



Phase I Environmental Site Assessment - 953 Mapleview Drive East, Barrie, Ontario

July 13, 2023

Prepared for:
Mapleview South (Innisfil) Ltd.

Cambium Reference: 18342-001

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Executive Summary

Mapleview South (Innisfil) Ltd. retained Cambium Inc. (Cambium) to complete a Phase I Environmental Site Assessment (ESA) of the property at 953 Mapleview Drive East in Barrie, Ontario (the Site). The 19 ha Site is currently undeveloped and unoccupied, free of any permanent structures and/or buildings. It is understood that the Client intends to develop the Site with a residential neighbourhood.

The Phase I ESA was undertaken to identify potential and actual environmental concerns associated with current and historical activities at the Site and surrounding properties, for the purpose of financing support for Site development (i.e., potential financing of the Site). The Phase I ESA was conducted consistent with the standard practices established in Canadian Standards Association Standard Z768-01 (CSA, 2016).

Based on the findings of Phase I ESA, the following was identified:

- Imported engineering fill (~ 166,300 m³) has been placed on the north portion of the Site to assist in lot grading for the development of the Site as a residential neighbourhood. During Cambium's site visit, no domestic refuse or deleterious material (i.e., metal, brick, etc.) was observed and no staining/odours were noted in the areas observed. As such, no further work (i.e., Phase II ESA) is warranted at this time and that engineered fill should be characterized at the time of Site redevelopment.



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1.0 Introduction

Maplevue South (Innisfil) Ltd. (the 'Client') retained Cambium to complete a Phase I ESA of the property at 953 Maplevue Drive East in Barrie, Ontario (the Site). The due diligence assessment was completed to identify actual and/or potential environmental concerns associated with current and historical activities at the Site and surrounding properties, for the purpose of financing support for Site development (i.e., potential financing of the Site).

This Phase I ESA was conducted consistent with the standard practices established in the CSA Standard Z768-01 (CSA, 2016). This report describes the methods used to investigate environmental concerns that may affect the Site at the time of the assessment.

1.1 Scope of Work

The Phase I ESA consisted of the following:

- A review of pertinent background and historical information including documents such as aerial photographs, city directories, and topographic maps (as available).
- A review and summary of available environmental records obtained from the Site and/or public and private sources.
- A site visit and observation of the surrounding properties from publicly accessible areas.
- Interview(s) with person(s) knowledgeable of the history of the Site.
- Preparation of this report documenting the findings of the Phase I ESA and recommendations for further work, if any, required to ascertain the environmental condition of the Site.

No intrusive sampling was completed as part of this Phase I ESA. While the report considers environmental concerns, both past and present, it is limited by the availability of information obtained at the time of the assessment.



2.0 Site Description

The Site consists of a 19 ha (47 acre) land parcel at 953 Maplevue Drive East in Barrie, Ontario. The Universal Transverse Mercator coordinates for the centre of the Site are Zone 17T, 611,512 m east, 4,911,794 m north. The Site location is shown on Figure 1.

The Site is undeveloped and unoccupied, and is free of any permanent structures and/or buildings.. A small unnamed creek bisects the centre of the Site, flowing from the west to the east towards Lake Simcoe, approximately 5.3 km east of the Site. The south portion of the Site is vacant farmland, and a large volume of engineering fill material has been imported to the Site covering the former agricultural area on the north portion of the Site.

The Site is sloped from the north and south to the centre of the Site, where the small unnamed creek bisects the Site from the west to the east. The Site is surrounded by former agricultural land that appears to be in the development preparation stages for the construction of residential neighbourhoods to the east and west, to the north by developing residential neighbourhood, and to the south by agricultural fields.

The Site and surrounding land uses are shown on Figure 2. Photographs of the Site are included in Appendix A.



3.0 Phase I ESA Investigation Methodology

The Phase I ESA methodology is described in the following sub-sections.

3.1 Records Review

Cambium made appropriate inquiries to obtain information and documents as were reasonably ascertainable and pertained to the Site. The following documents were available for review and were used to develop the information database for this report.

- Ontario Base Mapping accessed through Land Information Ontario.
- Natural Heritage mapping accessed through the Ministry of Natural Resources and Forestry and the municipal Official Plan.
- The Physiography of Southern Ontario map (Ontario Geological Survey, 2007).
- 1946, 1954, 1978, 1989, 1997, 2008, 2016, and 2022 aerial imagery (Figure 3 to Figure 10).
- A Freedom of Information (FOI) request was submitted to the Ministry of the Environment, Conservation and Parks (Ministry). A copy of the FOI request is included in Appendix B.
- A search of available city directories for the Site and surrounding properties was completed by Environmental Risk Information Services Ltd. (ERIS). The search results are included in **Error! Reference source not found..**
- A Property Registry search was completed for the Site by ERIS. A copy of the Property Registry is included in Appendix E.
- Cambium contracted ERIS to provide a Database Report for the Site (ERIS, 2023). ERIS is a private environmental database and information service company. The ERIS report summarizes the findings of a search of various federal, provincial, and private source databases for the Site and properties within a search radius of 250 m from the centre of the Site. This search radius was chosen to ensure that all parts of the adjacent properties were included in the database search. A copy of the ERIS report is provided in Appendix E.



- A request was submitted to Opta Information Intelligence (Opta) for available Fire Insurance Plans (FIPs), insurance inspection reports, and site plans pertaining to the Site. A copy of the Opta report is included in Appendix F.
- The *Waste Disposal Site Inventory* (MOE, 1991) was reviewed to identify waste disposal sites within 1,000 m of the Site.
- The *Inventory of Industrial Facilities Producing or Using Coal Tar or Related Tars in Ontario* (MOE, 1988a) was reviewed to identify facilities that produced or used coal or related tars within 1,000 m of the Site.
- The *Inventory of Coal Gasification Plant Waste Sites in Ontario* (MOE, 1988b) was reviewed to identify coal gasification plant waste sites within 1,000 m of the Site.
- Previous environmental reports pertaining to the Site were requested from the Client.

3.2 Site Visit

A site visit was conducted on June 28, 2023, to observe the Site and adjacent properties (from the Site as well as nearby publicly accessible areas) to identify actual and potential on-site and off-site sources of environmental contamination. The site visit was used to identify the following, if present:

- Areas of surface staining or stressed vegetation.
- Areas with fill and/or debris.
- The location, contents, construction details, and volumes of aboveground storage tanks (ASTs) and underground storage tanks (USTs), and drums, totes, bins, or other containers.
- Potable or non-potable water sources, including current and/or historical water sources.
- Current and historical sewage works, including locations.
- Wastewater discharge points.
- Water bodies and intermittent ditches.
- Ground cover and surface materials.
- Below ground access points (e.g., manholes).



- Location of current or historical railway lines or spurs.
- Unidentified substances, staining, or corrosion observed at the Site, including within buildings and/or structures.
- Existing structures to obtain a general description of the structures, including the number, age, and height of all buildings.
- Improvements to the building(s) and/or structures at the Site.
- Entries and exits to the buildings and structures.
- Heating and cooling systems of each building and/or structure.
- Drains, pits, and sumps, including documenting the purpose and use.

Additionally, the following aspects were discussed and identified, if applicable:

- Hazardous materials currently and historically stored at the Site.
- By-products and/or wastes of the current or historical operations at the Site.
- Raw materials currently or historically stored/handled at the Site.
- Oil/water separators and/or hydraulic lift equipment (e.g., elevators, in-ground hoists, and loading docks), if any, at the Site.
- Vehicle or equipment maintenance areas.
- Spills or releases of materials, including dates, locations, materials involved, and volumes.

3.3 Site Interviews

In an effort to obtain further information regarding the site use, occupancy history, and environmental conditions at the Site, interviews are conducted with persons knowledgeable of the Site. This may include current occupants and/or owners of the Site, or an individual with control of the Site or authority to act on behalf of the owner; previous owners and/or occupants; and/or, where the owner/occupant is not available, at least one owner or occupant of an adjacent property and one provincial or municipal government official, both of whom should be familiar with the Site.



4.0 Phase I ESA Findings

4.1 Records Review

Information obtained from the documents summarized in Section 3.1 is discussed below.

4.1.1 Miscellaneous Document Review

The following information was obtained from the documents collected as part of the records review:

- A topographic map (MNRF, 2023) of the study area provided information regarding the regional topography, inferred groundwater flow direction, surface water drainage, and general development in the area surrounding the Site. Refer to Figure 1.
 - The ground surface at the Site slopes down towards the centre portion of the Site.
 - Surface water drainage at the Site is expected to infiltrate the ground surface, or flow overland towards the small unnamed on-site creek.
 - Regional surface water drainage is expected to be directed towards streetside stormwater catch basins, or flow overland to the southwest toward the small unnamed on-site creek, which flows in a northeasterly direction where it eventually discharges into Lake Simcoe, about 5,300 m east of the Site.
 - Based on the topography and proximity to Lake Simcoe, the inferred shallow groundwater flow is easterly.
- A Natural Heritage Areas map (MNRF, 2020b) and the City of Barrie Official Plan (Barrie, 2023) were reviewed. No Ministry of Natural Resources heritage sites, areas of natural and scientific interest were identified within 250 m of the Site. However, the City of Barrie Official Plan did designate the Site as having a high-constraint stream corridor area, and is interpreted as being environmentally significant/sensitive areas. In addition, the Site did not include an area designated as an escarpment natural area or an escarpment protection area by the Niagara Escarpment Plan, or property within an area designated as a natural



core area or natural linkage area within the area to which the Oak Ridges Moraine Conservation Plan applies.

- Physiography of Southern Ontario mapping (Ontario Geological Survey, 2007) indicates that the Site is within the Till Plains physiographic region, characterized by drumlins and glacial till soils.
- Overburden is mapped as a mix of till comprised of stone-poor sandy silt to silty-sand, and ice-contact stratified deposits of sand and gravel with minor silt and clay till soils (OGS, 2010).
- Bedrock is mapped as dolostone, limestone, shale, arkose, and sandstone, as a part of the Ottawa Group, Simcoe Group, and Shadow Lake Formation (OGS, 2007).
- In the 1946-2016 aerial photographs, the Site appeared to be utilized for agricultural purposes, with limited iterations of on-site barns and residential style houses. The surrounding properties appeared to consist of similarly style agricultural properties with residential dwellings, and barns. Residential neighbourhood development is first observed in the 2008 aerial photograph northwest of the Site, which is subsequently observed to expand to the south and east, as preparation for more residential style neighbourhood development is made for the Site and surrounding properties. A detailed review of aerial imagery is presented in Appendix G.
- The Parcel Registry search indicated that the most recent transfer of site ownership was from John Duivenvoorden, and John William Duivenvoorden, to Mapleview South (Innisfil) Ltd., in June 2006.
- A search of available city directories were ordered as a part of the historical document search for the Site. A response to the City Directory search was not received prior to completion of the report. The response will be provided under separate cover if it changes the findings of the Phase I ESA.\
- Review of the *Waste Disposal Site Inventory* (MOE, 1991) did not identify waste disposal sites within 1,000 m of the Site.



- Review of the *Inventory of Industrial Facilities Producing or Using Coal Tar or Related Tars in Ontario* (MOE, 1988a) did not identify industrial facilities that produced or used coal tar or related tars within 1,000 m of the Site.
- Review of the *Inventory of Coal Gasification Plant Waste Sites in Ontario* (MOE, 1988b) did not identify coal gasification plant waste sites within 1,000 m of the Site.
- A response was received from Opta indicating that no FIPs, Insurance Inspection Reports or Site Plans were available for review.
- A review of Ontario's Record of Site Condition (RSC) database found one listing for 970 Maplevue Drive East in Barrie, a Site approximately 86 m north of the Site under RSC number 229891. Review of this RSC found that the RSC was filed to support the change in land use from agricultural to residential, and included a Phase One ESA, and a Phase Two ESA in addition to the RSC. The Phase One ESA and Phase Two ESA were unavailable for review, however, the following information was available for review in the RSC document available through Ontario's RSC database:
 - Results of the Phase Two ESA were compared to the Table 2 Full Depth Generic Site Condition Standards (SCS) in a Potable Ground Water Condition for Residential/Parkland/Institutional (RPI) Property Use
 - Soil sample(s) were analyzed for the following contaminants of concern (COCs) volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene, and xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbons (PHCs) F1-F4, metals and inorganics, polychlorinated biphenyls (PCBs), and organochlorine pesticides (OC pesticides). A table with the maximum concentration of reported analytical results was provided, and all results were below the Table 2 RPI -coarse SCS.
 - Groundwater sample(s) were analyzed for the following COCs PHCs F1-F4, PCBs, and BTEX. A table with the maximum concentration of reported analytical results was provided, and all results were below the Table 2 RPI-coarse SCS.



- Accordingly, no soil or groundwater remediation was required for the property.

The presence of an RSC with reported concentrations of all COCs in soil or groundwater below the applicable Table 2 SCS for the subject property does not pose an environmental concern for the Site.

- A review of two previous reports that discuss the quality of imported fill material to the Site was completed for the Site:

Peto McCallum Ltd. (2017). Geotechnical Investigation – Proposed Lockhart Road Residential Subdivision, Barrie, Ontario

Review of the Peto McCallum Ltd. (Peto) report found the following significant details pertaining to the reported import of 141,000 m³ of soil to the Site in 2020:

- A total of seven soil samples were obtained from seven boreholes advanced at the subject property during a geotechnical drilling program completed between March 14 and 21, 2017. Seven soil samples were submit to the CALA accredited laboratory, AGAT Laboratories Inc., (AGAT) in Mississauga, ON, for analysis of the following contaminants of concern (COCs): Metals and Inorganics, Volatile Organic Compounds (VOCs), petroleum hydrocarbons F1-F4 (PHC F1-F4), polycyclic aromatic hydrocarbons, and organochlorine pesticides (OC pesticides).
- A total of two groundwater samples obtained from two on-site groundwater monitoring wells were submit to AGAT on March 28, 2017, for analysis of metals and inorganics, VOCs, PHC F1-F4, and PAHs.
- The applicable site condition standards (SCS) in the *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011b) for the subject property was determined to be Table 1 Full Depth Background SCS for residential/parkland/institutional/industrial/commercial property use



- All submitted soil samples met the applicable Table 1 SCS, and were suggested to be suitable for reuse within any Ontario residential, parkland, institutional, industrial, or commercial property.
- All submitted groundwater samples met the applicable Table 1 SCS, with the following exception from one groundwater sample:

Sample Location	Parameter	Measured Concentration	Table 1 SCS Limit
BH3	Molybdenum	37.7 µg/L	23 µg/L
	Toluene	1.7 µg/L	0.8 µg/L

Table 1 Standards - Full Depth Background Site Condition Standards - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

The noted minor groundwater exceedances of the Table 1 SCS were suggested to be a representation of high background groundwater conditions at the Site, and were not thought to originate from a potential source of contamination. Re-sampling of groundwater well BH3 was suggested as a recommendation in the report, however, the results of the groundwater well resampling was not included in this report.

Cambium notes that the groundwater exceedance does not represent a concern for the Site, as all characterized soil met the Table 1 SCS for the subject property.

WSP Canada Inc. (2020). Technical Memorandum – Go Village Subdivision, Yonge Street, Barrie, Ontario, Chemical Characterization of Excess Soil

Review of the WSP Canada Inc. (WSP) report found the following significant details pertaining to the reported import of 25,300 m³ of soil to the Site in 2019 and 2020:

- A total of 40 grab samples were obtained from an on-site soil stockpile via hand auger on October 3, and 9, 2020, and were analyzed at the CALA accredited laboratory, ALS Environmental in Mississauga, ON, for the following COCs: Metals and Inorganics, VOCs, PHC F1-F4, OC pesticides.



- The applicable SCS in the *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOE, 2011b) for the subject property was determined to be Table 1 Full Depth Background SCS for residential/parkland/institutional/industrial/commercial property use.
- All submitted soil samples met the applicable Table 1 SCS, and were suggested to be suitable for reuse within any Ontario residential, parkland, institutional, industrial, or commercial property.

The sourced fill material described in the WSP report above does not represent a significant environmental concern for the Site. A copy of the WSP report is included in Appendix D. The approximate location of the imported fill material is included on Figure 2.

4.1.2 Regulatory Records Review

A response from the Ministry was received for the Site, however, no records were available for the Site. A copy of the FOI request is included in Appendix B.

The ERIS report contained the following pertinent listings for the Site and neighbouring properties. A copy of the ERIS report is provided in Appendix E.

The ERIS report did not contain any environmentally significant listings for the Site.

Off-Site Records

970 Mapleview Drive East (86m to the north)

- The Record of Site Condition database included one listing registered for 970 Mapleview Drive East, for the change in land use from agricultural to residential land use, and included a Phase One Environmental Site Assessment, a Phase Two Environmental Site Assessment, and the filing of a Record of Site Condition, under Record of Site Condition number 229891. As described above, review of Record of Site Condition number 229891 found that this subject property was reported to be free of any VOCs, PAHs, PHCs F1-F4, PCBs, OC pesticide, or metals and inorganics in soil above the applicable Table 2 RPI –



coarse grained SCS; and was free of any PHC F1-F4, PCB, or BTEX in groundwater above the applicable Table 2 RPI – coarse grained SCS.

This property is approximately 86 m north of the Site, and is up-gradient from the Site with respect to the inferred groundwater flow direction. The property is currently under development as a large residential neighbourhood. The presence of an RSC with no reported concentrations of COCs in soil or groundwater above the applicable Table 2 RPI – coarse SCS does not pose an environmental concern for the Site.

Other ERIS Listings

The ERIS report also contained additional off-site listings in various databases. Review of these records indicated the data was for properties not in close proximity to the Site or was not environmentally significant.

Several unplottable records were identified in the ERIS report. A review of these records did not identify additional environmental concerns for the Site.

4.2 Site Visit

Mr. Matthew Cunningham, C.E.T., T.Ag., conducted a site visit on June 28, 2023.

The weather during the site visit was warm and clear, and weather conditions did not impede the assessment. A photographic record of the site visit is presented in Appendix A. The site visit findings are described below.

4.2.1 Buildings and Site Usage

The Site is undeveloped and unoccupied, and free of any permanent structures and/or buildings. . The south portion of the Site is vacant farmland, and a large volume of fill material has been imported to the Site covering the former agricultural area on the north portion of the Site.

The Site is sloped from the north and south to the centre of the Site, where a small unnamed creek bisects the Site from the west to the east.



4.2.2 Storage Tanks

No evidence of ASTs or USTs (e.g., fill/vent pipes or concrete/asphalt patches) was observed during the site visit.

No evidence of fuel oil USTs was found by our inspection or interviews, but USTs cannot be entirely ruled out. Further investigation in the absence of indicators is not cost-effective. It is generally best to deal with possible fuel oil USTs, if they are encountered, during excavation or site preparation.

Cambium's presence/absence assessment of storage tanks was based on visual observations, review of available historical mapping (e.g., FIPs), and information available from relevant regulatory agencies (e.g., the TSSA). Visual observation may not identify storage tanks that may have been present historically or that currently exist without documentation.

4.2.3 Materials and Storage

Chemicals and/or materials storage were not observed on the Site.

4.2.4 Oil/Water Separators

No oil/water separators were observed during the site visit.

4.2.5 Vehicle and Equipment Maintenance

No vehicle or equipment maintenance was observed during the site visit.

4.2.6 Waste – Solid, Liquid, or Hazardous/Industrial

Domestic waste is not generated on-site; hazardous waste is not generated on the Site.

4.2.7 Sumps, Drains, Pits, and Lagoons

No sumps, drains, pits, or lagoons were observed during the site visit. Floor drains were observed in several of the tenant units. No petroleum hydrocarbon sheen was noted on the surface of the water within the drains.



4.2.8 Spills

No spills were observed or reported during the site visit.

4.2.9 Stains

No significant staining was observed during the site visit.

4.2.10 Fill

A significant amount of engineering fill was observed and reported to have been imported to the Site. The engineering fill material has been placed on the north portion of the Site to assist in lot grading for the development of the Site as a residential neighbourhood, and was observed to be free of any debris or deleterious material. The fill has been placed in four large stockpiles, three of which sit atop a podium of imported engineering fill. It is estimated that the imported engineering fill has been spread across approximately 6.5 Ha of the Site, representing a collective volume of 166,300 m³.

