acetone (2-Propanone)	ug/L	<10	10	7398575	<10	10	7398575	<10	10	7398575
Benzene	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
Bromodichloromethane	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575
Bromoform	ug/L	<1.0	1.0	7398575	<1.0	1.0	7398575	<1.0	1.0	7398575
Bromomethane	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575
Carbon Tetrachloride	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
Chlorobenzene	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
Chloroform	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
Dibromochloromethane	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575
1,2-Dichlorobenzene	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575
1,3-Dichlorobenzene	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575
1,4-Dichlorobenzene	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	7398575	<1.0	1.0	7398575	<1.0	1.0	7398575
1,1-Dichloroethane	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
1,2-Dichloroethane	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575
1,1-Dichloroethylene	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575
1,2-Dichloropropane	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	7398575	<0.30	0.30	7398575	<0.30	0.30	7398575
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	7398575	<0.40	0.40	7398575	<0.40	0.40	7398575
Ethylbenzene	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
Ethylene Dibromide	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
Hexane	ug/L	<1.0	1.0	7398575	<1.0	1.0	7398575	<1.0	1.0	7398575
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	7398575	<2.0	2.0	7398575	<2.0	2.0	7398575
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	7398575	<10	10	7398575	<10	10	7398575
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	7398575	<5.0	5.0	7398575	<5.0	5.0	7398575
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575
Styrene	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575

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

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

BV Labs ID		PTT817			PTT817			PTT818		
Sampling Date		2021/06/04 11:30			2021/06/04 11:30			2021/06/04 12:30		
COC Number		815870-01-01			815870-01-01			815870-01-01		
	UNITS	MW20-2	RDL	QC Batch	MW20-2 Lab-Dup	RDL	QC Batch	MW20-6	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575
Tetrachloroethylene	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
Toluene	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
1,1,1-Trichloroethane	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
1,1,2-Trichloroethane	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575
Trichloroethylene	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	7398575	<0.50	0.50	7398575	<0.50	0.50	7398575
Vinyl Chloride	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
p+m-Xylene	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
o-Xylene	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
Total Xylenes	ug/L	<0.20	0.20	7398575	<0.20	0.20	7398575	<0.20	0.20	7398575
F1 (C6-C10)	ug/L	<25	25	7398575	<25	25	7398575	<25	25	7398575
F1 (C6-C10) - BTEX	ug/L	<25	25	7398575	<25	25	7398575	<25	25	7398575
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	7399712				<100	100	7399712
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	7399712				<200	200	7399712
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	7399712				<200	200	7399712
Reached Baseline at C50	ug/L	Yes		7399712				Yes		7399712
Surrogate Recovery (%)										
o-Terphenyl	%	87		7399712				82		7399712
4-Bromofluorobenzene	%	90		7398575	83		7398575	89		7398575
D4-1,2-Dichloroethane	%	124		7398575	130		7398575	109		7398575
D8-Toluene	%	94		7398575	85		7398575	88		7398575

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

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

BV Labs ID		PTT819	PTT820		
Sampling Date		2021/06/04 14:30	2021/06/04		
COC Number		815870-01-01	815870-01-01		
	UNITS	MW20-4	QC-1	RDL	QC Batch
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	0.50	7395293
Volatile Organics					
Acetone (2-Propanone)	ug/L	<10	<10	10	7398575
Benzene	ug/L	<0.20	<0.20	0.20	7398575
Bromodichloromethane	ug/L	<0.50	<0.50	0.50	7398575
Bromoform	ug/L	<1.0	<1.0	1.0	7398575
Bromomethane	ug/L	<0.50	<0.50	0.50	7398575
Carbon Tetrachloride	ug/L	<0.20	<0.20	0.20	7398575
Chlorobenzene	ug/L	<0.20	<0.20	0.20	7398575
Chloroform	ug/L	<0.20	<0.20	0.20	7398575
Dibromochloromethane	ug/L	<0.50	<0.50	0.50	7398575
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	7398575
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	7398575
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	7398575
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	1.0	7398575
1,1-Dichloroethane	ug/L	<0.20	<0.20	0.20	7398575
1,2-Dichloroethane	ug/L	<0.50	<0.50	0.50	7398575
1,1-Dichloroethylene	ug/L	<0.20	<0.20	0.20	7398575
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	7398575
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	7398575
1,2-Dichloropropane	ug/L	<0.20	<0.20	0.20	7398575
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	0.30	7398575
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	0.40	7398575
Ethylbenzene	ug/L	<0.20	<0.20	0.20	7398575
Ethylene Dibromide	ug/L	<0.20	<0.20	0.20	7398575
Hexane	ug/L	<1.0	<1.0	1.0	7398575
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	7398575
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	10	7398575
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	5.0	7398575
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	0.50	7398575
Styrene	ug/L	<0.50	<0.50	0.50	7398575