The surface elevation on the southern portion of the Site is similar to the surrounding properties.

As discussed above in Section 4.1.1, the source of this fill material is from two residential neighbourhood developments west of the Site, from the following locations:

- Reportedly 141,000 m³ of imported soil originating from 400 Lockhart Road, Barrie, about 3.75 km southwest of the Site,
- Reportedly 25,300 m³ of imported soil originating from the Younge-Go Village Subdivision Site at the north intersection of Yonge Street and Turnberry Lane in Barrie, about 2.30 km west of the Site.

As noted in Section 4.1.1 above, the imported fill material originating at 400 Lockhart Road represents a low-risk environmental concern for the Site. The imported fill material described in the WSP originating from the Younge-Go Village Subdivision property does not represent a significant environmental concern for the Site. A copy of the Peto report is included in



Appendix C, a copy of the WSP report is included in Appendix D, and approximate location of the place imported fill material is included on Figure 2.

4.2.11 Air Emissions

There was no evidence of sources of process-related air emissions at the Site.

4.2.12 Special Attention Items

4.2.12.1 Polychlorinated Biphenyls

Substances and materials containing PCBs were not observed at the Site, with the exception of pole mounted transformers located streetside. No records of PCBs were identified at the Site in the ERIS report.

4.2.12.2 Asbestos

No evidence of asbestos was observed or reported at the Site.

4.2.12.3 Lead

No evidence of lead-containing material was observed or reported at the Site.

4.2.12.4 Microbial Contamination and Mould

No evidence of mould (e.g., odour or surficial mould) was observed during the site visit.

4.2.12.5 Ozone Depleting Substances

Ozone depleting substances were not observed to be present at the Site.

4.2.12.6 Urea Formaldehyde Foam Insulation

No evidence of urea formaldehyde foam insulation (UFFI) was observed at the Site.

4.2.12.7 Radon, Noise, Electric and Magnetic Fields, and Vibration

Radon is a colourless, odourless, and tasteless gas formed by the natural breakdown of uranium in soil, rocks and water. Based on a review of the Radon Potential Map of Ontario



(REMC, 2013), the Site is within Zone 1 for radon potential. Zone 1 depicts geologic conditions where higher radon concentrations might be found when compared to Zones 2 or 3. Actual radon concentrations can only be determined using an on-site test.

A review of testing completed in residential homes by Simcoe-Muskoka Regional health unit indicated the risk of radon concentrations in Barrie is low. Only 1.0% of residences tested in the Simcoe-Muskoka region had radon at levels exceeding the Canadian standard of 200 Bq/m³ (Carex, 2019).

No significant sources of noise, electric or magnetic fields, or vibration were observed during the site visit.

4.2.13 Pesticides and Herbicides

No pesticides or herbicides were observed during the site visit.

4.2.14 Potable Water Supply

The Site is not currently serviced by a municipal water system. No evidence of drinking water wells was observed during the site visit.

4.2.15 Septic Fields

The Site is not currently serviced by a municipal sewer system. No evidence of a septic field was observed during the site visit.

4.2.16 Environmental Monitoring

Evidence of previous environmental monitoring (e.g., groundwater monitoring wells) was observed at the site visit via the observation of two groundwater monitoring wells. Reportedly, these wells were installed as a part of a geotechnical investigation and hydrogeological study to support the proposed residential development of the Site.



4.2.17 Stressed Vegetation

There was no evidence of stressed vegetation or differential plant growth observed during the site visit.

4.2.18 Fires

There was no evidence of historical fires observed during the site visit.

4.2.19 Odours

No strong, pungent, or noxious odours were observed during the site visit.

4.2.20 Unidentified Substances

No unidentified substances were observed or reported during the site visit.

4.2.21 Adjacent Land Uses

The properties within 100 m surrounding the Site are utilized for residential and agricultural purposes. No significant environmental concerns are expected associated with the current and former uses of the adjacent properties.

Adjacent property uses include:

North – Residential Neighbourhood

South – Agricultural Farmland

East – Vacant – Site was historically used for agricultural purposes but appears to be in preparation for residential development.

West – Vacant – Site was historically used for agricultural purposes but appears to be in preparation for residential development.



4.3 Interviews

Cambium interviewed Jessica Ferrari, Site owner representative. Ms. Ferrari has been familiar with the Site for approximately 10 years. Information obtained during the interview is incorporated throughout Section 4.0.



5.0 Environmental Concerns

Based on the findings of the records review and site visit, no on-site sources of environmental concern were identified, with the exception of the imported engineering fill material discussed in Section 4.1.1, originating from 400 Lockhart Road, Barrie, about 3.75 km southwest of the Site. A total of seven soil samples analyzed for Metals and Inorganics, VOCs, PHC F1-F4, PAHs, and OC pesticides was used to characterize soil that contributed to the import of 141,000 m³ of excess soil in 2020. Two groundwater samples obtained from two on-site groundwater monitoring wells were also submitted to AGAT for analysis of metals and inorganics, VOCs, PHC F1-F4, and PAHs. All submitted soil samples met the applicable Table 1 SCS, and were suggested to be suitable for reuse within any Ontario residential, parkland, institutional, industrial, or commercial property. All submitted groundwater samples met the applicable Table 1 SCS, with the following exception from one groundwater sample:

Sample Location	Parameter	Measured Concentration	Table 1 SCS Limit
BH3	Molybdenum	37.7 µg/L	23 µg/L
	Toluene	1.7 µg/L	0.8 µg/L

Table 1 Standards - Full Depth Background Site Condition Standards - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

The noted minor groundwater exceedances of the Table 1 SCS were suggested to be a representation of high background groundwater conditions at the Site, and were not thought to originate from a potential source of contamination.

The noted groundwater exceedance does not represent a concern for the Site, as all characterized soil met the Table 1 SCS for the subject property.



6.0 Conclusions and Recommendations

Conclusions and recommendations regarding the current environmental conditions at the Site were based solely on the results from the document review, regulatory records review, and site visit.

Based on the findings of Phase I ESA, the following was identified:

- Imported engineering fill (~ 166,300 m³) has been placed on the north portion of the Site to assist in lot grading for the development of the Site as a residential neighbourhood. During Cambium's site visit, no domestic refuse or deleterious material (i.e., metal, brick, etc.) was observed and no staining/odours were noted in the areas observed. As such, no further work (i.e., Phase II ESA) is warranted at this time and that engineered fill should be characterized at the time of Site redevelopment.

A search of available city directories were ordered as a part of the historical document search for the Site. A response to the City Directory search was not received prior to completion of the report. The response will be provided under separate cover if it changes the findings of the Phase I ESA.\

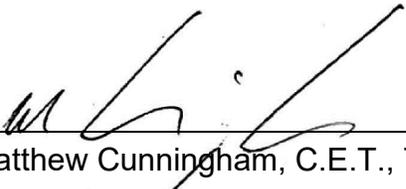


7.0 Qualifications of the Assessor

This Phase I ESA was completed by Matthew Cunningham, and Christine Wilson, B.A. (Hons), as per CSA Standard Z768-01. Credentials are presented in Appendix H. Information presented in this report is true and accurate to the best of the assessors' knowledge.

Respectfully submitted,

Cambium Inc.



Matthew Cunningham, C.E.T., T.Ag
Project Coordinator



Christine Wilson, B.A. (Hons)
Regional Manager, Market Development



8.0 References

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9.0 Standard Limitations

Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

Reliance on Materials and Information

The findings and results presented in reports prepared by Cambium are based on the materials and information provided by the client to Cambium and on the facts, conditions and circumstances encountered by Cambium during the performance of the work requested by the client. In formulating its findings and results into a report, Cambium assumes that the information and materials provided by the client or obtained by Cambium from the client or otherwise are factual, accurate and represent a true depiction of the circumstances that exist. Cambium relies on its client to inform Cambium if there are changes to any such information and materials. Cambium does not review, analyze or attempt to verify the accuracy or completeness of the information or materials provided, or circumstances encountered, other than in accordance with applicable accepted industry practice. Cambium will not be responsible for matters arising from incomplete, incorrect or misleading information or from facts or circumstances that are not fully disclosed to or that are concealed from Cambium during the provision of services, work or reports.

Facts, conditions, information and circumstances may vary with time and locations and Cambium's work is based on a review of such matters as they existed at the particular time and location indicated in its reports. No assurance is made by Cambium that the facts, conditions, information, circumstances or any underlying assumptions made by Cambium in connection with the work performed will not change after the work is completed and a report is submitted. If any such changes occur or additional information is obtained, Cambium should be advised and requested to consider if the changes or additional information affect its findings or results.

When preparing reports, Cambium considers applicable legislation, regulations, governmental guidelines and policies to the extent they are within its knowledge, but Cambium is not qualified to advise with respect to legal matters. The presentation of information regarding applicable legislation, regulations, governmental guidelines and policies is for information only and is not intended to and should not be interpreted as constituting a legal opinion concerning the work completed or conditions outlined in a report. All legal matters should be reviewed and considered by an appropriately qualified legal practitioner.

Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

Only conditions at the site and locations chosen for study by the client are evaluated; no adjacent or other properties are evaluated unless specifically requested by the client. Any physical or other aspects of the site chosen for study by the client, or any other matter not specifically addressed in a report prepared by Cambium, are beyond the scope of the work performed by Cambium and such matters have not been investigated or addressed.

Reliance

Cambium's services, work and reports may be relied on by the client and its corporate directors and officers, employees, and professional advisors. Cambium is not responsible for the use of its work or reports by any other party, or for the reliance on, or for any decision which is made by any party using the services or work performed by or a report prepared by Cambium without Cambium's express written consent. Any party that relies on services or work performed by Cambium or a report prepared by Cambium without Cambium's express written consent, does so at its own risk. No report of Cambium may be disclosed or referred to in any public document without Cambium's express prior written consent. Cambium specifically disclaims any liability or responsibility to any such party for any loss, damage, expense, fine, penalty or other such thing which may arise or result from the use of any information, recommendation or other matter arising from the services, work or reports provided by Cambium.

Limitation of Liability

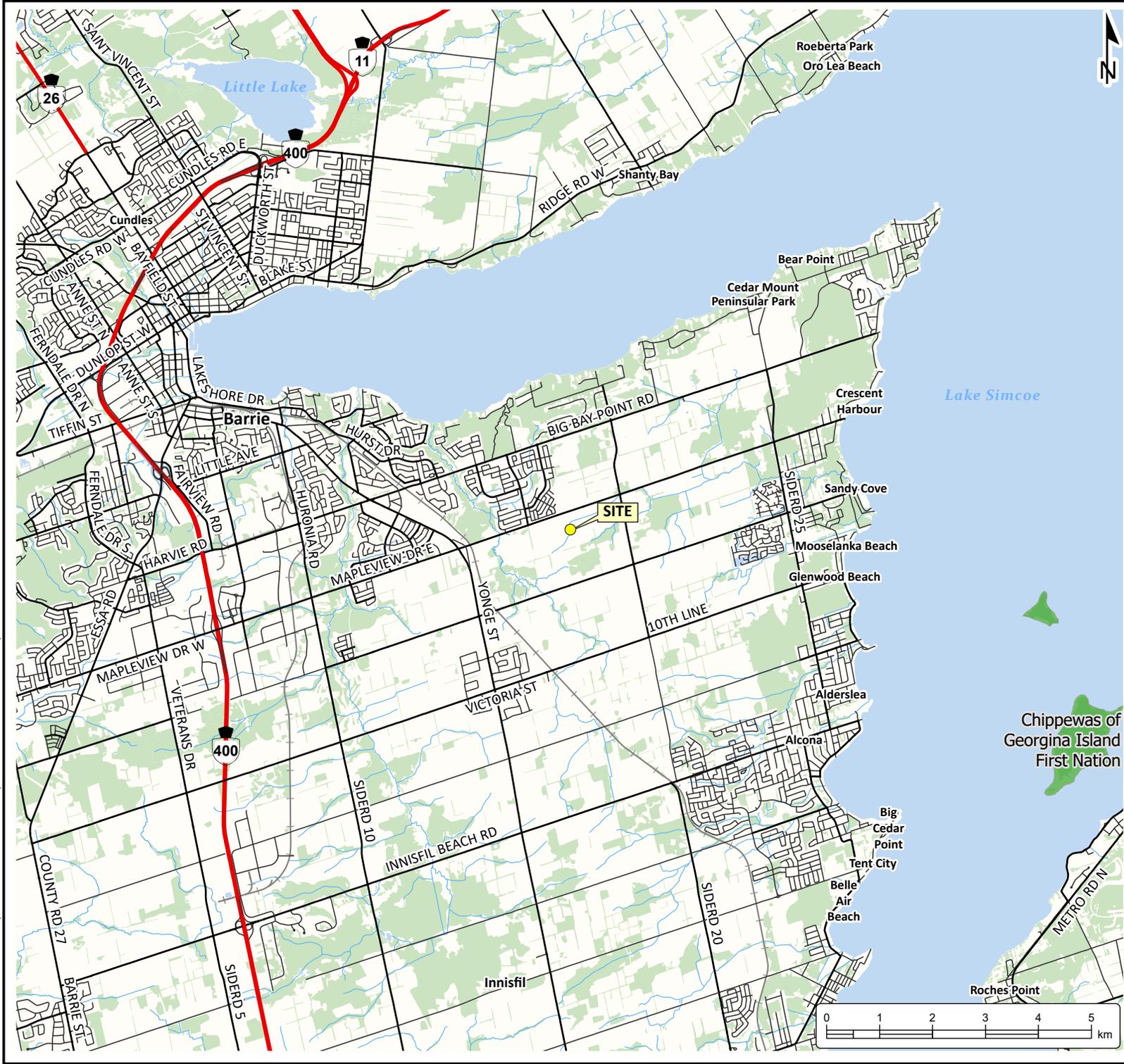
Potential liability to the client arising out of the report is limited to the amount of Cambium's professional liability insurance coverage. Cambium shall only be liable for direct damages to the extent caused by Cambium's negligence and/or breach of contract. Cambium shall not be liable for consequential damages.

Personal Liability

The client expressly agrees that Cambium employees shall have no personal liability to the client with respect to a claim, whether in contract, tort and/or other cause of action in law. Furthermore, the client agrees that it will bring no proceedings nor take any action in any court of law against Cambium employees in their personal capacity.



Appended Figures



**PHASE I
ENVIRONMENTAL SITE
ASSESSMENT**
 MAPLEVIEW SOUTH (INNISFIL) LTD.
 953 Mapleview Drive East,
 Innisfil, Ontario



LEGEND

-  Highway
-  Major Road
-  Minor Road
-  Railway
-  Watercourse
-  Chippewas of Georgina Island First Nation
-  Water Area
-  Wooded Area

Notes:
 - Base mapping features are © King's Printer of Ontario, 2022 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
 - Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
 - Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.



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 www.cambium-inc.com

SITE LOCATION PLAN

Project No.:	18342-001	Date:	July 2023
Scale:	1:100,000	Rev.:	
Created by:	DBB	Projection:	NAD 1983 UTM Zone 17N
Checked by:	MC	Figure:	1





**PHASE I
ENVIRONMENTAL SITE
ASSESSMENT**
MAPLEVIEW SOUTH (INNISFIL) LTD.
953 Mapview Drive East,
Innisfil, Ontario

LEGEND

- Site (approximate)
 - Approximate area of imported fill placement
- LAND USE**

Notes:

- Site is approximate; Boundary obtained from Simcoe Online GIS Database.
- Aerial Imagery obtained from Simcoe Online GIS Database.
- Base mapping features are © King's Printer of Ontario, 2022 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
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**SITE PLAN AND
SURROUNDING LAND USE**

Project No.: 18342-001	Date: July 2023
Scale: 1:6,500	Projection: NAD 1983 UTM Zone 17N
Created by: DBB	Checked by: MC
Figure: 2	



**PHASE I
ENVIRONMENTAL SITE
ASSESSMENT**
 MAPLEVIEW SOUTH (INNISFIL) LTD.
 953 Mapleview Drive East,
 Innisfil, Ontario

LEGEND

 Site (approximate)

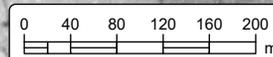
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1946 AERIAL IMAGERY

Project No.: 18342-001	Date: July 2023
Scale: 1:6,500	Projection: NAD 1983 UTM Zone 17N
Created by: DBB	Checked by: MC
Figure:	3





**PHASE I
ENVIRONMENTAL SITE
ASSESSMENT**
 MAPVIEW SOUTH (INNISFIL) LTD.
 953 Mapview Drive East,
 Innisfil, Ontario

LEGEND

 Site (approximate)

Notes:
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1954 AERIAL IMAGERY

Project No.: 18342-001	Date: July 2023
Scale: 1:6,500	Rev.: MC
Created by: DBB	Checked by: MC
Figure: 4	Projection: NAD 1983 UTM Zone 17N



**PHASE I
ENVIRONMENTAL SITE
ASSESSMENT**
 MAPLEVIEW SOUTH (INNISFIL) LTD.
 953 Mapleview Drive East,
 Innisfil, Ontario

LEGEND

 Site (approximate)

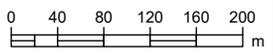
Notes:
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1978 AERIAL IMAGERY

Project No.: 18342-001	Date: July 2023
Scale: 1:6,500	Rev.: Rev.
Created by: DBB	Checked by: MC
Figure: 5	



MAPLEVIEW DRIVE EAST



**PHASE I
ENVIRONMENTAL SITE
ASSESSMENT**
MAPLEVIEW SOUTH (INNISFIL) LTD.
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Innisfil, Ontario

LEGEND

 Site (approximate)

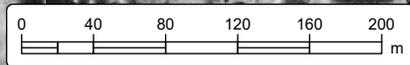
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1989 AERIAL IMAGERY

Project No.: 18342-001	Date: July 2023
Scale: 1:4,176	Rev.: MC
Created by: DBB	Checked by: MC
Projection: NAD 1983 UTM Zone 17N	Figure: 6





**PHASE I
ENVIRONMENTAL SITE
ASSESSMENT**
MAPVIEW SOUTH (INNISFIL) LTD.
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LEGEND

Site (approximate)

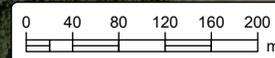
Notes:
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 - Aerial Imagery obtained from Simcoe Online GIS Database.
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1997 AERIAL IMAGERY

Project No.: 18342-001	Date: July 2023
Scale: 1:6,500	Projection: NAD 1983 UTM Zone 17N
Created by: DBB	Checked by: MC
Figure: 7	





**PHASE I
ENVIRONMENTAL SITE
ASSESSMENT**
 MAPLEVIEW SOUTH (INNISFIL) LTD.
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 Innisfil, Ontario

LEGEND

 Site (approximate)

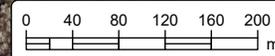
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2008 AERIAL IMAGERY

Project No.:	18342-001	Date:	July 2023
Scale:	1:6,500	Rev.:	
Created by:	DBB	Projection:	NAD 1983 UTM Zone 17N
Checked by:	MC	Figure:	8





**PHASE I
ENVIRONMENTAL SITE
ASSESSMENT**
 MAPLEVIEW SOUTH (INNISFIL) LTD.
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 Innisfil, Ontario

LEGEND

 Site (approximate)