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

BV Labs ID		PTT819	PTT820		
Sampling Date		2021/06/04 14:30	2021/06/04		
COC Number		815870-01-01	815870-01-01		
	UNITS	MW20-4	QC-1	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	7398575
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	7398575
Tetrachloroethylene	ug/L	<0.20	<0.20	0.20	7398575
Toluene	ug/L	<0.20	<0.20	0.20	7398575
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	0.20	7398575
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	0.50	7398575
Trichloroethylene	ug/L	<0.20	<0.20	0.20	7398575
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	0.50	7398575
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	7398575
p+m-Xylene	ug/L	<0.20	<0.20	0.20	7398575
o-Xylene	ug/L	<0.20	<0.20	0.20	7398575
Total Xylenes	ug/L	<0.20	<0.20	0.20	7398575
F1 (C6-C10)	ug/L	<25	<25	25	7398575
F1 (C6-C10) - BTEX	ug/L	<25	<25	25	7398575
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	100	7399712
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	200	7399712
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	200	7399712
Reached Baseline at C50	ug/L	Yes	Yes		7399712
Surrogate Recovery (%)					
o-Terphenyl	%	88	88		7399712
4-Bromofluorobenzene	%	87	87		7398575
D4-1,2-Dichloroethane	%	115	113		7398575
D8-Toluene	%	88	87		7398575

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

TEST SUMMARY

BV Labs ID: PTT817
Sample ID: MW20-2
Matrix: Ground Water

Collected: 2021/06/04
Shipped:
Received: 2021/06/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7394831	N/A	2021/06/11	Automated Statchk
1,3-Dichloropropene Sum	CALC	7395293	N/A	2021/06/12	Automated Statchk
Chloride by Automated Colourimetry	KONE	7398978	N/A	2021/06/10	Alina Dobreanu
Chromium (VI) in Water	IC	7398327	N/A	2021/06/10	Lang Le
Free (WAD) Cyanide	SKAL/CN	7403583	N/A	2021/06/11	Aditiben Patel
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	7399712	2021/06/10	2021/06/11	Dennis Ngondu
Mercury	CV/AA	7399950	2021/06/10	2021/06/10	Gagandeep Rai
Dissolved Metals by ICPMS	ICP/MS	7401617	N/A	2021/06/11	Nan Raykha
PAH Compounds in Water by GC/MS (SIM)	GC/MS	7399709	2021/06/10	2021/06/11	Mitesh Raj
Polychlorinated Biphenyl in Water	GC/ECD	7400288	2021/06/10	2021/06/11	Svitlana Shaula
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7398575	N/A	2021/06/11	Yang (Philip) Yu

BV Labs ID: PTT817 Dup
Sample ID: MW20-2
Matrix: Ground Water

Collected: 2021/06/04
Shipped:
Received: 2021/06/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chromium (VI) in Water	IC	7398327	N/A	2021/06/10	Lang Le
Free (WAD) Cyanide	SKAL/CN	7403583	N/A	2021/06/11	Aditiben Patel
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7398575	N/A	2021/06/11	Yang (Philip) Yu

BV Labs ID: PTT818
Sample ID: MW20-6
Matrix: Ground Water

Collected: 2021/06/04
Shipped:
Received: 2021/06/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7394831	N/A	2021/06/11	Automated Statchk
1,3-Dichloropropene Sum	CALC	7395293	N/A	2021/06/12	Automated Statchk
Chloride by Automated Colourimetry	KONE	7398978	N/A	2021/06/10	Alina Dobreanu
Chromium (VI) in Water	IC	7398327	N/A	2021/06/10	Lang Le
Free (WAD) Cyanide	SKAL/CN	7403583	N/A	2021/06/11	Aditiben Patel
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	7399712	2021/06/10	2021/06/11	Dennis Ngondu
Mercury	CV/AA	7399950	2021/06/10	2021/06/10	Gagandeep Rai
Dissolved Metals by ICPMS	ICP/MS	7401617	N/A	2021/06/11	Nan Raykha
PAH Compounds in Water by GC/MS (SIM)	GC/MS	7399709	2021/06/10	2021/06/11	Mitesh Raj
Polychlorinated Biphenyl in Water	GC/ECD	7400288	2021/06/10	2021/06/11	Svitlana Shaula
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7398575	N/A	2021/06/11	Yang (Philip) Yu