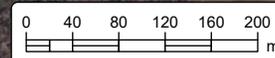
Notes:
 - Site is approximate; Boundary obtained from Simcoe Online GIS Database.
 - Aerial Imagery obtained from Simcoe Online GIS Database.
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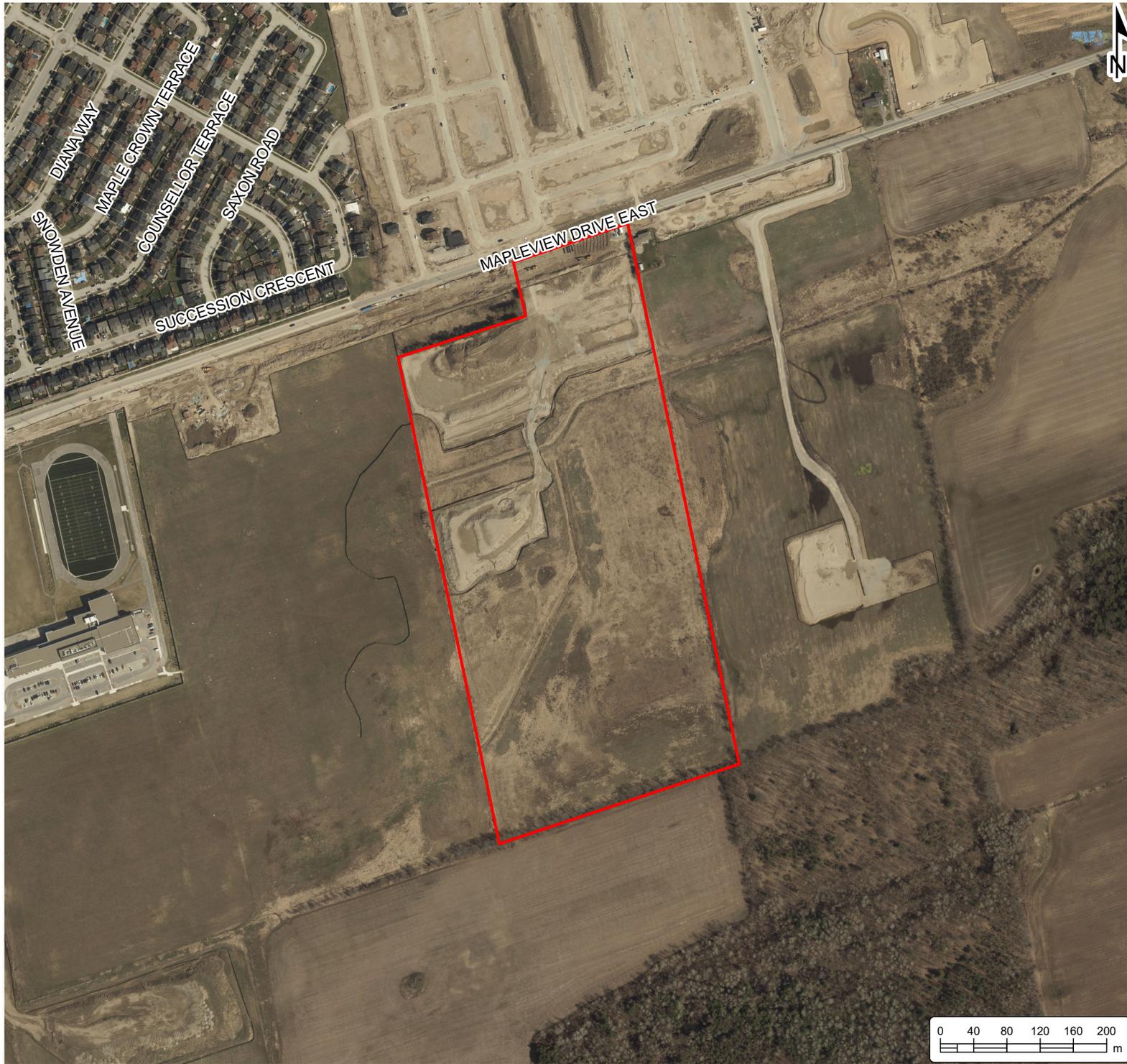


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2016 AERIAL IMAGERY

Project No.:	18342-001	Date:	July 2023
Scale:	1:6,500	Rev.:	
Created by:	DBB	Projection:	NAD 1983 UTM Zone 17N
Checked by:	MC	Figure:	10





**PHASE I
ENVIRONMENTAL SITE
ASSESSMENT**
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 Innisfil, Ontario

LEGEND

 Site (approximate)

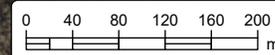
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2022 AERIAL IMAGERY

Project No.:	18342-001	Date:	July 2023
Scale:	1:6,500	Rev.:	
Created by:	DBB	Projection:	NAD 1983 UTM Zone 17N
Checked by:	MC	Figure:	10





Appendix A

Photographs



Photo 1 Looking south across the Site, June 2023.



Photo 2 Looking east across the Site to neighbouring property, June 2023.



Photo 3 On-site soil stockpile, June 2023.



Photo 4 On-site soil stockpile, June 2023.



Photo 5 On-site soil stockpile, June 2023.



Photo 6 On-site soil stockpile "podium", June 2023.



Photo 7 Viewing west to the neighbouring Site, June 2023.



Photo 8 Small on-site creek, June 2023.



Photo 9 On-site groundwater monitoring well, June 2023.



Photo 10 Viewing north across the Site towards soil stockpiles, June 2023.



Photo 11 Neighbouring Site to the south – agricultural farm fields, June 2023.



Appendix B
Freedom of Information Request



**Ministry of the Environment,
Conservation and Parks**

Corporate Management Division

**Ministère de l'Environnement, de la
Protection de la nature et des Parcs**

Division de la gestion ministérielle

June 29, 2023

Matthew Cunningham
Cambium Inc.

Dear Matthew Cunningham
RE: Request #: EPI-2023-2000002654
Requestor provided Client Reference: 18342-001
Site address: 953 Mapleview Drive, Innisfil

This letter confirms that, after conducting a thorough search of its source system applications, the ministry was not able to find any records related to your environmental property-related information request.

If you have any questions regarding the matter, please contact the ministry at eproperty@ontario.ca.

Sincerely,

Environmental Property Information (EPI) Program

Disclaimer

This search result is provided for informational purposes only and is not intended to provide specific advice or recommendations. The Ministry of the Environment, Conservation and Parks (MECP) cannot and does not guarantee that the information provided is current, accurate, complete, or free of errors. Any reliance upon this information is solely at the risk of the user.

Ministry of the Environment,
Conservation and Parks

Corporate Management Division

Ministère de l'Environnement, de la
Protection de la nature et des Parcs

Division de la gestion ministérielle

Le 29 juin 2023

Matthew Cunningham
Cambium Inc.

Madame,
Monsieur, Matthew Cunningham

Objet : N^o de demande : EPI-2023-2000002654
Le demandeur a fourni une référence client: 18342-001
Adresse du site: 953 Mapleview Drive, Innisfil

La présente lettre confirme que, après avoir effectué une recherche exhaustive dans ces applications de système source, le ministère n'a pu trouver aucun dossier concernant à votre demande pour des données environnementales relatives aux biens immobiliers.

Si vous avez des questions concernant votre demande, nous vous invitons à communiquer avec le ministère à l'adresse électronique suivante:
eproperty@ontario.ca.

Veillez recevoir mes salutations les plus sincères,

Programme d'Information Environnementale de la propriété

Avertissement

Ce résultat de recherche est fourni uniquement à titre informatif et n'a aucunement pour but de donner des conseils particuliers ou des recommandations. Le ministère de l'Environnement de la Protection de la nature et des Parcs (MEPP) ne peut pas garantir que les renseignements fournis sont à jour, exacts, complets et exempts d'erreurs. L'utilisateur qui se fie à ces renseignements le fait à ses seuls risques.



Appendix C

**Peto McCallum Ltd. (2017). Geotechnical Investigation – Proposed Lockhart
Road Residential Subdivision, Barrie, Ontario**



**GEOTECHNICAL INVESTIGATION
PROPOSED LOCKHART ROAD RESIDENTIAL SUBDIVISION
BARRIE, ONTARIO**

for

BEMP 1 HOLDINGS INC. C/O ESTHER TUNSTALL

PETO MacCALLUM LTD.
19 CHURCHILL DRIVE
BARRIE, ONTARIO
L4N 8Z5
PHONE: (705) 734-3900
FAX: (705) 734-9911
EMAIL: barrie@petomaccallum.com

Distribution:
2 cc: BEMP 1 Holdings Inc. c/o Esther Tunstall (+email)
1 cc: PML Barrie

PML Ref.: 17BF005
Report: 1
May 2017

May 5, 2017

PML Ref.: 17BF005
Report: 1

Mr. Eric Lawton
BEMP Holdings 1 Inc. c/o Esther Tunstall
65 Barre Drive
Barrie, Ontario
L4N 7P1

Dear Mr. Lawton

Geotechnical Investigation
Proposed Lockhart Road Residential Subdivision
Barrie, Ontario

Peto MacCallum Ltd. (PML) is pleased to present the results of the geotechnical investigation recently completed at the above noted project site. Authorization for this assignment was provided by Mr. E. Lawton in the signed Engineering Services Agreement dated March 7, 2017 and signed Engineering Services Agreement Change Order No. 1 dated March 28, 2017.

A new residential subdivision is proposed for the 25 hectare parcel of land north of Lockhart Road, south of Lover's Creek and East of Barton Boulevard in Barrie, Ontario. The subdivision is to include approximately 300 residential units with full depth basements, a school block, a mixed-use block (commercial), and a Storm Water Management (SWM) block. Low Impact Development (LID) strategies are also being considered to manage storm water. Full site servicing and a network of roads are also proposed. The proposed development plan and proposed cut/fill plan from the RFP are shown in Drawing 1, appended. The rough grading plan provided with the RFP shows cuts/fills as much as 10 m. Servicing inverts were not known at this stage of planning and are estimated to be approximately 3 m below proposed final grade, for the purposes of this report.

A geotechnical investigation was requested in order to examine the subsurface conditions at the site, and based on this information, provide comments and geotechnical engineering recommendations for house foundations and basements, site servicing, infiltration parameters for LID, SWM pond construction, and pavement design.



A limited chemical testing program was carried out to check the geoenvironmental quality of the soil at selected sampling locations in order to provide comments regarding on-site re-use and/or off-site disposal/reuse of excess site soil. Two ground water samples were also tested.

The comments and recommendations provided in this report are based on the site conditions as revealed in the boreholes at the time of this investigation, and are applicable only to the proposed works as described in the report. Any changes in plans, will require review by PML to assess the applicability of the report, and may require modified recommendations, additional analysis and/or investigation.

INVESTIGATION PROCEDURES

Fifteen boreholes were carried out from March 14 to March 21, 2017 across the site. The boreholes were advanced to depths of 3.5 to 15.7 m, below existing grade at the locations shown on Drawing 2, appended.

Co-ordination of clearances of underground utilities was provided by PML.

The boreholes were advanced using continuous flight solid stem augers, powered by a track mounted CME-55 drill rig, equipped with an automatic hammer, supplied and operated by a specialist drilling contractor working under the full-time supervision of a member of our engineering staff.

Representative samples of the overburden were recovered at frequent depth intervals for identification purposes using a conventional split spoon sampler. Standard penetration tests were carried out simultaneously with the sampling operations to assess the strength characteristics of the subsoil. The ground water conditions in the boreholes were assessed during drilling by visual examination of the soil samples, the sampler, and drill rods as the samples were retrieved, and measurement of water in the open boreholes upon completion, if any.



Wells (50 mm diameter pipe with stick-up protective casing) were installed in four of the boreholes, and piezometers (19 mm diameter pipe with stick-up protective casing) were installed in the other eleven boreholes. Water levels in the wells and piezometers were measured about one to two weeks after installation. As per O.Reg. 903, the wells and piezometers become the property of the Owner and will have to be decommissioned when no longer required. PML would be pleased to assist in this regard.

The locations and surface elevations of the boreholes were established in the field by a sub-contracted surveying company based on a plan provided by the client and PML.

Geoenvironmental procedural protocols and testing results are discussed later in the report.

All recovered soil samples were returned to our laboratory for moisture content determinations and detailed examination to confirm field classification. Four soil samples from the boreholes, were submitted for particle size distribution analysis, and the results are presented on the Particle Size Distribution Charts on Figures 1 to 4, appended.

SITE DESCRIPTION AND SUMMARIZED SUBSURFACE CONDITIONS

The approximate 25 hectare property is some 425 m deep with an approximate 600 m frontage on Lockhart Road. The northern part of the site is a treed wetland surrounding Lover's Creek and it is understood that this area will not be developed. The central and south parts of the site, where development is planned, are currently farm fields. The proposed residential development will tie into the existing subdivision to the west, as shown in the development plan in Drawing 1, appended. Based on the topographic information provided, the site has about 18 m of relief, generally sloping down from south to north, specifically about elevation 267.0 in the southeast corner to about elevation 249.0 in the northeast corner. A general cut/fill plan provided at the RFP stage is shown in Drawing 1, appended, and proposes cuts and fills as much as 10 m.



Reference is made to the appended Log of Borehole sheets for details of the subsurface conditions, including soil classifications, inferred stratigraphy, Standard Penetration Test N values, piezometer and well installation details, ground water observations and the results of laboratory moisture content determinations and particle size distribution analyses.

Due to the soil sampling procedures and limited sample size, the depth demarcations on the borehole logs must be viewed as "transitional" zones between layers, and cannot be construed as exact geologic boundaries between layers. PML would be pleased to assist in defining geologic boundaries during construction, if required.

The site is dominated by a major glacial sand/silt till deposit. In the northern part of the development nearest to Lover's Creek wetland, a localized clayey silt unit was encountered below a topsoil mantle. Many of the boreholes also revealed a silty sand or sandy silt layer below the topsoil, overlying the major till deposit. Sand and/or silty sand layers were interbedded within the sand/silt till and below the till in several boreholes. A description of the distribution and characteristics of the various soil units and ground water observations encountered in the boreholes is as follows.

Topsoil

A 140 to 700 mm thick layer of topsoil was present at the surface of all boreholes.

Clayey Silt

A local clayey silt layer was observed below the topsoil in Boreholes 1 and 3, at the north edge of the development area, extending to 1.4 m depth (elevation 247.4 to 248.1). The unit was very soft to stiff and was frozen, with moisture contents ranging from 18 to 55%.



Upper Silty Sand/Sandy Silt

Below the topsoil in Boreholes 8, 9, 11, 12, 14, and 15, and locally beneath an upper till layer in Borehole 4, a silty sand or sandy silt unit was encountered extending to 1.4 to 2.1 m depth (elevation 250.5 to 264.0). The material was typically compact, locally very loose to loose, and moist to wet with moisture contents ranging from 9 to 35%.

Sand/Silt Till

A major sand/silt till deposit was observed in all boreholes extending to the depth of exploration in Boreholes 1, 3 to 9, and 12 to 15, and to 5.5 to 7.0 m depth (elevation 246.4 to 261.4) in Boreholes 2, 10 and 11. The till was also interrupted by sand/silty sand layers in three boreholes. The deposit comprised silty sand to sandy silt, trace gravel with cobbles and boulders noted. Three samples of the till were submitted for particle size distribution analysis and the results are provided in Figures 1 to 3, appended. The till was loose to very dense with depth, and typically moist with wet seams/layers, locally very moist or wet, with moisture contents ranging from 4 to 14%.

Sand/Silty Sand

A sand deposit was encountered below the sand/silt till in Boreholes 2, 10 and 11 extending to the depth of exploration. In Boreholes 3 and 12, a sand/silty sand layer interrupted the till deposit from 7.0 to 8.5 m depth (elevation 240.3 to 241.8) and 4.0 to 5.5 m depth (elevation 248.3 to 249.8), respectively. A sample of the material from Borehole 3 was submitted for particle size analysis and the results are provided in Figure 4, attached. The material was typically very dense, locally compact or dense, and wet with moisture contents of 6 to 16%.

Ground Water

The ground water levels measured upon completion of augering and in the piezometers/wells are summarized in the table below on a borehole by borehole basis:



BOREHOLE	WATER LEVEL IN BOREHOLES UPON COMPLETION OF AUGERING DEPTH (m)/ELEVATION	WATER LEVEL IN PIEZOMETERS /WELLS MARCH 28, 2017 DEPTH (m)/ELEVATION
1	No Water to 5.0 m depth of borehole	-1.0 / 250.5 (water above grade)
2	2.4 / 215.5	0.8 / 253.1
3	1.4 / 247.4	-1.0 / 249.8 (water above grade)
4	No Water to 5.0 m depth of borehole	1.7 / 255.9
5	No Water to 3.5 m depth of borehole	2.9 / 256.1
6	1.8 / 257.4	2.8 / 256.4
7	3.0 / 260.1	4.8 / 258.3
8	No Water to 5.0 m depth of borehole	Dry
9	No Water to 8.1 m depth of borehole	5.2 / 257.9
10	6.7 / 260.2	5.4 / 261.5
11	0.8 / 251.1	0.4 / 251.5
12	1.5 / 252.3	0.5 / 253.3
13	0.9 / 254.0	0.6 / 254.3
14	5.5 / 253.4	3.4 / 255.5
15	No Water to 5.0 m depth of borehole	Dry

Based on the water level readings, the stabilized ground water was 1 m above existing grade to 5.4 m below existing grade, with gradient trending generally downwards from the south (elevation 261.5) to the north toward Lover's Creek (elevation 249.8). Ground water levels in the northern most boreholes, closest to Lover's Creek (Boreholes 2, 3, 11 and 12) are above existing grade, indicating artesian pressure.

Ground water levels are subject to seasonal fluctuations, and in response to variations in precipitation.



GEOTECHNICAL ENGINEERING CONSIDERATIONS

General

A new residential subdivision is proposed for the 25 hectare parcel of land north of Lockhart Road, south of Lover's Creek and East of Barton Boulevard. The subdivision is to include approximately 300 residential units with full depth basements, a school block, a mixed-use block (commercial), and a Storm Water Management (SWM) block. Low Impact Development (LID) strategies are being considered to manage storm water. Full site servicing and a network of roads are also proposed. The proposed development plan and proposed cut/fill plan from the RFP are shown in Drawing 1, appended. The rough grading plan provided with the RFP shows cuts/fills as much as 10 m. Servicing inverts were not known at this stage of planning and are estimated to be approximately 3 m below proposed final grade, for the purposes of this report.

The boreholes revealed the site to be dominated by a sand/silt till deposit, with intermittent layers of sand, silty sand, sandy silt and clayey silt. The soils are typically compact to very dense within 1 m of the existing ground surface. The stabilized ground water was 1 m above existing grade to 5.4 m below existing grade, with a hydraulic gradient trending generally downwards from the south (elevation 261.5) to the north toward Lover's Creek (elevation 249.8). The ground water in the northern most boreholes (Borehole 2, 3 11 and 12), closest to Lover's Creek, is under artesian pressure (ground water level above existing grade).

The proposed site grading involves cuts and fills of as much as 10 m. The site soils are generally competent, however, the high ground water table and artesian ground water will impact site development. Further monitoring of the ground water level is recommended.

Site Grading and Engineered Fill

The rough grading plan shows cuts and fills of as much as 10 m. At the time of this report, no design had been completed on any site servicing or SWM ponds, and building finished grades and founding levels were not available.



Where grades are to be raised under structures (houses, roads, site servicing and SWM ponds) the fill needs to be constructed as engineered fill. Reference is made to Appendix A for guidelines for engineered fill construction. The following general highlights are provided:

- Strip existing topsoil, and other deleterious materials down to native inorganic soil. The excavated soil should be segregated and stockpiled for reuse or disposal;
- Proofroll exposed subgrade using a heavy roller to targeted 100% Standard Proctor maximum dry density, under geotechnical review during construction. It is advised that wet subgrade conditions can be expected in some areas which will be sensitive and easily disturbed. Also, weather will impact the moisture condition of the subgrade. In this regard, it is recommended that provisions be made for the first lift or two of engineered fill to comprise OPSS Granular B, Type II (crushed rock), subject to geotechnical review. The contractor will have to adopt equipment and methodology to take these issues into account;
- Following geotechnical review and approval of the subgrade, spread approved material in maximum 200 mm thick lifts and uniformly compacted to 100% Standard Proctor maximum dry density in building areas. Under pavements, site servicing and SWM pond areas the engineered fill may be compacted to 95% Standard Proctor maximum dry density;
- Based on the rough grading concept both cut and fill are proposed. Engineered fill material should comprise inorganic soil, free of deleterious and oversized material, at a moisture content suitable for compaction. Excavated inorganic soil from above the ground water table is expected to be generally suitable for reuse as engineered fill during relatively dry weather. Soil from below the ground water table will be too wet for reuse, unless allowed to “dry out”. Also, weather will impact the moisture conditions of the soil and suitability for reuse. Reuse of excavated soils is subject to careful moisture control and geotechnical review and approval during construction;
- Prospective imported fill material should be reviewed by PML to ensure suitability;
- The engineered fill pad must extend at least 1 m beyond the structure to be supported, then outwards and downwards at no steeper than 45° to the horizontal to meet the underlying approved native subgrade. In this regard, strict survey control and detailed documentation of the lateral and vertical extent of the engineered fill limits should be carried out to ensure that the engineered fill pad fully incorporates the structure to be supported;



- Engineered fill construction must be carried out under full time field review by PML, to approve sub-excavation and subgrade preparation, backfill materials, placement and compaction procedures, and to verify that the specified compaction standards are achieved throughout.