BV Labs ID: PTT819
Sample ID: MW20-4
Matrix: Ground Water

Collected: 2021/06/04
Shipped:
Received: 2021/06/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7394831	N/A	2021/06/11	Automated Statchk
1,3-Dichloropropene Sum	CALC	7395293	N/A	2021/06/12	Automated Statchk
Chloride by Automated Colourimetry	KONE	7398978	N/A	2021/06/10	Alina Dobreanu

TEST SUMMARY

BV Labs ID: PTT819
Sample ID: MW20-4
Matrix: Ground Water

Collected: 2021/06/04
Shipped:
Received: 2021/06/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chromium (VI) in Water	IC	7398327	N/A	2021/06/10	Lang Le
Free (WAD) Cyanide	SKAL/CN	7403583	N/A	2021/06/11	Aditiben Patel
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	7399712	2021/06/10	2021/06/11	Dennis Ngondu
Mercury	CV/AA	7399950	2021/06/10	2021/06/10	Gagandeep Rai
Dissolved Metals by ICPMS	ICP/MS	7401617	N/A	2021/06/11	Nan Raykha
PAH Compounds in Water by GC/MS (SIM)	GC/MS	7399709	2021/06/10	2021/06/11	Mitesh Raj
Polychlorinated Biphenyl in Water	GC/ECD	7400288	2021/06/10	2021/06/11	Svitlana Shaula
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7398575	N/A	2021/06/11	Yang (Philip) Yu

BV Labs ID: PTT820
Sample ID: QC-1
Matrix: Ground Water

Collected: 2021/06/04
Shipped:
Received: 2021/06/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7394831	N/A	2021/06/11	Automated Statchk
1,3-Dichloropropene Sum	CALC	7395293	N/A	2021/06/12	Automated Statchk
Chloride by Automated Colourimetry	KONE	7398978	N/A	2021/06/10	Alina Dobreanu
Chromium (VI) in Water	IC	7398327	N/A	2021/06/10	Lang Le
Free (WAD) Cyanide	SKAL/CN	7403583	N/A	2021/06/11	Aditiben Patel
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	7399712	2021/06/10	2021/06/11	Dennis Ngondu
Mercury	CV/AA	7398258	2021/06/09	2021/06/10	Gagandeep Rai
Dissolved Metals by ICPMS	ICP/MS	7401617	N/A	2021/06/11	Nan Raykha
PAH Compounds in Water by GC/MS (SIM)	GC/MS	7399709	2021/06/10	2021/06/11	Mitesh Raj
Polychlorinated Biphenyl in Water	GC/ECD	7400288	2021/06/10	2021/06/11	Svitlana Shaula
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7398575	N/A	2021/06/11	Yang (Philip) Yu

BV Labs ID: PTT821
Sample ID: TRIP BLANK
Matrix: Ground Water

Collected: 2021/06/04
Shipped:
Received: 2021/06/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7395293	N/A	2021/06/12	Automated Statchk
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7398575	N/A	2021/06/11	Yang (Philip) Yu

GENERAL COMMENTS

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

Package 1	4.3°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7398575	4-Bromofluorobenzene	2021/06/11	108	70 - 130	107	70 - 130	92	%		
7398575	D4-1,2-Dichloroethane	2021/06/11	107	70 - 130	101	70 - 130	111	%		
7398575	D8-Toluene	2021/06/11	117	70 - 130	98	70 - 130	92	%		
7399709	D10-Anthracene	2021/06/10	108	50 - 130	117	50 - 130	125	%		
7399709	D14-Terphenyl (FS)	2021/06/10	115	50 - 130	122	50 - 130	122	%		
7399709	D8-Acenaphthylene	2021/06/10	97	50 - 130	109	50 - 130	101	%		
7399712	o-Terphenyl	2021/06/11	92	60 - 130	92	60 - 130	87	%		
7400288	Decachlorobiphenyl	2021/06/11	89	60 - 130	88	60 - 130	105	%		
7398258	Mercury (Hg)	2021/06/10	94	75 - 125	96	80 - 120	<0.10	ug/L	NC	20
7398327	Chromium (VI)	2021/06/10	94	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
7398575	1,1,1,2-Tetrachloroethane	2021/06/11	105	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
7398575	1,1,1-Trichloroethane	2021/06/11	101	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
7398575	1,1,2,2-Tetrachloroethane	2021/06/11	105	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
7398575	1,1,2-Trichloroethane	2021/06/11	113	70 - 130	90	70 - 130	<0.50	ug/L	NC	30
7398575	1,1-Dichloroethane	2021/06/11	88	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
7398575	1,1-Dichloroethylene	2021/06/11	86	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
7398575	1,2-Dichlorobenzene	2021/06/11	92	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
7398575	1,2-Dichloroethane	2021/06/11	97	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
7398575	1,2-Dichloropropane	2021/06/11	103	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
7398575	1,3-Dichlorobenzene	2021/06/11	92	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
7398575	1,4-Dichlorobenzene	2021/06/11	109	70 - 130	110	70 - 130	<0.50	ug/L	NC	30
7398575	Acetone (2-Propanone)	2021/06/11	86	60 - 140	96	60 - 140	<10	ug/L	NC	30
7398575	Benzene	2021/06/11	90	70 - 130	90	70 - 130	<0.20	ug/L	NC	30
7398575	Bromodichloromethane	2021/06/11	108	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
7398575	Bromoform	2021/06/11	109	70 - 130	100	70 - 130	<1.0	ug/L	NC	30
7398575	Bromomethane	2021/06/11	97	60 - 140	101	60 - 140	<0.50	ug/L	NC	30
7398575	Carbon Tetrachloride	2021/06/11	100	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
7398575	Chlorobenzene	2021/06/11	96	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
7398575	Chloroform	2021/06/11	103	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
7398575	cis-1,2-Dichloroethylene	2021/06/11	102	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
7398575	cis-1,3-Dichloropropene	2021/06/11	92	70 - 130	90	70 - 130	<0.30	ug/L	NC	30
7398575	Dibromochloromethane	2021/06/11	94	70 - 130	80	70 - 130	<0.50	ug/L	NC	30