Foundations

Under the topsoil mantle covering the site, the native soils comprised a major sand/silt till deposit with intermittent units of sand, silty sand, sandy silt and clayey silt. The native soils are typically compact to very dense below about 1 m depth. The available bearing capacities are summarized below on a borehole by borehole basis:

BOREHOLES	DEPTH (m) / ELEVATION	GEOTECHNICAL BEARING RESISTANCE AT SLS (KPa)	FACTORED BEARING RESISTANCE AT ULS (KPa)	SOIL
1	0.6 / 248.9 2.5 / 247.0	50 150	75 225	Clayey Silt Till
2	0.8 / 253.1 1.5 / 252.4	100 300	150 450	Till Till
3	0.8 / 248.0 3.5 / 245.3	100 300	150 450	Clayey Silt/Till Till/Silty Sand
4	0.8 / 256.8 1.5 / 256.1	75 300	110 450	Till Silty Sand/till
5	0.8 / 258.2 1.5 / 257.5	150 300	225 450	Till Till
6	0.8 / 258.4 1.5 / 257.7 2.0 / 259.2	75 150 300	110 225 450	Till Till Till
7	0.8 / 262.3	300	450	Till
8	0.8 / 164.6 1.5 / 263.9	200 300	300 450	Silty Sand Till
9	0.8 / 262.3 1.5 / 261.6 2.5 / 260.6	100 200 300	150 300 450	Sandy Silt Till Till
10	0.8 / 266.1 1.5 / 265.4	100 300	150 450	Till Till
11	0.8 / 251.1 1.5 / 250.4 3.0 / 248.9	100 150 300	150 225 450	Silty Sand Till Till
12	1.5 / 252.3 3.0 / 250.8 5.5 / 248.3	50 150 300	75 225 450	Silty Sand/Till Till/Sand Till
13	0.8 / 254.1 1.5 / 253.4	225 300	340 450	Till Till
14	0.8 / 258.1 1.5 / 257.4	150 300	225 450	Till Till
15	0.8 / 258.2 2.5 / 256.5	100 300	150 450	Till Till



As discussed earlier, existing topsoil needs to be removed and any upfilling under proposed building foundations will need to be constructed as engineered fill. Footings founded on a minimum 1 m of engineered fill can be designed for a net geotechnical bearing resistance at SLS of 150 kPa and a factored bearing resistance at ULS of 225 kPa.

The bearing resistance at SLS is based on total settlement of 25 mm in the bearing stratum with differential settlement of 75% of this value.

Footings subject to frost action should be provided with a minimum 1.2 m of earth cover or equivalent.

Prior to placement of structural concrete, all founding surfaces should be reviewed by PML to verify the design bearing capacity is available, or to reassess the design parameters based on the actual conditions revealed in the excavation.

Where ground water is present at the founding level in cut areas or other areas, a lean mix concrete skim coat should be provided immediately after approval of the subgrade to protect the subgrade soils.

Based on the soil profile revealed in the boreholes, Site Classification D is applicable for Seismic Site Response as set out in Table 4.1.8.4.A of the Ontario Building Code (2012). Based on the type and relative density of the soil cover at the site there is a low potential for liquefaction of soils to occur.

Basement Walls and Floor Slabs

Only general grading concepts have been provided. Basements could range from about 7.5 m above existing grade to about 12.5 m below existing grade. The high ground water table will impact basements in cut areas. In general, it is recommended that basements be established a minimum 0.5 m above the ground water level. In this regard, further monitoring of the ground water levels is recommended.



Full depth basements are proposed for all buildings. Perimeter walls must be designed to resist the unbalanced horizontal earth pressure imposed by the backfill adjacent to the walls. The lateral earth pressure, P , may be computed using the following equation and assuming a triangular pressure distribution:

$$P = K (\gamma h + q) + C_p$$

Where

- P = lateral pressure at depth h (m) below ground surface (kPa)
- K = lateral earth pressure coefficient of compacted granular backfill = 0.5
- h = depth below grade (m) at which lateral pressure is calculated
- γ = unit weight of compacted granular backfill = 22.0 kN/m³
- q = surcharge loads (kPa)
- C_p = compaction pressure

The above equation assumes that drainage measures will be incorporated to prevent the buildup of hydrostatic pressure. In this regard, foundation wall backfill should comprise free draining granular material conforming to OPSS Granular B. Alternatively, a proprietary drainage board product can be utilized with on-site soils as backfill. A weeping tile system should be installed to prevent the build-up of hydrostatic pressure behind the wall. The weeping tiles should be protected by a properly designed granular filter or geotextile to prevent migration of fines into the system. The drainage pipe should be placed on a positive grade and lead to a frost-free outlet.

Foundation/basement wall backfill should be placed in thin lifts compacted to a minimum 95% Standard Proctor maximum dry density. Over compaction close to the walls should be avoided as this could generate excessive pressure on the walls.

Basement floor slab construction is feasible on native soils or engineered fill. In general, a minimum 200 mm thick base layer of crushed stone (nominal 19 mm size) is recommended directly under the slab. Underfloor drains are recommended where basement floor slabs are within 1.0 m of the stabilized ground water table. A polyethylene sheet vapour barrier should be incorporated under the ground floor slab if a vapour sensitive floor finish is planned.

Exterior grades should be established to promote surface drainage away from the buildings.



Reference is made to appended Figure 5, for general recommendations regarding drainage and backfill requirements for basement walls and floor slabs.

Site Servicing

Plan and profile drawings have not been provided for this site. In this regard, it has been assumed that invert depths will be approximately 3.0 m below proposed grade. Based on this and the proposed cut/fill of as much as 10 m, invert depths will range from as much as 7 m above current grade, in high fill areas, to 13 m below current grades, in deep cut areas.

Trench Excavation and Ground Water Control

Trench excavation and ground water control is discussed under Excavation and Ground Water Control later in the report.

Bedding

It is anticipated that services will be supported in native soils or engineered fill, and bearing capacity issues are not anticipated. Where poor subgrade soils are encountered at the design invert, it may be necessary to sub-excavate and provide an increased thickness of bedding, subject to geotechnical field review.

Standard granular bedding in accordance with OPSS compacted to 95% Standard Proctor maximum dry density should be satisfactory. For flexible pipes, bedding and cover material should comprise OPSS Granular A. For rigid pipes, bedding material should comprise OPSS Granular A, and cover material may comprise select trench backfill free of oversized (200 mm diameter or less) or excessively wet material.

Backfill

Trench backfill should comprise select inorganic soil placed in maximum 200 mm thick lifts compacted to minimum 95% Standard Proctor maximum dry density, to minimize post construction settlement. Topsoil, organic/peat, excessively wet, frozen, oversized (greater than 200 mm diameter), or otherwise deleterious material should not be incorporated as trench backfill.



The moisture content should be within 2% of optimum in order to achieve the specified compaction, and should be closer to the optimum moisture content in the upper 1 m to prevent instability issues. Ideally the backfill should comprise excavated site soil in order to minimize differential frost heave.

The excavated soils at the site will comprise the predominate native granular soils. Excavated inorganic soils from above the ground water table are expected to be generally suitable for reuse as trench backfill. Inorganic material from below the ground water table will be too wet for reuse unless allowed to dry out or mixed with drier soil to render the material suitable for reuse. Weather will also impact the moisture conditions of the soil and suitability for reuse. Geotechnical review of the excavated soil and approval for use as backfill will be necessary during construction.

Earthworks operations should be inspected by PML to verify subgrade preparation, backfill materials, placement and compaction efforts and ensure the specified degree of compaction is achieved throughout.

Excavation and Ground Water Control

Based on the proposed cut/fill of as much as 10 m, invert depths for services (assumed to be 3.0 m below proposed grade) will range from as much as 7 m above current grade in high fill areas to 13 m below current grades in deep cut areas. House excavations will have a similar depth range assuming full depth basement will be about 2.5 m below proposed grade. Excavation will predominately encounter the major till deposit, locally the intermittent, sand, silty sand, sandy silt and clayey silt layers. Harder digging below about 1 to 2 m depth below existing grade should be expected and the presence of cobbles and boulders should be anticipated in the till deposit.

Subject to effective ground water control, the site soils should be considered as Type 3 soil requiring excavation side walls to be constructed at no steeper than one horizontal to one vertical (1H:1V) from the base of the excavation in accordance with the Occupational Health and Safety Act.



Upon completion of augering, ground water was typically observed at depth, with ground water not observed in some boreholes. About one to two weeks later, the stabilized ground water was 1 m above existing grade to 5.4 m below existing grade, with the hydraulic gradient trending generally downwards from the south (elevation 261.5) to the north toward Lover's Creek (elevation 249.8). The ground water in the northern most boreholes (Borehole 2, 3 11 and 12), closest to Lovers Creek, is under artesian pressure.

Accordingly, for shallow excavation, it is expected that ground water seepage should be managed using sump pumping techniques. However, in deeper excavations particularly through more permeable sand/silty sand deposits, ground water inflow could be significant, requiring the use of well points to temporarily depressurize/lower the ground water level to prevent excavation under relatively dry conditions. Dewatering systems must be designed and installed by specialists in this field.

Water taking in Ontario is governed by the Ontario Water Resources Act (OWRA) and the Water Taking and Transfer Regulation O.Reg. 387/040, Section 34 of the OWRA requires anyone taking more than 50,000 L/d to obtain a Permit-to-Take-Water (PTTW). This requirement applies to all withdrawals, whether for consumption, temporary construction dewatering or permanent drainage improvements. Projects assessed to be taking more than 50,000 L/d but less than 400,000 L/d of ground water can obtain a permit/permission online via the Environmental Activity and Sector Registry (EASR) system. If it is assessed that more than 400,000 L/d is required then a Category 3 PTTW will be required.

Based on the discussion above, a PTTW or registry on the EASR is anticipated. When design details including final grading and service inverts are available, they should be submitted to PML for review to more fully assess ground water requirements and the need for Site Specific Hydrogeological Site Assessment and application for a PTTW or EASR.

It is recommended that a test dig be undertaken to allow prospective contractors an opportunity to observe and evaluate the conditions likely to be encountered and assess preferred means of excavation and ground water control measures based on their own experience.



Infiltration Parameters

LID strategies are being considered at the site for storm water management purposes. The locations of any infiltration infrastructure are yet to be determined.

A summary of the particle size distribution analyses and estimates of permeability are provided below:

FIGURE	BOREHOLE	DEPTH (m)	SOIL DESCRIPTION	ESTIMATED PERMEABILITY, k, (cm/sec)
1	6	4.6 to 5.0	Sand/Silt Till	1×10^{-6}
2	8	1.5 to 2.0	Silty Sand Till	1×10^{-5}
3	11	3.0 to 3.5	Sand/Silt Till	1×10^{-6}
4	3	7.6 to 8.1	Silty Sand	1×10^{-4}

The following comments are presented for your consideration.

1. The till with estimated coefficient of permeability typically 1×10^{-5} to 1×10^{-6} cm/sec is semi-impervious with limited infiltration capacity.
2. The silty sand with estimated coefficient of permeability 1×10^{-4} cm/sec is semi-pervious and more suited for infiltration, however the limited distribution of this soil type will limit infiltration capacity.
3. Very dense soils and/or high groundwater levels will reduce infiltration capacity.

Storm Water Management Ponds

A SWM pond is proposed in the northeast corner of the site. The pond is yet to be designed and design grading is currently unknown.



Borehole 3 was conducted in the SWM Pond area and beneath the 0.7 m of topsoil, stiff clayey silt to 1.4 m depth (elevation 247.4) was revealed, over sand/silt till and a local sand layer to the 11.1 m depth of exploration. The till and sand were loose to compact to about 4.5 m depth becoming very dense below this depth. The stabilized water in the well about 12 days later was 1.0 m above existing grade (elevation 249.8) and was under artesian pressure. The following general geotechnical input is provided below:

- Berms, if required, should be constructed as engineered fill, using select material, compacted to 95% Standard Proctor maximum dry density as discussed earlier in the report. Berm material requirements (permeability) should be assessed when pond details are finalized;
- Interior side slopes should be no steeper than 5H:1V, and protected from erosion by provision of vegetation cover, granular blanket, rip rap or the like. Exterior slopes should be constructed at no steeper than 3H:1V;
- Dewatering/depressurization of the artesian ground water will need to be assessed once SWM Pond details have been established, in order to carry out construction under dry conditions, and ensure basal stability of the pond bottom;
- If the pond is to be a wet pond an impermeable liner may be required.

It is recommended that when the grading and design details of the proposed pond are determined, the drawings should be submitted for review by PML to more fully assess the geotechnical parameters, which may necessitate additional investigations to better define the drainage characteristics and ground water regime.



Pavement Design and Construction

Cut and fill is proposed for the site and it is unknown if imported material will be required. The following typical pavement thicknesses are provided considering the predominate silty sand to sandy silt site soils anticipated to make up the pavement subgrade. A review should be conducted when the road subgrade material is known.

MATERIAL	LIGHT DUTY (LOCAL RESIDENTIAL ROADS)	HEAVY DUTY (COLLECTOR ROADS)
Asphalt (mm)	110	140
Granular A Base Course (mm)	150	150
Granular B Subbase Course (mm)	300	450
Total Thickness (mm)	560	740

Subgrade preparation should include proofrolling and compacting the exposed subgrade soil with a heavy compactor to 95% Standard Proctor maximum dry density, under geotechnical review. Any unstable zones identified during this process should be sub-excavated and replaced with compacted select material.

Imported material for the granular base and subbase should conform to OPSS gradation specifications for Granular A and Granular B, and should be compacted to 100% Standard Proctor maximum dry density. Asphalt should be compacted in accordance with OPSS 310.

The pavement design considers that construction will be carried out during the drier time of the year and that the subgrade is stable, as determined by proofrolling operations. Where wet and/or unstable subgrade is identified, remediation may include increasing the depth of subbase, the use of Granular B Type II and/or use of geogrid reinforcement, subject to geotechnical review during construction.



For the pavement to function properly, it is essential that provisions be made for water to drain out of, and not collect in the base material. The incorporation of longitudinal subdrains is recommended in conjunction with crowning of the final surface to promote drainage to the pavement edges. Subdrains should be installed at least 300 mm below the subgrade level. For details regarding pipe, filter cloth or pipe sock, bedding and cover material, refer to OPSD 216 Series. Subdrains should lead to a frost free outlet and/or be connected to storm sewer system. Maintenance holes/catch basins should be backfilled using free draining material with frost tapers and stub drains extending out from the structures. The above measures will help drain the pavement structure as well as minimize frost movement between maintenance hole/catch basins and pavement.

Topsoil Analysis

Three topsoil samples, TS 1 to TS 3, were obtained from the topsoil adjacent to boreholes as noted in the below table:

TOPSOIL SAMPLE (TS)	ASSOCIATED BOREHOLE
1	2
2	6
3	10

The samples were submitted for textural analysis and testing for general fertility parameters to Agrifood Laboratories. The Certificates of Analysis for Topsoil are provided in Appendix B.

The results indicate the topsoil is generally suitable to support plant growth.

The findings should be reviewed by the landscape architect to determine soil enhancement requirements.



Geotechnical Review and Construction Inspection and Testing

It is recommended that the final drawings be submitted to PML for geotechnical review for compatibility with the site conditions and the recommendations provided in this report.

Earthworks operations should be carried out under the supervision of PML to approve subgrade preparation, backfill materials, placement and compaction procedures and verify specified compaction standards are achieved throughout.

Prior to placement of structural concrete for footings, the founding surface must be inspected to verify the design bearing capacity is available or to make recommendations for remediation, if required.

The comments and recommendations provided in the report are based on the information as revealed in the boreholes. Conditions away from and between boreholes may vary, which may necessitate modifications to the recommendations contained in the report.

GEOENVIRONMENTAL CONSIDERATIONS

General

A limited chemical testing program was carried out to check the geoenvironmental quality of the soil at selected sampling locations in order to provide comments regarding on-site reuse or off-site reuse/disposal options for excess excavated site soil. Two water samples from the wells were also submitted for chemical testing.

A Phase One Environmental Site Assessment (ESA) was not within the scope of work for this assignment. Accordingly, soil and ground water impairment that has not been identified by the limited chemical testing program may exist at the site. The limited chemical testing program does not constitute an Environmental Site Assessment as defined under the Environmental Protection Act and O.Reg. 153/04, as amended.



Site Condition Standards

In general, the applicable environmental quality guidelines depend on the site location, land use, soil texture and source of potable water at the site. In this regard, we selected the Generic Criteria of the O. Reg. 153/04, as amended, Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act dated April 15, 2011.

Based on Sections 41 and 43 of O.Reg. 153/04, as amended, and review of readily available information to determine if the site is sensitive. The subject site is directly adjacent to an area designated as an area of natural significance, an evaluated wetland identified by the Ministry of Natural Resources (MNR) and as such is considered a sensitive site.

Further, the site was reviewed against the City of Barrie's watercourses and Wellhead Protection Areas (Schedules F and G, March 2011) and MOECC website for drinking water wells as part of the protocol to determine the applicable Site Condition Standards (SCSs) for the site. In this regard, the site is not within a wellhead protection area and Lovers Creek is to the north.

Based on the above reviews, the criteria of Table 1: Full Depth Background Site Condition Standards, Table 1 SCS, are considered applicable to the site.

Soil Testing

Chemical Testing Protocols

The recovered geoenvironmental soil samples were placed in laboratory provided air tight glass containers and stored in an insulated cooler for transportation to our laboratory for detailed visual examination.

As part of the geoenvironmental procedural protocol, all recovered soil samples were examined for visual and olfactory evidence of potential contamination. It is noted that none of the recovered samples displayed visual or olfactory evidence of potential contamination.



Select soil samples were submitted for chemical analysis to AGAT Laboratories Limited (AGAT), a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited laboratory in Mississauga, Ontario. The chemical analyses conducted by AGAT were in accordance with the O. Reg. 153/04, as amended Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act dated March 9, 2004, amended as of July 1, 2011.

Soil samples were selected for chemical testing based on visual and olfactory evidence of potential contamination, as well as for site coverage and potential to be excavated.

For general environmental quality characterization, soil samples were tested for the following analyte groups:

- Metals and Inorganics
- Petroleum Hydrocarbons (F1 to F4 fractions)
- Volatile Organic Compounds (VOCs)
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Organochlorine Pesticides

The following soil samples were submitted for testing:

- Borehole 1 SS 2, (clayey silt – 0.8 to 1.2 m)
- Borehole 2 SS 4, (till – 2.3 to 2.7 m)
- Borehole 3 SS 2, (clayey silt – 0.8 to 1.2 m)
- Borehole 5 SS 3, (till – 1.5 to 1.9 m)
- Borehole 6 SS 5, (till – 3.0 to 3.5 m)
- Borehole 7 SS 3, (till – 1.5 to 1.9 m)
- Borehole 10 SS 2, (till – 0.8 to 1.2 m)

Analytical Findings and Conclusions

On-Site Reuse

The Certificates of Analysis for Chemical Testing are included in Appendix C.



In summary, the concentration of the tested parameters in the submitted soil samples were in conformance with the Table 1 SCSs applicable to the site. Accordingly, based on the testing results, the soil can be reused on-site, subject to geotechnical requirements.

It should be noted that there is no legal imperative to remove or treat soil that exceeds the applicable SCSs, provided it is demonstrated that there is no off-site impact or adverse effect. If contaminated soil is left on-site, the land Owner assumes liability associated with the site contamination and potential off-site contamination. The liability concerns could include potential scrutiny from the MOECC and the public, potential for decreased value for the land, and issues during potential divesting of the property due to environmental liability concerns on the part of the future Owners or their financiers/insurers.

It should be noted that the soil conditions between and beyond the sampled locations may differ from those encountered during this assignment. PML should be contacted if impacted soil conditions become apparent during future development to further assess and appropriately handle the materials, if any, and evaluate whether modifications to the conclusions documented in this report are necessary.

This assessment is subject to the Statement of Limitations that is included with this report (Appendix E) which must be read in conjunction with the report.