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7398575	Dichlorodifluoromethane (FREON 12)	2021/06/11	116	60 - 140	132	60 - 140	<1.0	ug/L	NC	30
7398575	Ethylbenzene	2021/06/11	88	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
7398575	Ethylene Dibromide	2021/06/11	108	70 - 130	90	70 - 130	<0.20	ug/L	NC	30
7398575	F1 (C6-C10) - BTEX	2021/06/11					<25	ug/L	NC	30
7398575	F1 (C6-C10)	2021/06/11	97	60 - 140	99	60 - 140	<25	ug/L	NC	30
7398575	Hexane	2021/06/11	88	70 - 130	101	70 - 130	<1.0	ug/L	NC	30
7398575	Methyl Ethyl Ketone (2-Butanone)	2021/06/11	114	60 - 140	106	60 - 140	<10	ug/L	NC	30
7398575	Methyl Isobutyl Ketone	2021/06/11	90	70 - 130	100	70 - 130	<5.0	ug/L	NC	30
7398575	Methyl t-butyl ether (MTBE)	2021/06/11	88	70 - 130	82	70 - 130	<0.50	ug/L	NC	30
7398575	Methylene Chloride(Dichloromethane)	2021/06/11	120	70 - 130	114	70 - 130	<2.0	ug/L	NC	30
7398575	o-Xylene	2021/06/11	96	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
7398575	p+m-Xylene	2021/06/11	98	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
7398575	Styrene	2021/06/11	113	70 - 130	111	70 - 130	<0.50	ug/L	NC	30
7398575	Tetrachloroethylene	2021/06/11	101	70 - 130	88	70 - 130	<0.20	ug/L	NC	30
7398575	Toluene	2021/06/11	102	70 - 130	87	70 - 130	<0.20	ug/L	NC	30
7398575	Total Xylenes	2021/06/11					<0.20	ug/L	NC	30
7398575	trans-1,2-Dichloroethylene	2021/06/11	97	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
7398575	trans-1,3-Dichloropropene	2021/06/11	113	70 - 130	87	70 - 130	<0.40	ug/L	NC	30
7398575	Trichloroethylene	2021/06/11	98	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
7398575	Trichlorofluoromethane (FREON 11)	2021/06/11	93	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
7398575	Vinyl Chloride	2021/06/11	123	70 - 130	135 (1)	70 - 130	<0.20	ug/L	NC	30
7398978	Dissolved Chloride (Cl-)	2021/06/10	NC	80 - 120	106	80 - 120	<1.0	mg/L	1.0	20
7399709	1-Methylnaphthalene	2021/06/10	106	50 - 130	108	50 - 130	<0.050	ug/L	NC	30
7399709	2-Methylnaphthalene	2021/06/10	102	50 - 130	105	50 - 130	<0.050	ug/L	NC	30
7399709	Acenaphthene	2021/06/10	98	50 - 130	99	50 - 130	<0.050	ug/L	NC	30
7399709	Acenaphthylene	2021/06/10	89	50 - 130	95	50 - 130	<0.050	ug/L	NC	30
7399709	Anthracene	2021/06/10	99	50 - 130	99	50 - 130	<0.050	ug/L	NC	30
7399709	Benzo(a)anthracene	2021/06/10	108	50 - 130	110	50 - 130	<0.050	ug/L	NC	30
7399709	Benzo(a)pyrene	2021/06/10	94	50 - 130	97	50 - 130	<0.0090	ug/L	NC	30
7399709	Benzo(b/j)fluoranthene	2021/06/10	113	50 - 130	117	50 - 130	<0.050	ug/L	NC	30
7399709	Benzo(g,h,i)perylene	2021/06/10	101	50 - 130	106	50 - 130	<0.050	ug/L	NC	30