Off-Site Reuse/Disposal

O.Reg. 153/04, as amended, has nine tables outlining SCSs (Tables 1 to 9) for evaluating Environmental Soil Characteristics. These tables are further divided based on land use. The chemical testing results from this project were compared to the various SCSs to evaluate where the excess soil can be transported. Our assessment was limited to Table 2 and Table 3 SCSs, the most common SCSs.

Based on the limited chemical testing results, the soil meets the Table 1 SCSs, the most stringent standards and can be excavated soil transported to any land site, subject to approval of the receiving authority and any geotechnical requirements.



Alternatively, excess soil can be transported to a landfill site, however, additional testing for Toxicity Characteristic Leaching Procedure (TCLP) will be required, in accordance with Ontario Regulation 347, Schedule 4, as amended to Ontario Regulation 558/00, dated March 2001.

When transporting excavated site soil to another site the following are recommended:

- The work must be completed in accordance with local by-laws governing soil movement and/or placement at other sites;
- All analytical results and environmental assessment reports must be fully disclosed to the receiving site owners/authorities and they have agreed to receive the material;
- The applicable SCSs for the receiving site have been determined, as confirmed by the environmental consultant and the SCSs are consistent with the chemical quality of the soil originating at the source site;
- The surplus soil cannot be taken to a property for which a Record of Site Condition (RSC) is being filed as outlined in O. Reg. 153/04, as amended, unless the chemical testing program is completed in accordance with the regulation;
- The surplus soil cannot be taken to a property for which a RSC has been previously filed unless the soil quality meets the SCSs contained in the RSC;
- Transportation and placement of the surplus soil is monitored by the environmental consultant to check the material is appropriately placed at the pre-approved site;
- The receiving site must be arranged and/or approved in advance of excavation in order to avoid delays during construction. As well, it is noted the chemical testing requirements for various receiving sites is site-specific and additional testing may be required, beyond that provided in this limited sampling and testing report;
- The excavation work should be conducted in accordance with a written Soil Management Plan prepared by a qualified professional to ensure that all surplus excavated material is tested and managed appropriately, and that imported fill material is of suitable quality and meets the SCSs applicable to the site. Reuse of surplus excavated soil on site is also subject to acceptance for reuse by the geotechnical consultant at the time of construction based on geotechnical considerations;



- Additional sampling and chemical testing should be carried out during construction to verify the chemical quality of the excess soil to assess the appropriate management/disposal options for the actual soil leaving the site;
- It is recommended that transportation of fill material from the Source Site (s) to the Receiving Site (s) be carried out in accordance with the MOECC document *Management of Excess Soil – A Guide for Best Management Practices* dated January 2014.

Ground Water Testing

General

A limited program of ground water sampling and chemical analysis was carried out to check the geoenvironmental quality of the ground water in order to provide preliminary comments related to dewatering of the site during construction.

Ground Water Sampling and Chemical Testing Protocols

The ground water sampling and sample handling procedures were carried out according to the supporting documents of O. Reg. 153/04, as amended and established standards.

Ground water samples were collected from the monitoring wells in Boreholes 3 and 10 on March 28, 2017, after well development and purging, using dedicated sampling equipment to minimize potential cross-contamination.

The ground water samples were field logged and placed in clean, laboratory provided bottles, stored in an insulated cooler with ice and returned to our laboratory. Particular attention was applied to visual and olfactory evidence of potential contamination such as odours and sheens during the course of the field work, of which none were observed.

Ground water samples were submitted for chemical analysis to AGAT Laboratories Limited (AGAT), a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited laboratory in Mississauga, Ontario. The chemical analysis conducted by AGAT were in accordance with the O. Reg. 153/04 Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act dated March 9, 2004, amended as of July 1, 2011.



For general environmental quality characterization the water samples were tested for the following analyte groups:

- Metals and Inorganics
- Petroleum Hydrocarbons (F1 to F4 fractions)
- VOCs
- PAHs

Analytical Findings and Conclusions

The Certificate of Analyses for Chemical Testing are included in Appendix D.

In summary, the concentrations of the tested parameters in the submitted water samples were in conformance with Table 1 SCSs with the exception of

- Molybdenum in Borehole 3 sample, with a concentration of 37.7 µg/L, Guideline Value is 23 µg/L;
- Toluene in Borehole 3 with a concentration of 1.7 µg/L, Guideline Value is 0.8 µg/L;

These exceedances are minor, may be naturally occurring and resampling is recommended.

This assessment is subject to the Statement of Limitations that is included with this report (Appendix E) which must be read in conjunction with the report.



CLOSURE

We trust this report is complete within our terms of reference, and the information presented is sufficient for your present purposes. If you have any questions, or when we may be of further assistance, please do not hesitate to call our office.

Sincerely

Peto MacCallum Ltd.

A handwritten signature in blue ink, appearing to read 'R. McFadden', is positioned above the typed name.

Riley McFadden, EIT
Project Supervisor, Geotechnical Services



Geoffrey R. White, P.Eng.
Associate
Manager, Geotechnical and Geoenvironmental Services

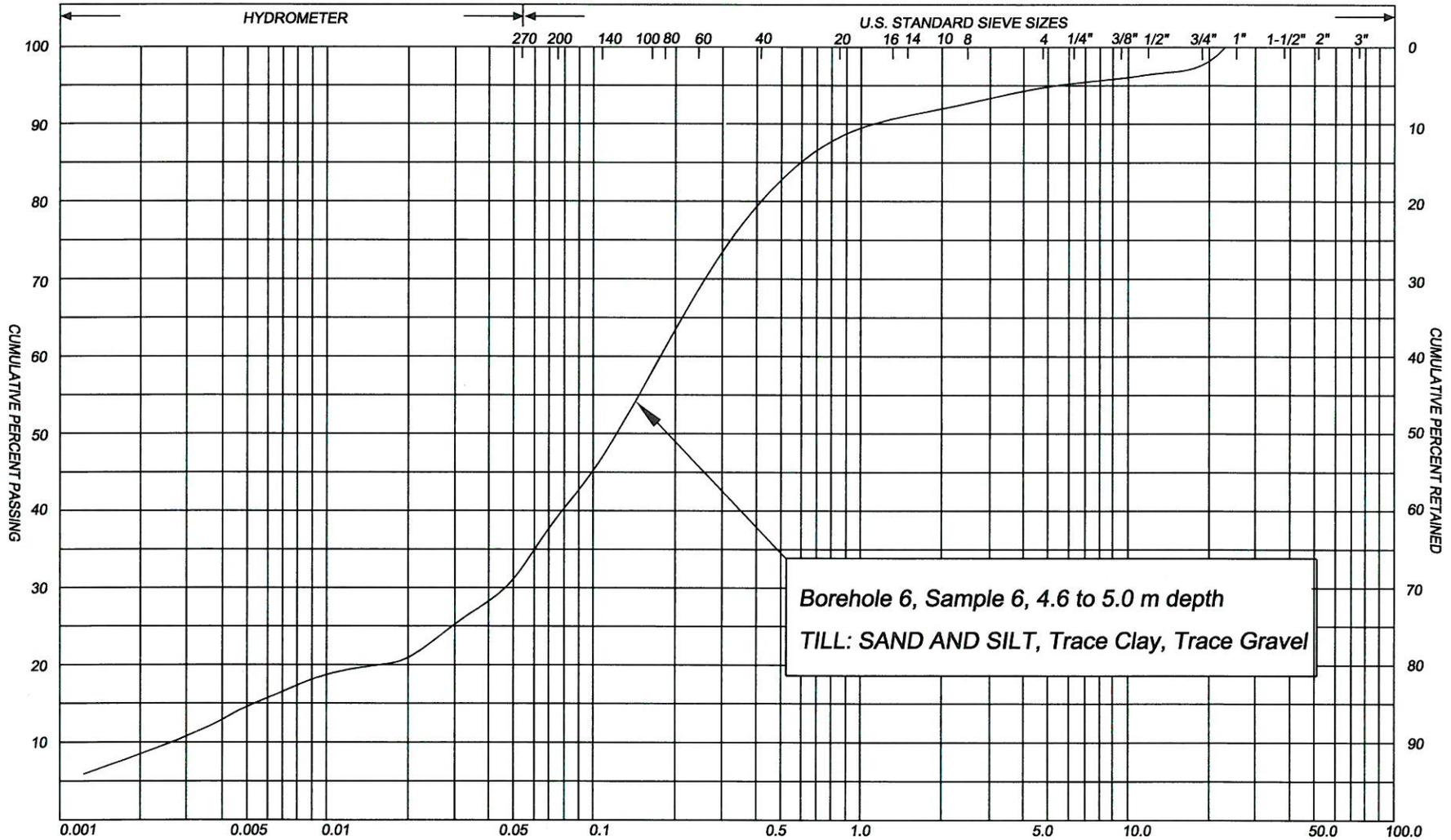
RM/GRW/GM:jlb

Enclosure(s):

Figures 1 to 4 – Particle Size Distribution Charts
Figure 5 - General Recommendations Regarding Drainage and Backfill Requirements for Basement Wall and Floor Slab Construction
List of Abbreviations
Log of Borehole Nos. 1 to 15
Drawing No. 1 – RFP Development Plan and Proposed Cut/Fill Plan
Drawing No. 2 – Borehole Location Plan
Appendix A - Engineered Fill
Appendix B - Certificates of Analyses for Topsoil
Appendix C - Certificates of Analyses for Soil
Appendix D - Certificates of Analyses for Water
Appendix E - Statement of Limitations

PML *Peto MacCallum Ltd.*
 CONSULTING ENGINEERS
PARTICLE SIZE DISTRIBUTION CHART

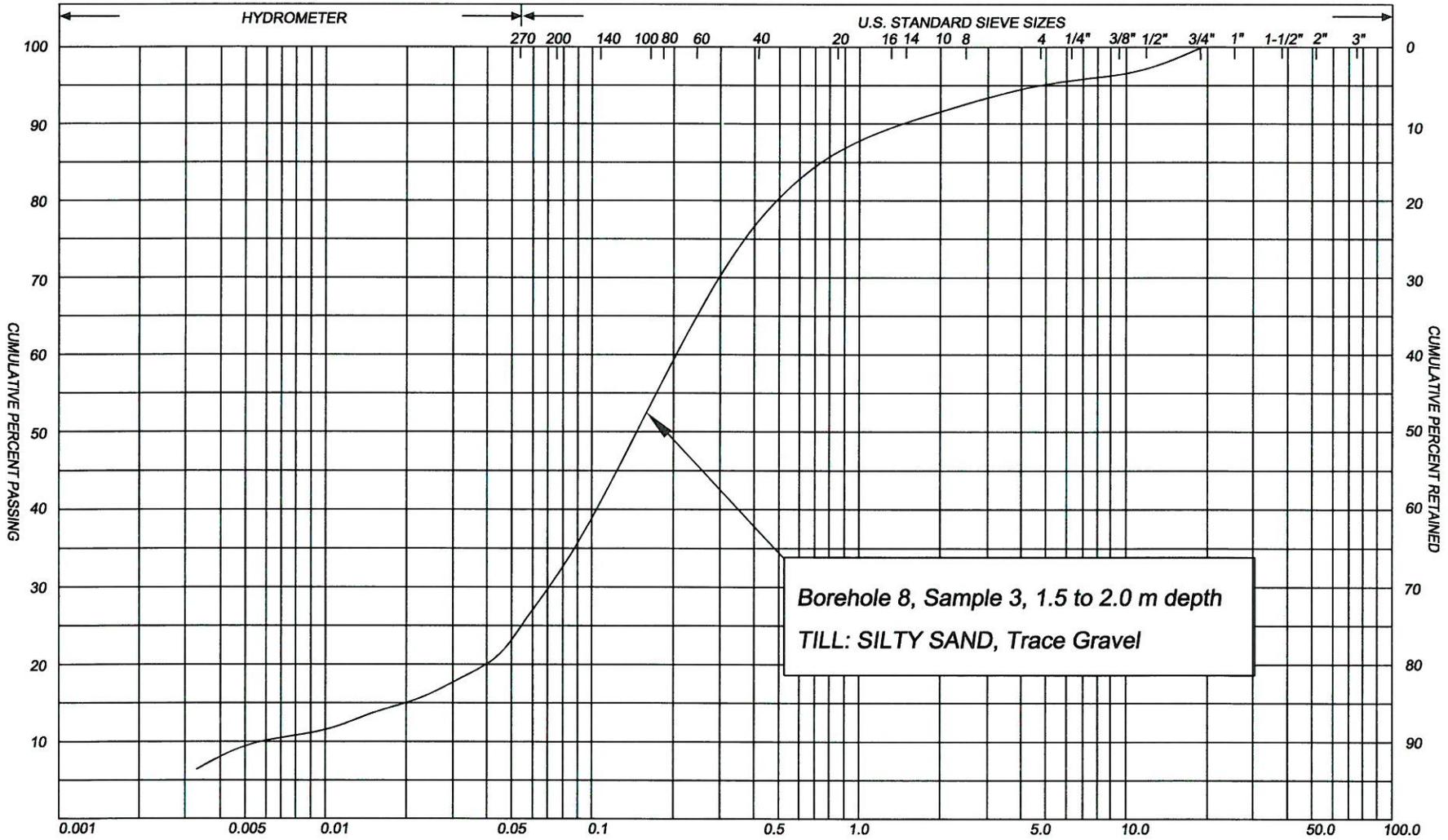
PML Ref.: 17BF005
 Figure No.: 1



Borehole 6, Sample 6, 4.6 to 5.0 m depth
 TILL: SAND AND SILT, Trace Clay, Trace Gravel

GRAIN SIZE IN MILLIMETERS										
SILT & CLAY			FINE SAND			MEDIUM SAND		COARSE SAND		COBBLES
CLAY	FINE	MEDIUM SILT	COARSE	FINE	MEDIUM SAND	COARSE	GRAVEL			COBBLES
	SILT			V. FINE	FINE	MED	COARSE	GRAVEL		
CLAY		SILT		SAND			GRAVEL			

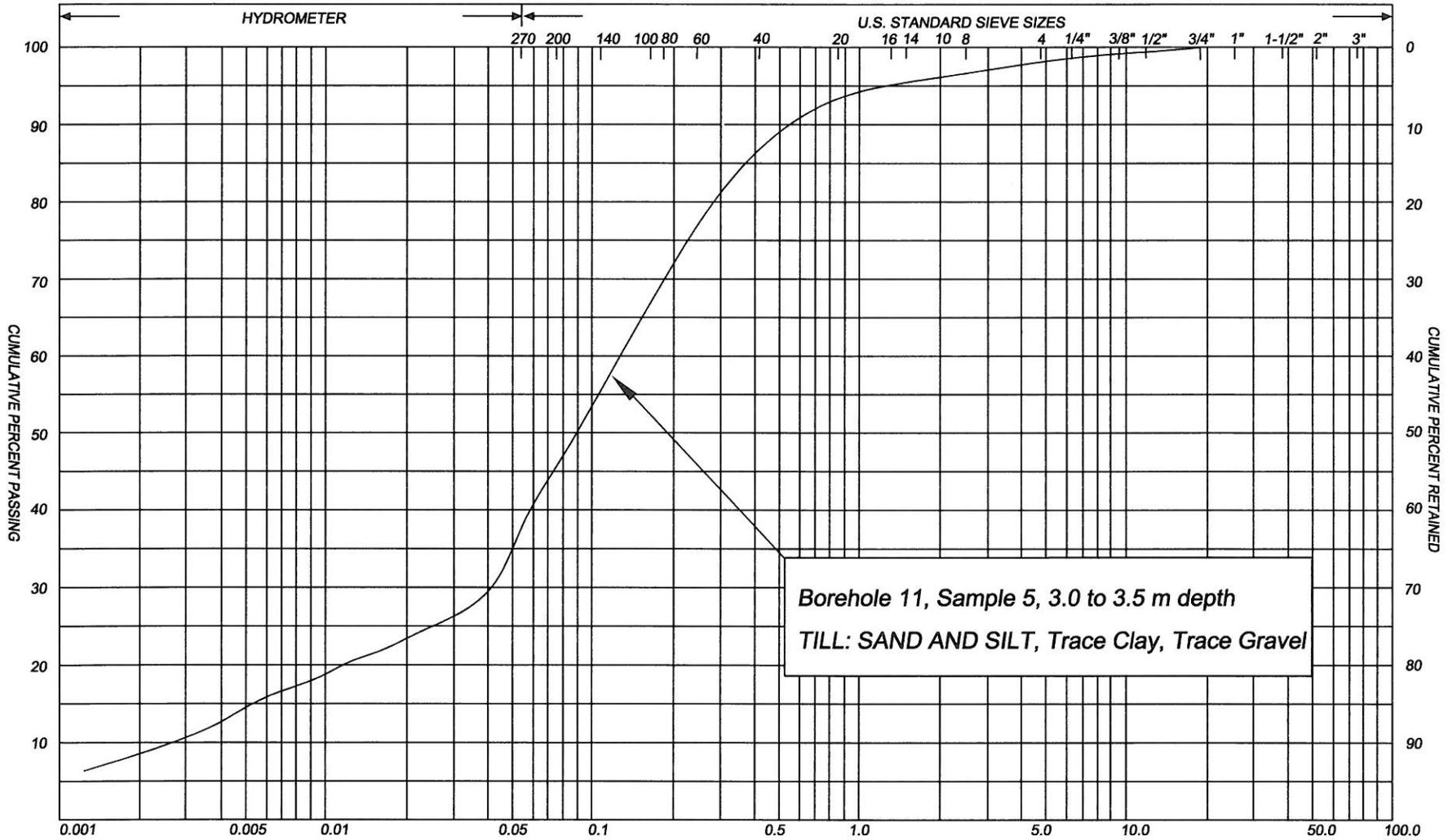
UNIFIED
 M.I.T.
 U.S. BUREAU



Borehole 8, Sample 3, 1.5 to 2.0 m depth
 TILL: SILTY SAND, Trace Gravel

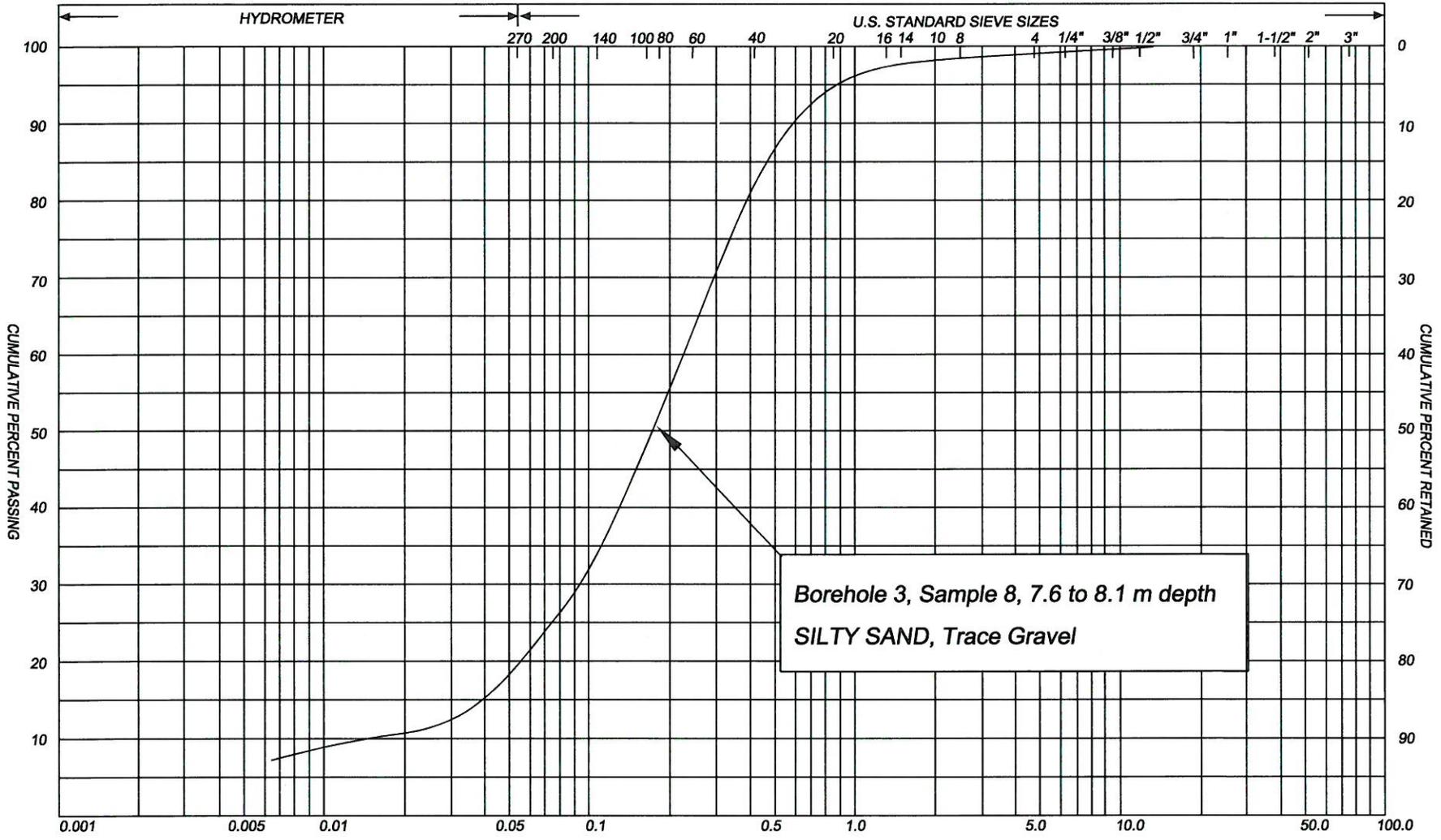
SILT & CLAY				FINE SAND			MEDIUM SAND			COARSE SAND			GRAVEL		COBBLES	
CLAY	FINE	MEDIUM SILT	COARSE	FINE	MEDIUM SAND	COARSE	GRAVEL					COBBLES	UNIFIED			
	SILT			V. FINE	FINE SAND	MED	COARSE	GRAVEL						M.I.T.		
CLAY		SILT		SAND			GRAVEL						U.S. BUREAU			