7399709	Benzo(k)fluoranthene	2021/06/10	114	50 - 130	114	50 - 130	<0.050	ug/L	NC	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
7399709	Chrysene	2021/06/10	110	50 - 130	111	50 - 130	<0.050	ug/L	NC	30
7399709	Dibenzo(a,h)anthracene	2021/06/10	113	50 - 130	116	50 - 130	<0.050	ug/L	NC	30
7399709	Fluoranthene	2021/06/10	127	50 - 130	126	50 - 130	<0.050	ug/L	NC	30
7399709	Fluorene	2021/06/10	110	50 - 130	112	50 - 130	<0.050	ug/L	NC	30
7399709	Indeno(1,2,3-cd)pyrene	2021/06/10	110	50 - 130	111	50 - 130	<0.050	ug/L	NC	30
7399709	Naphthalene	2021/06/10	90	50 - 130	92	50 - 130	<0.050	ug/L	NC	30
7399709	Phenanthrene	2021/06/10	105	50 - 130	106	50 - 130	<0.030	ug/L	NC	30
7399709	Pyrene	2021/06/10	122	50 - 130	121	50 - 130	<0.050	ug/L	NC	30
7399712	F2 (C10-C16 Hydrocarbons)	2021/06/11	97	60 - 130	101	60 - 130	<100	ug/L	NC	30
7399712	F3 (C16-C34 Hydrocarbons)	2021/06/11	98	60 - 130	104	60 - 130	<200	ug/L	NC	30
7399712	F4 (C34-C50 Hydrocarbons)	2021/06/11	102	60 - 130	108	60 - 130	<200	ug/L	NC	30
7399950	Mercury (Hg)	2021/06/10	96	75 - 125	94	80 - 120	<0.10	ug/L	NC	20
7400288	Aroclor 1242	2021/06/11					<0.05	ug/L		
7400288	Aroclor 1248	2021/06/11					<0.05	ug/L		
7400288	Aroclor 1254	2021/06/11					<0.05	ug/L		
7400288	Aroclor 1260	2021/06/11	86	60 - 130	81	60 - 130	<0.05	ug/L		
7400288	Total PCB	2021/06/11	86	60 - 130	81	60 - 130	<0.05	ug/L	NC	40
7401617	Dissolved Antimony (Sb)	2021/06/14	114	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
7401617	Dissolved Arsenic (As)	2021/06/14	108	80 - 120	101	80 - 120	<1.0	ug/L	2.1	20
7401617	Dissolved Barium (Ba)	2021/06/14	107	80 - 120	103	80 - 120	<2.0	ug/L	0.27	20
7401617	Dissolved Beryllium (Be)	2021/06/14	110	80 - 120	99	80 - 120	<0.40	ug/L	NC	20
7401617	Dissolved Boron (B)	2021/06/14	106	80 - 120	95	80 - 120	<10	ug/L	1.8	20
7401617	Dissolved Cadmium (Cd)	2021/06/14	106	80 - 120	100	80 - 120	<0.090	ug/L	NC	20
7401617	Dissolved Chromium (Cr)	2021/06/14	103	80 - 120	97	80 - 120	<5.0	ug/L	NC	20
7401617	Dissolved Cobalt (Co)	2021/06/14	105	80 - 120	100	80 - 120	<0.50	ug/L	0.49	20
7401617	Dissolved Copper (Cu)	2021/06/14	111	80 - 120	102	80 - 120	<0.90	ug/L	0.082	20
7401617	Dissolved Lead (Pb)	2021/06/14	99	80 - 120	98	80 - 120	<0.50	ug/L	NC	20
7401617	Dissolved Molybdenum (Mo)	2021/06/14	118	80 - 120	106	80 - 120	<0.50	ug/L	0.028	20
7401617	Dissolved Nickel (Ni)	2021/06/14	100	80 - 120	97	80 - 120	<1.0	ug/L	2.2	20
7401617	Dissolved Selenium (Se)	2021/06/14	104	80 - 120	98	80 - 120	<2.0	ug/L	NC	20
7401617	Dissolved Silver (Ag)	2021/06/14	91	80 - 120	102	80 - 120	<0.090	ug/L	NC	20
7401617	Dissolved Sodium (Na)	2021/06/14	NC	80 - 120	101	80 - 120	<100	ug/L	0.10	20