PARTICLE SIZE DISTRIBUTION CHART



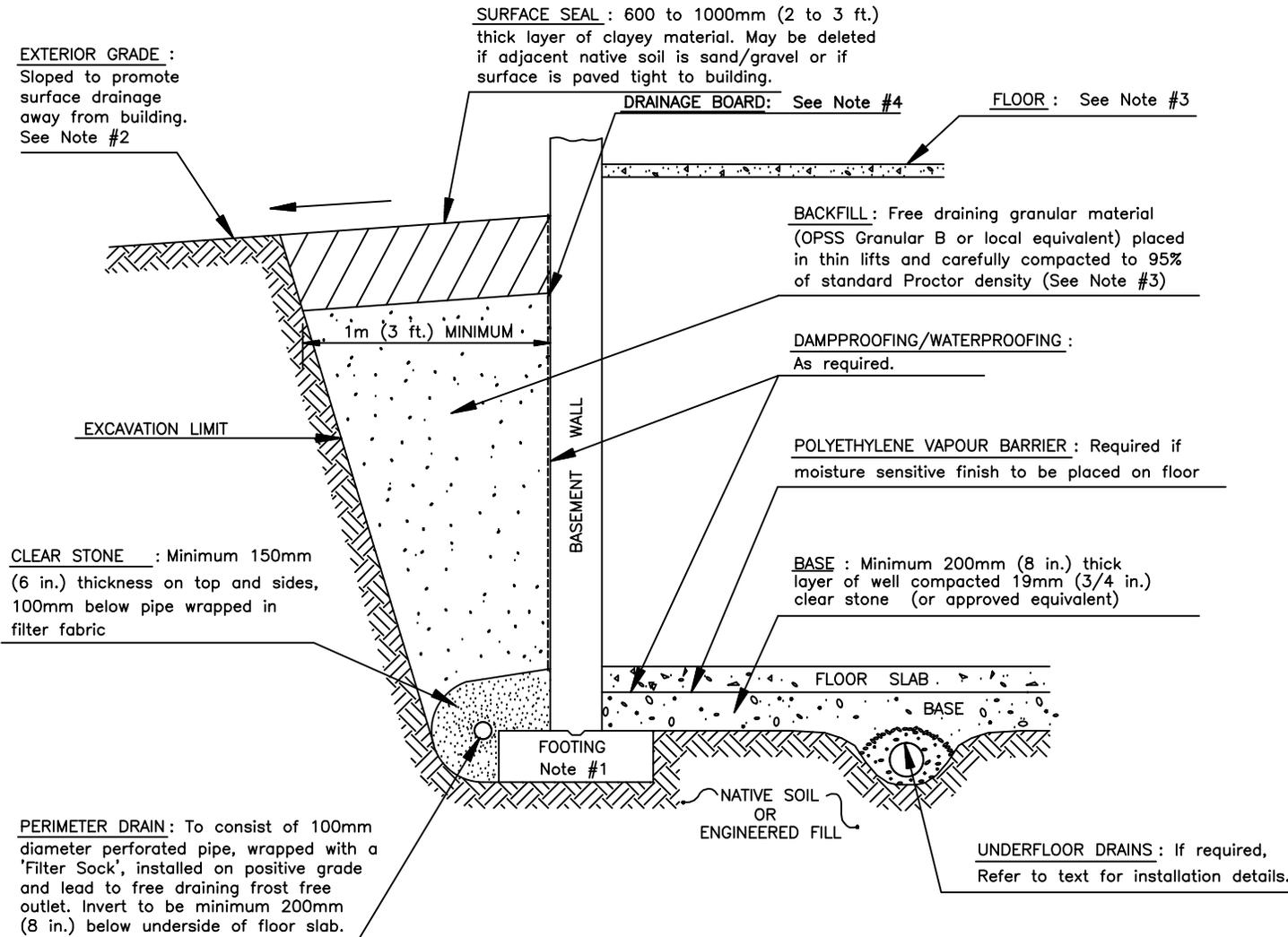
Borehole 11, Sample 5, 3.0 to 3.5 m depth
TILL: SAND AND SILT, Trace Clay, Trace Gravel

SILT & CLAY				FINE SAND			MEDIUM SAND			COARSE SAND			GRAVEL			COBBLES	UNIFIED
CLAY	FINE SILT		COARSE SILT	FINE SAND		MEDIUM SAND		COARSE SAND		GRAVEL			COBBLES		M.I.T.		
	CLAY		SILT		V. FINE SAND	FINE SAND	MED SAND	COARSE SAND	GRAVEL					U.S. BUREAU			



**Borehole 3, Sample 8, 7.6 to 8.1 m depth
 SILTY SAND, Trace Gravel**

SILT & CLAY				FINE SAND			MEDIUM SAND			COARSE SAND			GRAVEL			COBBLES	UNIFIED
CLAY	FINE SILT		COARSE SILT	FINE SAND		MEDIUM SAND		COARSE SAND		GRAVEL			COBBLES		M.I.T.		
	CLAY		SILT		V. FINE SAND	FINE SAND	MED SAND	COARSE SAND	GRAVEL					U.S. BUREAU			



NOTES

1. Footing may be constructed by placement of structural concrete neat against natural soil. Drain to be installed in a similar manner immediately above footing maintaining 200mm (8 in.) distance between top of drain and underside of floor slab.
2. Exterior grade to be minimum 300mm (12 in.) below interior floor slab, or other means established to prevent entry of surface water into building through building openings.
3. Basement wall to be supported by floor system or interior bracing prior to commencement of backfill placement. Heavy construction equipment should not be permitted within a distance from the foundation wall equivalent to half the wall height. Overcompaction of backfill to be avoided as excessive lateral earth pressure may result.
4. A proprietary drainage board product may be used with compacted native soil as backfill against the wall.
5. Refer to text for details regarding founding levels, competent bearing material and construction details specific to particular site.

STANDARD DRAWING

GENERAL RECOMMENDATIONS REGARDING DRAINAGE AND BACKFILL REQUIREMENTS FOR BASEMENT WALL AND FLOOR SLAB CONSTRUCTION



Peto MacCallum Ltd.
CONSULTING ENGINEERS

DRAWN:	N/A	DATE	SCALE	JOB NO.	FIGURE NO.
CHECKED:	GW	MAY. 2017	N.T.S.	17BF005	5
APPROVED:	GW				

LIST OF ABBREVIATIONS



PENETRATION RESISTANCE

Standard Penetration Resistance N: - The number of blows required to advance a standard split spoon sampler 0.3 m into the subsoil. Driven by means of a 63.5 kg hammer falling freely a distance of 0.76 m.

Dynamic Penetration Resistance: - The number of blows required to advance a 51 mm, 60 degree cone, fitted to the end of drill rods, 0.3 m into the subsoil. The driving energy being 475 J per blow.

DESCRIPTION OF SOIL

The consistency of cohesive soils and the relative density or denseness of cohesionless soils are described in the following terms:

<u>CONSISTENCY</u>	<u>N (blows/0.3 m)</u>	<u>c (kPa)</u>	<u>DENSENESS</u>	<u>N (blows/0.3 m)</u>
Very Soft	0 - 2	0 - 12	Very Loose	0 - 4
Soft	2 - 4	12 - 25	Loose	4 - 10
Firm	4 - 8	25 - 50	Compact	10 - 30
Stiff	8 - 15	50 - 100	Dense	30 - 50
Very Stiff	15 - 30	100 - 200	Very Dense	> 50
Hard	> 30	> 200		
WTPL	Wetter Than Plastic Limit			
APL	About Plastic Limit			
DTPL	Drier Than Plastic Limit			

TYPE OF SAMPLE

SS	Split Spoon	ST	Slotted Tube Sample
WS	Washed Sample	TW	Thinwall Open
SB	Scraper Bucket Sample	TP	Thinwall Piston
AS	Auger Sample	OS	Oesterberg Sample
CS	Chunk Sample	FS	Foil Sample
GS	Grab Sample	RC	Rock Core
	PH		Sample Advanced Hydraulically
	PM		Sample Advanced Manually

SOIL TESTS

Qu	Unconfined Compression	LV	Laboratory Vane
Q	Undrained Triaxial	FV	Field Vane
Qcu	Consolidated Undrained Triaxial	C	Consolidation
Qd	Drained Triaxial		

LOG OF BOREHOLE NO. 1

PROJECT Proposed Lockhart Road Residential Subdivision
LOCATION Barrie, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE March 14, 2017

PML REF. 17BF005
ENGINEER GW
TECHNICIAN RM

SOIL PROFILE			SAMPLES			SHEAR STRENGTH (kPa)		PLASTIC NATURAL LIQUID			UNIT WEIGHT	GROUND WATER OBSERVATIONS AND REMARKS					
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES	+ FIELD VANE Δ TORVANE ○ Qu	▲ POCKET PENETROMETER ○ Q	W _p	W	W _L			kN/m ³				
						DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST		WATER CONTENT (%)			GRAIN SIZE DISTRIBUTION (%)						
						20	40	60	80	10	20	30	40	GR	SA	SI	CL
0.0	SURFACE ELEVATION 249.50																
0.14	TOPSOIL: Brown, silty sand, trace gravel, frozen																
249.36	CLAYEY SILT: Very soft to firm, brown, clayey silt, trace sand, frozen		1	SS	0												Stick-up cover Concrete Bentonite seal
1.0			2	SS	7												
1.4			3	SS	5												
248.1	SAND/SILT TILL: Loose to compact, brown, sandy silt/silty sand, trace gravel, cobbles and boulders, very moist to moist		4	SS	13												19 mm slotted pipe Filter sand
2.0			5	SS	15												First water strike at 2.7 m
3.0																	
4.0																	
5.0	BOREHOLE TERMINATED AT 5.0 m		6	SS	12												
244.5																	Upon completion of augering No water No cave Water Level Readings: Date Depth Elev. 2017-03-28 +1.0 250.5 (Water above existing grade)
6.0																	
7.0																	
8.0																	
9.0																	
10.0																	
11.0																	
12.0																	
13.0																	
14.0																	
15.0																	

NOTES

LOG OF BOREHOLE NO. 2

PROJECT Proposed Lockhart Road Residential Subdivision
LOCATION Barrie, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE March 21, 2017

PML REF. 17BF005
ENGINEER GW
TECHNICIAN RM

SOIL PROFILE			SAMPLES			SHEAR STRENGTH (kPa)		PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES	FIELD VANE + POCKET PENETROMETER ▲	TORVANE △ STANDARD PENETRATION TEST ×					
0.0	SURFACE ELEVATION 253.90											
0.70	TOPSOIL: Dark brown, silt, roots, moist		1	SS	6							Stick-up cover Concrete
1.0	SAND/SILT TILL: Compact to very dense, brown to grey, silty sand/sandy silt, trace gravel, cobbles and boulders, moist; with wet seams/layers		2	SS	11							First water strike at 2.1 m Bentonite seal
			3	SS	26							
			4	SS	36							
			5	SS	46							
			6	SS	64							
7.0	SAND: Very dense to dense, brown, sand, trace silt to silty sand, trace gravel, wet		7	SS	91/280 mm							19 mm slotted pipe Filter sand
8.0			8	SS	93/280 mm							
9.6			9	SS	35							
10.0	BOREHOLE TERMINATED AT 9.6 m											Upon completion of augering Water at 2.4 m Cave at 8.5 m Water Level Readings: Date Depth Elev. 2017-03-28 0.8 253.1

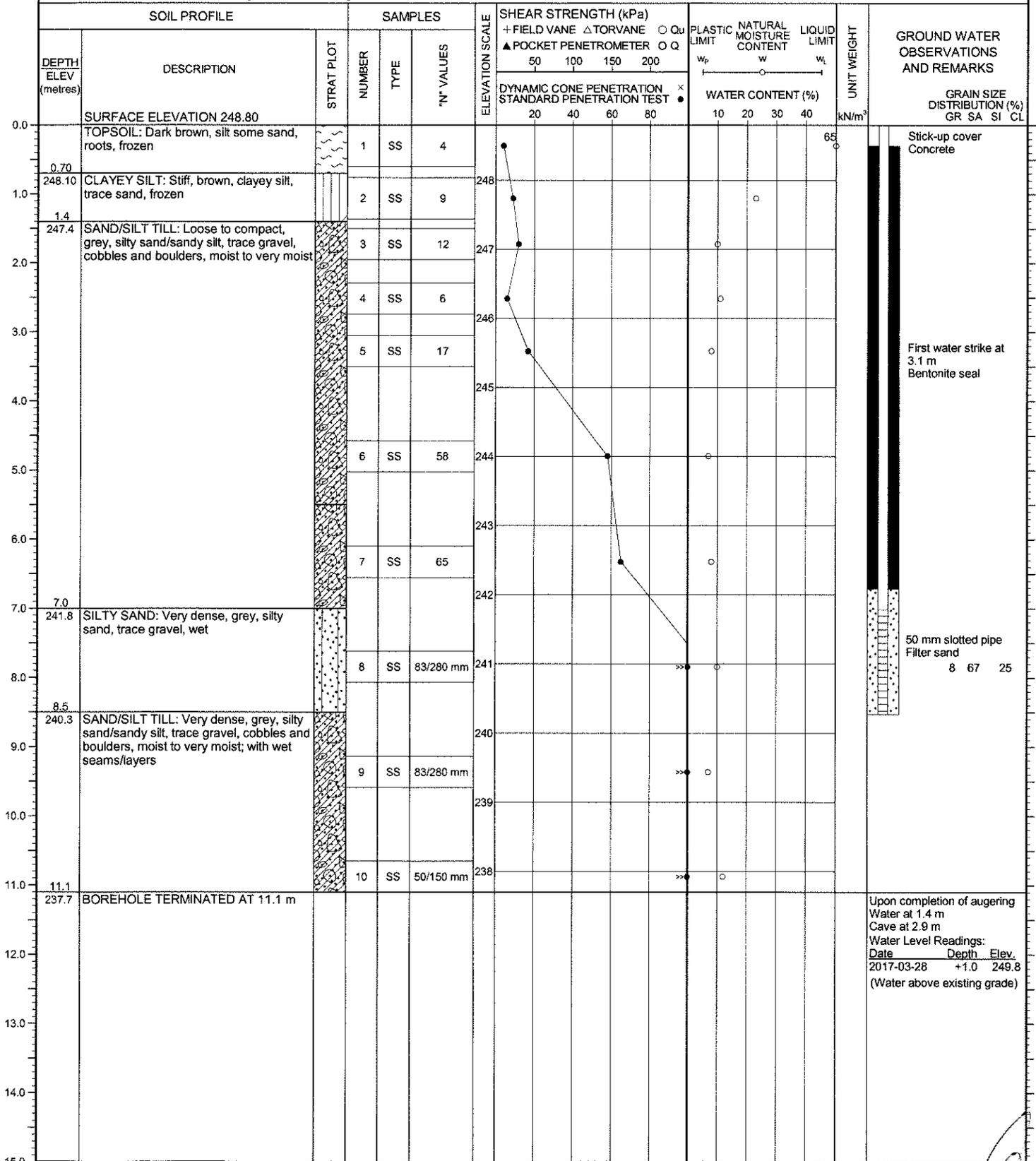
NOTES

LOG OF BOREHOLE NO. 3

PROJECT Proposed Lockhart Road Residential Subdivision
LOCATION Barrie, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE March 16, 2017

PML REF. 17BF005
ENGINEER GW
TECHNICIAN RM



NOTES

Stick-up cover
Concrete

First water strike at
3.1 m
Bentonite seal

50 mm slotted pipe
Filter sand
8 67 25

Upon completion of augering
Water at 1.4 m
Cave at 2.9 m
Water Level Readings:
Date Depth Elev.
2017-03-28 +1.0 249.8
(Water above existing grade)

LOG OF BOREHOLE NO. 4

PROJECT Proposed Lockhart Road Residential Subdivision
LOCATION Barrie, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE March 14, 2017

PML REF. 17BF005
ENGINEER GW
TECHNICIAN RM

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)		PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS	
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE	△ TORVANE						○ Qu
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST		x					
							50	100	150	200	10	20	30	40
0.0	SURFACE ELEVATION 257.55													
0.70	TOPSOIL: Dark brown, sandy silt, trace gravel, frozen		1	GS	11	257							Stick-up cover Concrete	
256.85	SAND/SILT TILL: Loose, brown, silty sand/sandy silt, trace gravel, cobbles and boulders, frozen		2	SS	7	256.85							Bentonite seal	
1.4	SILTY SAND: Compact, brown, silty sand, trace gravel, very moist		3	SS	26	256.2								
2.1	SAND/SILT TILL: Dense to very dense, brown, silty sand to sandy silt, trace gravel, cobbles and boulders, moist; with wet seams/layers		4	SS	78	255.5								
255.5			5	SS	46	254							50 mm slotted pipe Filter sand	
5.0	BOREHOLE TERMINATED AT 5.0 m		6	SS	68	253							First water strike at 4.3 m	
252.6													Upon completion of augering No water No cave Water Level Readings: Date: 2017-03-28 Depth: 1.7 Elev: 255.9	

NOTES

LOG OF BOREHOLE NO. 5

PROJECT Proposed Lockhart Road Residential Subdivision
LOCATION Barrie, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE March 16, 2017

PML REF. 17BF005
ENGINEER GW
TECHNICIAN RM

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)		PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS	
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE	△ TORVANE						○ Qu
							50	100	150	200				
0.0	SURFACE ELEVATION 259.00													
0.70	TOPSOIL: Brown, silt, trace sand, roots, frozen		1	SS	6								Stick-up cover Concrete	
258.30	SAND/SILT TILL: Compact to very dense, brown, silty sand/sandy silt, trace gravel, cobbles and boulders, moist; with wet seams/layers		2	SS	16	258							Bentonite seal	
			3	SS	36	257								
			4	SS	58									
			5	SS	48	256							50 mm slotted pipe Filter sand	
3.5	BOREHOLE TERMINATED AT 3.5 m												Upon completion of augering No water No cave Water Level Readings: Date Depth Elev. 2017-03-28 2.9 256.1	

NOTES

LOG OF BOREHOLE NO. 6

PROJECT Proposed Lockhart Road Residential Subdivision
LOCATION Barrie, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE March 14, 2017

PML REF. 17BF005
ENGINEER GW
TECHNICIAN RM

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)		PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE △ TORVANE ○ Q _u	△ POCKET PENETROMETER ○ Q					
0.0	SURFACE ELEVATION 259.15												
0.70	TOPSOIL: Brown, sandy silt, trace gravel, frozen		1	SS	5	259							Stick-up cover Concrete
1.0	SAND/SILT TILL: Loose to very dense, brown, silty sand/sandy silt, trace gravel, cobbles and boulders, very moist to moist; with wet seams/layers		2	SS	7	258							First water strike at 0.9 m
2.0			3	SS	17	257							Bentonite seal
3.0			4	SS	59	256							
4.0			5	SS	57	255							
5.0			6	SS	72/290 mm	254							6 56 38
6.0			7	SS	81/270 mm	253							19 mm slotted pipe Filter sand
7.0			8	SS	50/140 mm	251							
8.0													
9.6	BOREHOLE TERMINATED AT 9.6 m		9	SS	60/100 mm	250							Upon completion of augering Water at 1.8 m Cave at 2.1 m Water Level Readings: Date Depth Elev. 2017-03-28 2.8 256.4

NOTES

LOG OF BOREHOLE NO. 7

PROJECT Proposed Lockhart Road Residential Subdivision

PML REF. 17BF005

LOCATION Barrie, Ontario

BORING DATE March 20, 2017

ENGINEER GW

BORING METHOD Continuous Flight Solid Stem Augers

TECHNICIAN RM

SOIL PROFILE			SAMPLES			SHEAR STRENGTH (kPa)		PLASTIC NATURAL LIQUID			UNIT WEIGHT	GROUND WATER OBSERVATIONS AND REMARKS	
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES	+ FIELD VANE	△ TORVANE	○ Qu	LIMIT	MOISTURE CONTENT			LIMIT
						▲ POCKET PENETROMETER	○ Q	○ Q	W _p	W	W _L		
						DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST		×	WATER CONTENT (%)				
						50	100	150	200	10	20	30	40
						20	40	60	80				
15.0	CONTINUED FROM PREVIOUS PAGE												
15.7	SAND/SILT TILL: Very dense, grey, silty sand/sandy silt, trace gravel, cobbles and boulders, moist to very moist; with wet seams/layers		13	SS	50/130 mm								
247.4	BOREHOLE TERMINATED AT 15.7 m												
16.0													Upon completion of augering Water at 3.0 No cave
													Water Level Readings:
													Date Depth Elev.
													2017-03-28 4.8 258.3

NOTES

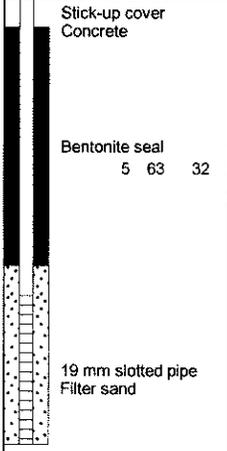
LOG OF BOREHOLE NO. 8

PROJECT Proposed Lockhart Road Residential Subdivision
LOCATION Barrie, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE March 16, 2017

PML REF. 17BF005
ENGINEER GW
TECHNICIAN RM

SOIL PROFILE			SAMPLES			SHEAR STRENGTH (kPa)		PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT			UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES	ELEVATION SCALE	+ FIELD VANE ▲ POCKET PENETROMETER	△ TORVANE ○ QU ○ Q	W _p	W		
0.0	SURFACE ELEVATION 265.40											
0.70	TOPSOIL: Dark brown, sand, trace silt, roots, frozen		1	SS	12	265						
264.70	SILTY SAND: Compact, brown, silty sand, moist		2	SS	22	264.70						
1.4	SAND/SILT TILL: Very dense, brown, silty sand/sandy silt, trace gravel, cobbles and boulders, moist		3	SS	58	264						
264.0			4	SS	64	263						
2.0			5	SS	87/280 mm	262						
3.0			6	SS	50	261						
5.0	BOREHOLE TERMINATED AT 5.0 m											
260.4												



Stick-up cover
Concrete

Bentonite seal
5 63 32

19 mm slotted pipe
Filter sand

Upon completion of augering
No water
No cave
Water Level Readings:
Date Depth Elev.
2017-03-28 Dry ---

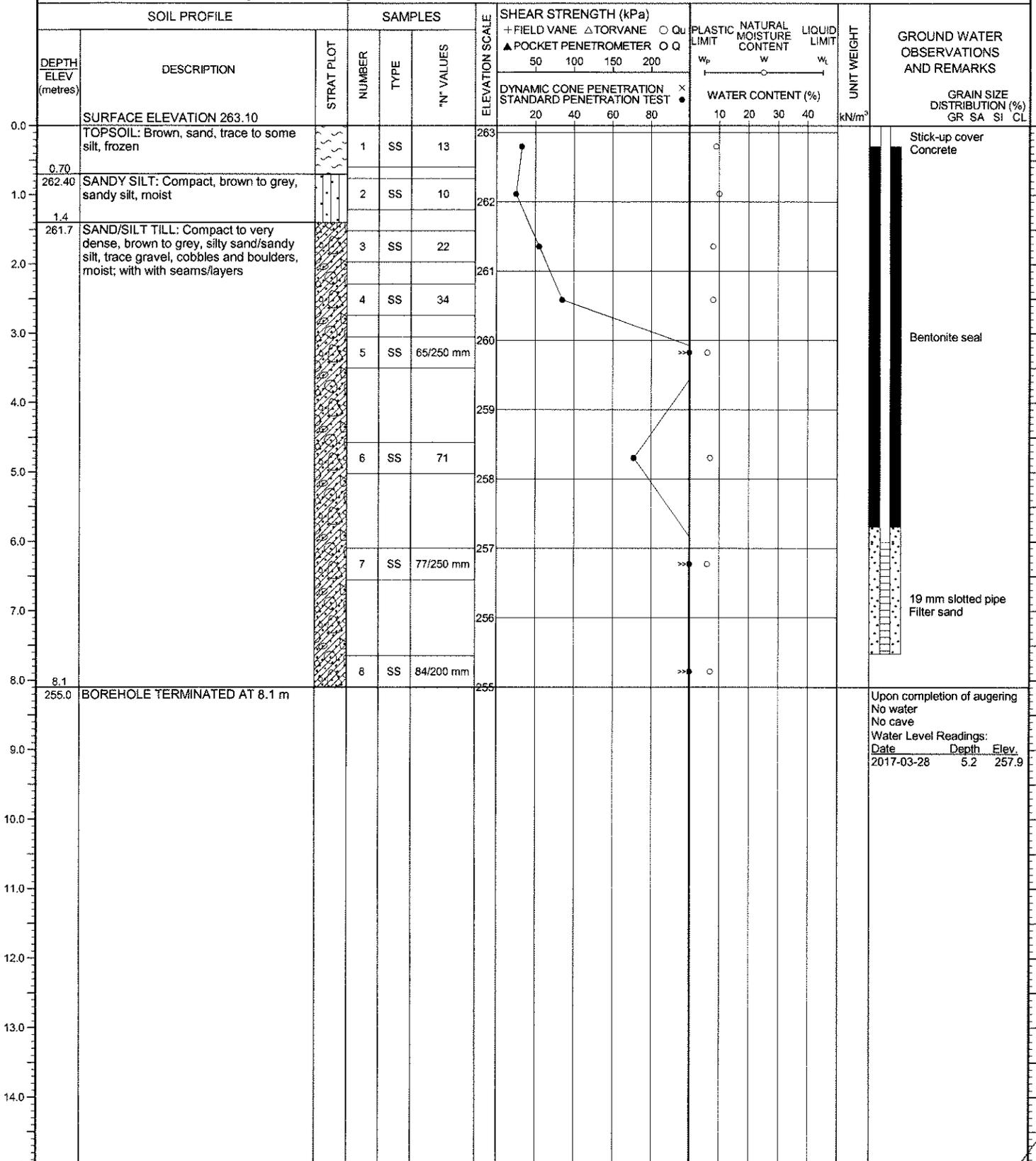
NOTES

LOG OF BOREHOLE NO. 9

PROJECT Proposed Lockhart Road Residential Subdivision
LOCATION Barrie, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE March 17, 2017

PML REF. 17BF005
ENGINEER GW
TECHNICIAN RM



NOTES

LOG OF BOREHOLE NO. 10

PROJECT Proposed Lockhart Road Residential Subdivision
LOCATION Barrie, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE March 21, 2017

PML REF. 17BF005
ENGINEER GW
TECHNICIAN RM

SOIL PROFILE			SAMPLES			SHEAR STRENGTH (kPa)				PLASTIC NATURAL LIQUID LIMIT MOISTURE CONTENT LIMIT			UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS	
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES	50	100	150	200	w _p	w	w _L			
0.0	SURFACE ELEVATION 266.90														
0.70	TOPSOIL: Dark brown, silt, trace sand, moist		1	SS	3										Stick-up cover Concrete
266.20	SILT/SAND TILL: Compact to very dense, brown, silty sand/sandy silt, trace gravel, cobbles and boulders, moist		2	SS	10										
			3	SS	53										
			4	SS	54										
			5	SS	56										
2.9	Becoming grey														
264.0	SAND: Very dense, brown, sand, some silt, wet		6	SS	70/280 mm										
5.5			7	SS	72/250 mm										
261.4	SAND: Very dense, brown, sand, some silt, wet		8	SS	50/130 mm										
6.0															
8.1	BOREHOLE TERMINATED AT 8.1 m														First water strike at 6.1 m 50 mm slotted pipe Filter sand
259.8															Upon completion of augering Water at 6.7 m Cave at 7.0 m Water Level Readings: Date 2017-03-28 Depth 5.4 Elev. 261.5

NOTES

LOG OF BOREHOLE NO. 11

PROJECT Proposed Lockhart Road Residential Subdivision

PML REF. 17BF005

LOCATION Barrie, Ontario

BORING DATE March 17, 2017

ENGINEER GW

BORING METHOD Continuous Flight Solid Stem Augers

TECHNICIAN RM

SOIL PROFILE			SAMPLES			SHEAR STRENGTH (kPa)		PLASTIC NATURAL LIQUID			UNIT WEIGHT	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES	ELEVATION SCALE	+ FIELD VANE ▲ POCKET PENETROMETER ○ QU ○ Q	LIMIT	MOISTURE CONTENT	LIMIT		
							50 100 150 200	W _p	W	W _L		GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0.0	SURFACE ELEVATION 251.90											
0.70	TOPSOIL: Dark brown, silt, trace sand, roots, frozen		1	SS	2	251						Stick-up cover Concrete
1.0	SILTY SAND: Compact, brown, silty sand, trace organics, wet		2	SS	10	251						
1.4	SAND/SILT TILL: Compact to very dense, brown, silty sand/sandy silt, trace gravel, cobbles and boulders, moist		3	SS	14	250						Bentonite seal First water strike at 1.5 m
2.0			4	SS	21	249						
3.0			5	SS	51	249						
4.0	Becoming wet					248						2 52 46
4.0						248						19 mm slotted pipe Filter sand
5.0			6	SS	86	247						
5.5	SAND: Very dense, grey, sand, some silt, trace gravel, wet					246						
6.0			7	SS	68	246						
6.6	BOREHOLE TERMINATED AT 6.6 m											Upon completion of augering Water at 0.8 m Cave at 0.9 m Water Level Readings: Date: 2017-03-28 Depth: 0.4 Elev.: 251.5
7.0												
8.0												
9.0												
10.0												
11.0												
12.0												
13.0												
14.0												
15.0												

NOTES

LOG OF BOREHOLE NO. 12

PROJECT Proposed Lockhart Road Residential Subdivision
LOCATION Barrie, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE March 17, 2017

PML REF. 17BF005
ENGINEER GW
TECHNICIAN RM

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)				PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE	△ TORVANE	○ Q _u	▲ POCKET PENETROMETER					
						20	40	60	80						
0.0	SURFACE ELEVATION 253.80														
0.70	TOPSOIL: Brown, silty sand, roots, frozen		1	SS	2	253									Stick-up cover Concrete
1.0	SILTY SAND: Very loose to loose, brown, silty sand, wet		2	SS	2	253									
2.0			3	SS	6	252									First water strike at 1.5 m Bentonite seal
2.1															
2.1	SAND/SILT TILL: Loose to compact, brown, silty sand/sandy silt, trace gravel, cobbles and boulders, wet to moist		4	SS	5	251									
3.0			5	SS	23	251									
4.0															
4.0	SAND: Compact, brown, sand, some silt, trace gravel, wet		6	SS	15	249									19 mm slotted pipe Filter sand
5.0															
5.5															
5.5	SAND/SILT TILL: Compact to very dense, grey, silty sand/sandy silt, trace gravel, cobbles and boulders, moist		7	SS	29	248									
6.0															
7.0															
8.0															
8.0			8	SS	68	246									
9.0															
9.6															
9.6	BOREHOLE TERMINATED AT 9.6 m		9	SS	62	245									
10.0															Upon completion of augering Water at 1.5 m Cave at 6.1 m Water Level Readings: Date Depth Elev. 2017-03-28 0.5 253.3
11.0															
12.0															
13.0															
14.0															
15.0															

NOTES

LOG OF BOREHOLE NO. 13

PROJECT Proposed Lockhart Road Residential Subdivision
LOCATION Barrie, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

BORING DATE March 21, 2017

PML REF. 17BF005
ENGINEER GW
TECHNICIAN RM

SOIL PROFILE			SAMPLES			SHEAR STRENGTH (kPa)		PLASTIC NATURAL LIQUID			UNIT WEIGHT	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES	FIELD VANE + TORVANE POCKET PENETROMETER	QU Q	LIMIT	MOISTURE CONTENT	LIMIT		
						50 100 150 200			W _p W W _L			
						DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST		WATER CONTENT (%)				GRAIN SIZE DISTRIBUTION (%)
						20 40 60 80	×	10 20 30 40				GR SA SI CL
0.0	SURFACE ELEVATION 254.85											
0.70	TOPSOIL: Dark brown, silty sand, moist		1	SS	3							Stick-up cover Concrete
254.15	SAND/SILT TILL: Compact to very dense, brown, silty sand/sandy silt, trace gravel, cobbles and boulders, very moist to moist		2	SS	23							Bentonite seal First water strike at 1.5 m
1.0			3	SS	34							
2.0			4	SS	60							
3.0			5	SS	66							
4.0			6	SS	77							
5.0	BOREHOLE TERMINATED AT 5.0 m											19 mm slotted pipe Filter sand
249.9												Upon completion of augering Water at 0.9 m Cave at 1.4 m Water Level Readings: Date Depth Elev. 2017-03-28 0.6 254.3
6.0												
7.0												
8.0												
9.0												
10.0												
11.0												
12.0												
13.0												
14.0												
15.0												

NOTES

LOG OF BOREHOLE NO. 15

PROJECT Proposed Lockhart Road Residential Subdivision
LOCATION Barrie, Ontario
BORING METHOD Continuous Flight Solid Stem Augers

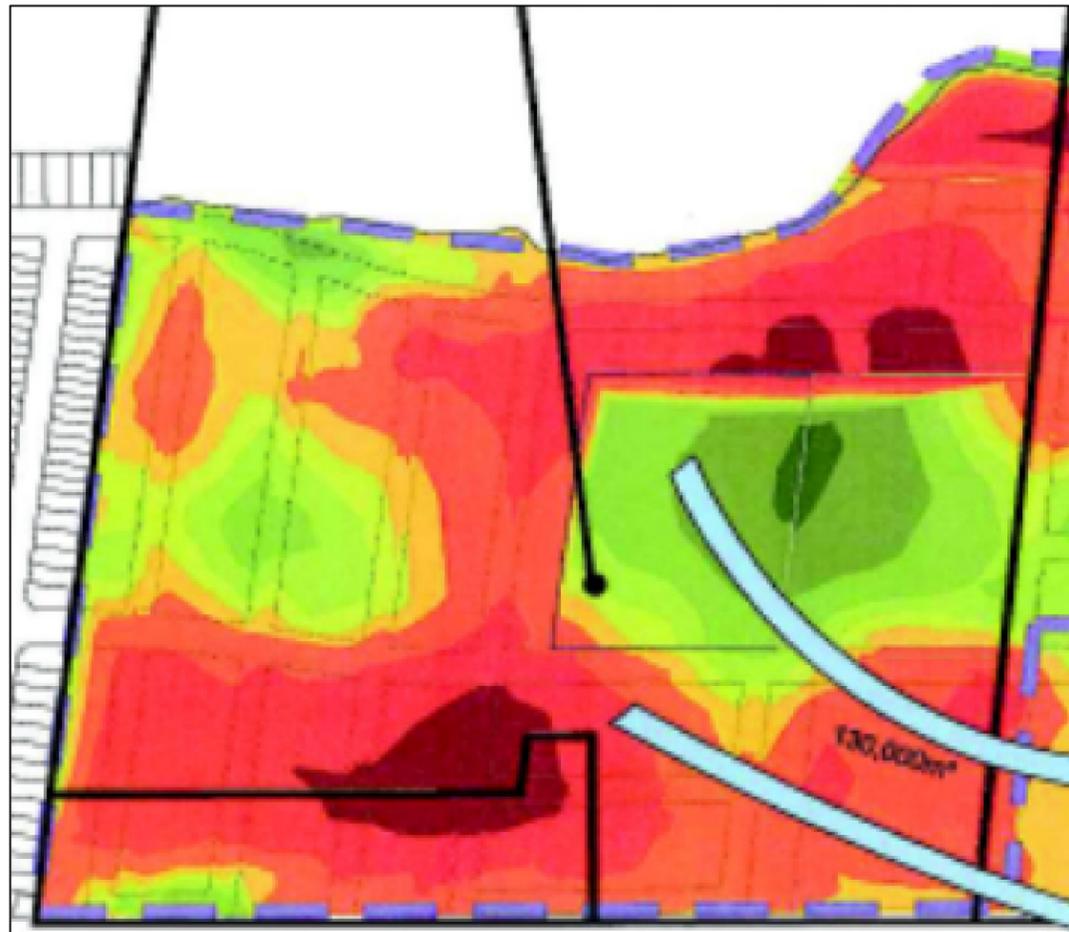
BORING DATE March 16, 2017

PML REF. 17BF005
ENGINEER GW
TECHNICIAN RM

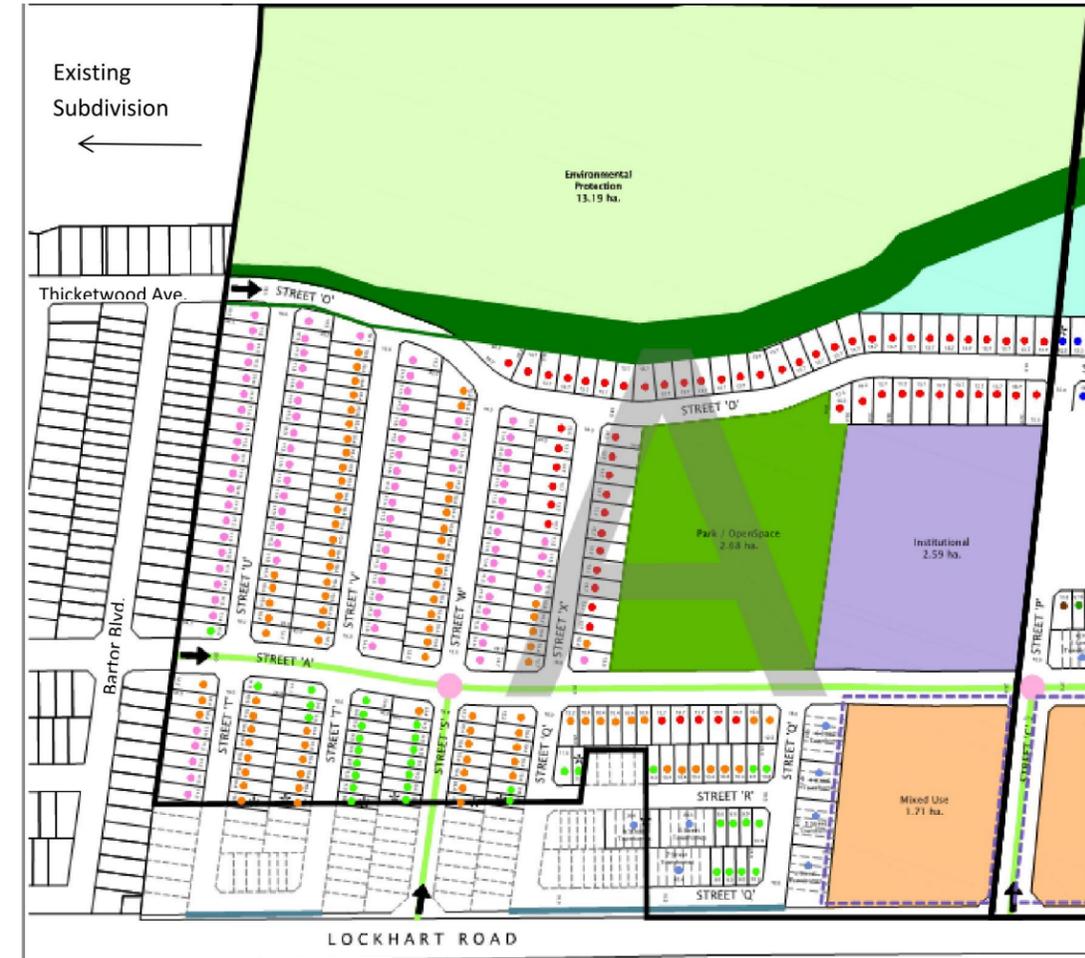
SOIL PROFILE			SAMPLES			SHEAR STRENGTH (kPa)				PLASTIC NATURAL LIQUID			UNIT WEIGHT	GROUND WATER OBSERVATIONS AND REMARKS	
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES	+ FIELD VANE	△ TORVANE	○ Qu	▲ POCKET PENETROMETER	○ Q	W _p	W			W _L
						50	100	150	200		WATER CONTENT (%)				
						DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST									
						20	40	60	80		10	20	30	40	
0.0	SURFACE ELEVATION 259.00														
0.70	TOPSOIL: Dark brown, sand, trace silt, roots and twigs, frozen		1	SS	5										Stick-up cover Concrete
258.30															
1.0	SANDY SILT: Compact, brown, sandy silt, moist		2	SS	10										
1.4															
257.6															
2.0	SAND/SILT TILL: Compact to very dense, brown, silty sand/sandy silt, trace gravel, cobbles and boulders, very moist to moist		3	SS	12										Bentonite seal
			4	SS	34										
			5	SS	80/280 mm										
			6	SS	84/280 mm										
5.0	BOREHOLE TERMINATED AT 5.0 m														19 mm slotted pipe Filter sand
254.0															
6.0															Upon completion of augering No water No cave Water Level Readings: Date: 2017-03-28 Depth: Dry Elev: ---
7.0															
8.0															
9.0															
10.0															
11.0															
12.0															
13.0															
14.0															
15.0															