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
7401617	Dissolved Thallium (Tl)	2021/06/14	98	80 - 120	98	80 - 120	<0.050	ug/L	NC	20
7401617	Dissolved Uranium (U)	2021/06/14	102	80 - 120	96	80 - 120	<0.10	ug/L	0.50	20
7401617	Dissolved Vanadium (V)	2021/06/14	107	80 - 120	99	80 - 120	<0.50	ug/L	4.5	20
7401617	Dissolved Zinc (Zn)	2021/06/14	100	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
7403583	WAD Cyanide (Free)	2021/06/11	97	80 - 120	95	80 - 120	<1	ug/L	NC	20

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

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

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

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

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

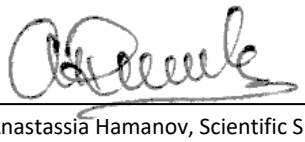
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

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

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

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

Bureau Veritas Laboratories 100 – 36 Antares Dr. Nepean, ON, K2E 7W5 Phone: 613-274-0573 Website: www.bvlabs.com

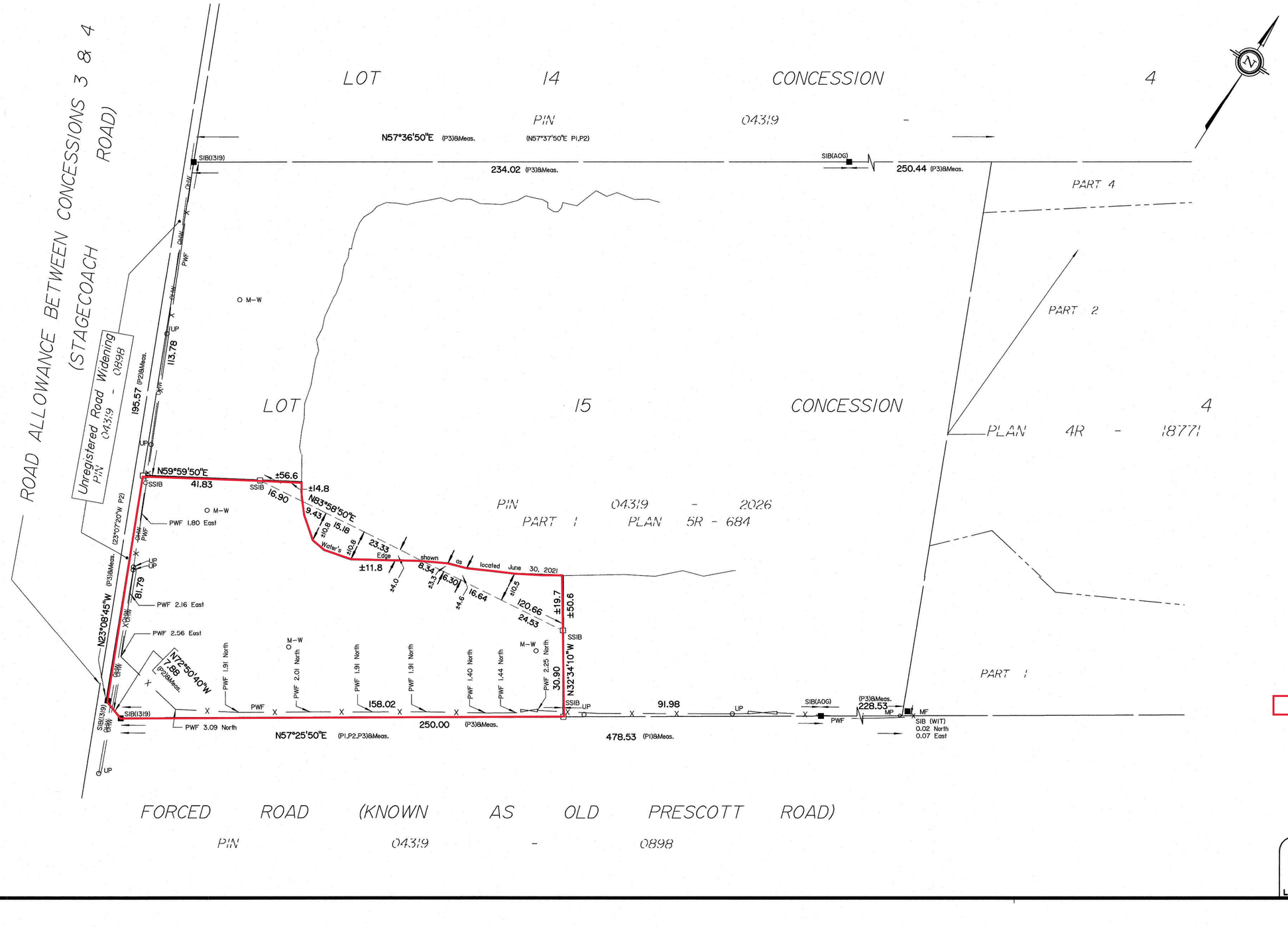
APPENDIX D RESIDUE MANAGEMENT

Appendix D Residue Management
November 8, 2021

As discussed in the SAP in **Appendix A**, based on the proposed redevelopment of the Phase Two Property, soil cuttings, purge fluids, and cleaning fluids were placed in sealed drums and left on-site for future removal.

Because the management of residues did not require any permits or approvals, an appendix with this information is not included in this report.

APPENDIX E SURVEY OF PHASE TWO PROPERTY



PLAN OF SURVEY OF

PART OF LOT 15
CONCESSION 4
GEOGRAPHIC TOWNSHIP OF OSGOODE
CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 1000

40 30 20 10 0 20 40 Metres

Metric

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

Surveyor's Certificate

I CERTIFY THAT :

1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the Land Titles Act and the regulations made under them.
2. The survey was completed on the 30th day of June, 2021

Date

V. Andrew Shelp
Ontario Land Surveyor

Notes & Legend

	Denotes	
—□—		Survey Monument Planted
—■—	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
(WIT)	"	Witness
(AOG)	"	Annis, O'Sullivan, Vollebekk Ltd.
Meas.	"	Measured
(P1)	"	Plan 4R-18771
(P2)	"	Plan 5R-684
(P3)	"	AOG) Plan dated Nov.4, 2019
—— OHW ——	"	Overhead Wires
MF	"	Metal Fence
P&W	"	Post and Wire
⋈	"	Gate
O UP	"	Utility Pole
⊙ AN	"	Anchor
O M-W	"	Monitoring Well

Bearings are grid, derived from Can-Net 2016 Real Time Network GPS observations, and are referred to MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For comparison purposes, a rotation of 0°40'20" clockwise was applied to bearings on Plans P1 and P2.

Ties to the water's edge are perpendicular to the shoreline traverse unless otherwise shown.

Phase Two Property

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-13599

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29 (3).

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Ontario Land Surveyors

Job No. 18040-19 P Justice PtLt15 Con4 Osgoode POS F ns