NOTES

BEMP 1 – Cut/Fill

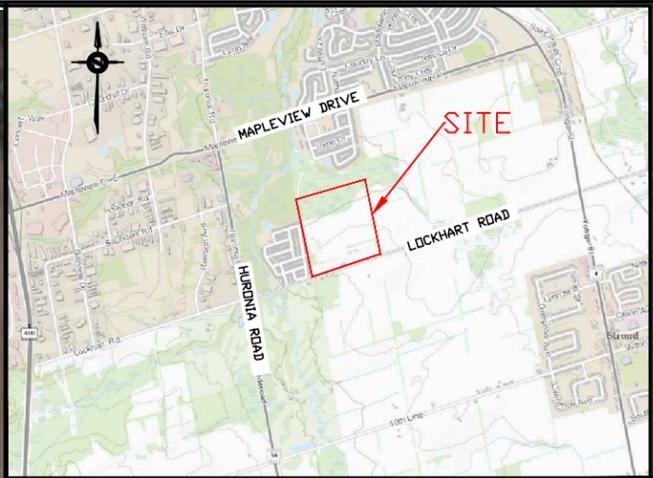


BEMP 1 Development Plan



Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	-10.000	-5.000	Dark Brown
2	-5.000	-2.500	Red
3	-2.500	-1.000	Orange
4	-1.000	-0.300	Yellow
5	-0.300	0.300	Light Green
6	0.300	1.000	Green
7	1.000	2.500	Dark Green
8	2.500	5.000	Very Dark Green
9	5.000	10.000	Black

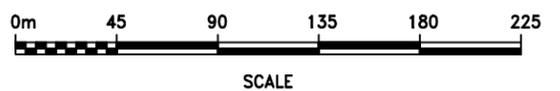
RFP DEVELOPMENT PLAN AND PROPOSED CUT/FILL PLAN					
PROPOSED LOCKHART ROAD RESIDENTIAL SUBDIVISION BARRIE, ONTARIO					
 Peto MacCallum Ltd. <small>CONSULTING ENGINEERS</small>					
DRAWN	RM	DATE	SCALE	PML REF.	DRAWING NO.
CHECKED	GW	MAY. 2017	AS SHOWN	17BF005	1
APPROVED	GW				



KEY PLAN
BARRIE, ONTARIO

- LEGEND:**
- SITE LIMITS
 - **BH1**
EL. 249.50
BOREHOLE 1 (PIEZOMETER)
SURFACE ELEVATION 249.50
 - **BH3**
EL. 248.80
BOREHOLE 3 (WELL)
SURFACE ELEVATION 248.80

REFERENCE:
BASE PLAN PRODUCED USING SIMCOE COUNTY
INTERACTIVE MAPPING, MARCH 2017



BOREHOLE LOCATION PLAN
PROPOSED LOCKHART ROAD RESIDENTIAL SUBDIVISION
BARRIE, ONTARIO



DRAWN	RM	DATE	SCALE	PML REF.	DRAWING NO.
CHECKED	GW	MAY 2017	AS SHOWN	17BF005	2
APPROVED	GW				



APPENDIX A

Engineered Fill

The information presented in this appendix is intended for general guidance only. Site specific conditions and prevailing weather may require modification of compaction standards, backfill type or procedures. Each site must be discussed, and procedures agreed with Peto MacCallum Ltd. prior to the start of the earthworks and must be subject to ongoing review during construction. This appendix is not intended to apply to embankments. Steeply sloping ravine residential lots require special consideration.

For fill to be classified as engineered fill suitable for supporting structural loads, a number of conditions must be satisfied, including but not necessarily limited to the following:

1. Purpose

The site specific purpose of the engineered fill must be recognized. In advance of construction, all parties should discuss the project and its requirements and agree on an appropriate set of standards and procedures.

2. Minimum Extent

The engineered fill envelope must extend beyond the footprint of the structure to be supported. The minimum extent of the envelope should be defined from a geotechnical perspective by:

- at founding level, extend a minimum 1.0 m beyond the outer edge of the foundations, greater if adequate layout has not yet been completed as noted below; and
- extend downward and outward at a slope no greater than 45° to meet the subgrade

All fill within the envelope established above must meet the requirements of engineered fill in order to support the structure safely. Other considerations such as survey control, or construction methods may require an envelope that is larger, as noted in the following sections.

Once the minimum envelope has been established, structures must not be moved or extended without consultation with Peto MacCallum Ltd. Similarly, Peto MacCallum Ltd. should be consulted prior to any excavation within the minimum envelope.

3. Survey Control

Accurate survey control is essential to the success of an engineered fill project. The boundaries of the engineered fill must be laid out by a surveyor in consultation with engineering staff from Peto MacCallum Ltd. Careful consideration of the maximum building envelope is required.

During construction it is necessary to have a qualified surveyor provide total station control on the three dimensional extent of filling.

4. Subsurface Preparation

Prior to placement of fill, the subgrade must be prepared to the satisfaction of Peto MacCallum Ltd. All deleterious material must be removed and in some cases, excavation of native mineral soils may be required.

Particular attention must be paid to wet subgrades and possible additional measures required to achieve sufficient compaction. Where fill is placed against a slope, benching may be necessary and natural drainage paths must not be blocked.

5. Suitable Fill Materials

All material to be used as fill must be approved by Peto MacCallum Ltd. Such approval will be influenced by many factors and must be site and project specific. External fill sources must be sampled, tested and approved prior to material being hauled to site.

6. Test Section

In advance of the start of construction of the engineered fill pad, the Contractor should conduct a test section. The compaction criterion will be assessed in consultation with Peto MacCallum Ltd. for the various fill material types using different lift thicknesses and number of passes for the compaction equipment proposed by the Contractor.

Additional test sections may be required throughout the course of the project to reflect changes in fill sources, natural moisture content of the material and weather conditions.

The Contractor should be particularly aware of changes in the moisture content of fill material. Site review by Peto MacCallum Ltd. is required to ensure the desired lift thickness is maintained and that each lift is systematically compacted, tested and approved before a subsequent lift is commenced.

7. Inspection and Testing

Uniform, thorough compaction is crucial to the performance of the engineered fill and the supported structure. Hence, all subgrade preparation, filling and compacting must be carried out under the full time inspection by Peto MacCallum Ltd.

All founding surfaces for all buildings and residential dwellings or any part thereof (including but not limited to footings and floor slabs) on structural fill or native soils must be inspected and approved by PML engineering personnel prior to placement of the base/subbase granular material and/or concrete. The purpose of the inspection is to ensure the subgrade soils are capable of supporting the building/house foundation and floor slab loads and to confirm the building/house envelope does not extend beyond the limits of any structural fill pads.

8. Protection of Fill

Fill is generally more susceptible to the effects of weather than natural soil. Fill placed and approved to the level at which structural support is required must be protected from excessive wetting, drying, erosion or freezing. Where adequate protection has not been provided, it may be necessary to provide deeper footings or to strip and recompact some of the fill.

9. Construction Delay Time Considerations

The integrity of the fill pad can deteriorate due to the harsh effects of our Canadian weather. Hence, particular care must be taken if the fill pad is constructed over a long time period.

It is necessary therefore, that all fill sources are tested to ensure the material compactability prior to the soil arriving at site. When there has been a lengthy delay between construction periods of the fill pad, it is necessary to conduct subgrade proof rolling, test pits or boreholes to verify the adequacy of the exposed subgrade to accept new fill material.

When the fill pad will be constructed over a lengthy period of time, a field survey should be completed at the end of each construction season to verify the areal extent and the level at which the compacted fill has been brought up to, tested and approved.

In the following spring, subexcavation may be necessary if the fill pad has been softened attributable to ponded surface water or freeze/thaw cycles.

A new survey is required at the beginning of the next construction season to verify that random dumping and/or spreading of fill has not been carried out at the site.

10. Approved Fill Pad Surveillance

It should be appreciated that once the fill pad has been brought to final grade and documented by field survey, there must be ongoing surveillance to ensure that the integrity of the fill pad is not threatened.

Grading operations adjacent to fill pads can often take place several months or years after completion of the fill pad.

It is imperative that all site management and supervision staff, the staff of Contractors and earthwork operators be fully aware of the boundaries of all approved engineered fill pads.

Excavation into an approved engineered fill pad should never be contemplated without the full knowledge, approval and documentation by the geotechnical consultant.

If the fill pad is knowingly built several years in advance of ultimate construction, the areal limits of the fill pad should be substantially overbuilt laterally to allow for changes in possible structure location and elevation and other earthwork operations and competing interests on the site. The overbuilt distance required is project and/or site specified.

Iron bars should be placed at the corner/intermediate points of the fill pad as a permanent record of the approved limits of the work for record keeping purposes.

11. Unusual Working Conditions

Construction of fill pads may at times take place at night and/or during periods of freezing weather conditions because of the requirements of the project schedule. It should be appreciated therefore, that both situations present more difficult working conditions. The Owner, Contractor, Design Consultant and Geotechnical Engineer must be willing to work together to revise site construction procedures, enhance field testing and surveillance, and incorporate design modifications as necessary to suit site conditions.

When working at night there must be sufficient artificial light to properly illuminate the fill pad and borrow areas.

Placement of material to form an engineered fill pad during winter and freezing temperatures has its own special conditions that must be addressed. It is imperative that each day prior to placement of new fill, the exposed subgrade must be inspected and any overnight snow or frozen material removed. Particular attention should be given to the borrow source inspection to ensure only nonfrozen fill is brought to the site.

The Contractor must continually assess the work program and have the necessary spreading and compacting equipment to ensure that densification of the fill material takes place in a minimum amount of time. Changes may be required to the spreading methods, lift thickness, and compaction techniques to ensure the desired compaction is achieved uniformly throughout each fill lift.

The Contractor should adequately protect the subgrade at the end of each shift to minimize frost penetration overnight. Since water cannot be added to the fill material to facilitate compaction, it is imperative that densification of the fill be achieved by additional compaction effort and an appropriate reduced lift thickness. Once the fill pad has been completed, it must be properly protected from freezing temperatures and ponding of water during the spring thaw period.

If the pad is unusually thick or if the fill thickness varies dramatically across the width or length of the fill pad, Peto MacCallum Ltd. should be consulted for additional recommendations. In this case, alternative special provisions may be recommended, such as providing a surcharge preload for a limited time or increase the degree of compaction of the fill.



APPENDIX B

Certificates of Analysis for Topsoil



Report # 534244

PETO MACCALLUM LTD-BARRIE- Geoff-Richard - City Of Barrie - BH2-BH10

Page 1 of 3

Lab No.: 31100501

Sample ID: - TS 1 - Adjacent BH2

Test Description	Analysis	Typical Guidelines	Within Range (Y/N)		
pH	7.27	5.5 - 7.5	Y	<p>The values in the Typical Guidelines are characteristic of a Sandy Loam to Loam topsoil, and are considered to be optimal for these soil types. Your results are compared to these ranges in the Within Range column with Yes/No designation, however No does not necessarily suggest a soil will not support growth. Soil modification recommendations are made where possible to amend soil test values that fall beyond this optimal range.</p> <p>Magnesium levels will be raised by following the fertility guidelines below.</p> <p>General Fertility Guidelines for Turf Grass: Before seeding or sodding, apply 10-20-5 at 5.5 lbs and magnesium sulphate at 6.5 lbs per 1000 sq feet and incorporate into the rootzone. After establishment apply 21-7-7 with slow release nitrogen at 3 lbs per 1000 sq feet.</p>	
Organic Matter %	4.3	4 - 15	Y		
Total Salts (mmhos/cm)	0.11	< 1.5	Y		
Phosphorus (ppm)	21.5	10 - 60	Y		
Potassium (ppm)	156.0	80 - 250	Y		
Calcium (ppm)	2473.2	1000 - 4000	Y		
Magnesium (ppm)	74.1	100 - 300	N		
Chloride (ppm)	4.0	< 100	Y		
Sodium (ppm)	4.3	< 200	Y		
Sodium Adsorption Ratio	0.4	< 15	Y		
CEC (MEQ/100g)	14.6				
Base Sat. K (%)	2.7				
Base Sat. Mg (%)	4.2				
Base Sat. Ca (%)	84.8				
Base Sat. H (%)	8.2				
Sand Fraction %	62.0	20 - 75	Y		
Silt Fraction %	37.0	5 - 50	Y		
Clay Fraction %	1.0	5 - 30	N		
Texture	Sandy Loam Loam/Sandy Loam				
Recommendations	N	P2O5	K2O		Mg
turf grass					
(lb/ac)	24	45		30	
(lb/1000 sq.ft)	0.56	1.05		0.70	
(kg/100 sq.m)	0.27	0.50		0.34	

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Authorized By: Jack Legg - CCA-ON, 4R NMS

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Date Reported: Mar-29-2017

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Report # 534244

PETO MACCALLUM LTD-BARRIE- Geoff-Richard - City Of Barrie - BH2-BH10

Page 2 of 3

Lab No.: 31100502

Sample ID: - TS 2 - Adjacent BH6

Test Description	Analysis	Typical Guidelines	Within Range (Y/N)		
pH	7.44	5.5 - 7.5	Y	<p>The values in the Typical Guidelines are characteristic of a Sandy Loam to Loam topsoil, and are considered to be optimal for these soil types. Your results are compared to these ranges in the Within Range column with Yes/No designation, however No does not necessarily suggest a soil will not support growth. Soil modification recommendations are made where possible to amend soil test values that fall beyond this optimal range.</p> <p>Soil organic matter content can be increased to 4% with sphagnum peat moss at 28 kg per cubic meter of topsoil. Up to 30% of this rate can be substituted with compost. Higher inclusion rates of compost may be used if the mineral content is known and adjustments are made to reflect that content in the fertility guidelines. Testing the compost as topsoil will provide the pertinent information.</p> <p>Phosphorus levels will be raised by following the fertility guidelines below.</p> <p>High levels of calcium are typical of Ontario topsoil and pose no threat to plant growth.</p> <p>Magnesium levels will be raised by following the fertility guidelines below.</p> <p>General Fertility Guidelines for Turf Grass: Before seeding or sodding, apply 10-20-10 at 12 lbs and magnesium sulphate at 4.5 lbs per 1000 sq feet and incorporate into the rootzone. After establishment apply 21-7-7 with slow release nitrogen at 3 lbs per 1000 sq feet.</p>	
Organic Matter %	1.9	4 - 15	N		
Total Salts (mmhos/cm)	0.23	< 1.5	Y		
Phosphorus (ppm)	5.2	10 - 60	N		
Potassium (ppm)	92.1	80 - 250	Y		
Calcium (ppm)	4495.8	1000 - 4000	N		
Magnesium (ppm)	84.6	100 - 300	N		
Chloride (ppm)	4.0	< 100	Y		
Sodium (ppm)	9.9	< 200	Y		
Sodium Adsorption Ratio	0.1	< 15	Y		
CEC (MEQ/100g)	24.6				
Base Sat. K (%)	1.0				
Base Sat. Mg (%)	2.9				
Base Sat. Ca (%)	91.3				
Base Sat. H (%)	4.9				
Sand Fraction %	58.0	20 - 75	Y		
Silt Fraction %	41.0	5 - 50	Y		
Clay Fraction %	1.0	5 - 30	N		
Texture	Sandy Loam Loam/Sandy Loam				
Recommendations					
turf grass	N	P2O5	K2O	Mg	Lime (te/ha)
(lb/ac)	54	80	58	20	
(lb/1000 sq.ft)	1.26	1.86	1.35	0.47	
(kg/100 sq.m)	0.61	0.90	0.65	0.22	

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Authorized By: Jack Legg - CCA-ON, 4R NMS

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Report # 534244

PETO MACCALLUM LTD-BARRIE- Geoff-Richard - City Of Barrie - BH2-BH10

Page 3 of 3

Lab No.: 31100503

Sample ID: - TS 3 - Adjacent BH10

Test Description	Analysis	Typical Guidelines	Within Range (Y/N)			
pH	6.14	5.5 - 7.5	Y	<p>The values in the Typical Guidelines are characteristic of a Sandy Loam to Loam topsoil, and are considered to be optimal for these soil types. Your results are compared to these ranges in the Within Range column with Yes/No designation, however No does not necessarily suggest a soil will not support growth. Soil modification recommendations are made where possible to amend soil test values that fall beyond this optimal range.</p> <p>Soil organic matter content can be increased to 4% with sphagnum peat moss at 12 kg per cubic meter of topsoil. Up to 30% of this rate can be substituted with compost. Higher inclusion rates of compost may be used if the mineral content is known and adjustments are made to reflect that content in the fertility guidelines. Testing the compost as topsoil will provide the pertinent information.</p> <p>Magnesium levels will be raised by following the fertility guidelines below.</p> <p>General Fertility Guidelines for Turf Grass: Before seeding or sodding, apply 6-12-12 at 9 lbs and magnesium sulphate at 4.5 lbs per 1000 sq feet and incorporate into the rootzone. After establishment apply 21-7-7 with slow release nitrogen at 3 lbs per 1000 sq feet.</p>		
Buffer pH	6.7					
Organic Matter %	3.1	4 - 15	N			
Total Salts (mmhos/cm)	0.07	< 1.5	Y			
Phosphorus (ppm)	21.9	10 - 60	Y			
Potassium (ppm)	112.4	80 - 250	Y			
Calcium (ppm)	1444.1	1000 - 4000	Y			
Magnesium (ppm)	76.3	100 - 300	N			
Chloride (ppm)	2.0	< 100	Y			
Sodium (ppm)	6.3	< 200	Y			
Sodium Adsorption Ratio	0.4	< 15	Y			
CEC (MEQ/100g)	9.3					
Base Sat. K (%)	3.1					
Base Sat. Mg (%)	6.8					
Base Sat. Ca (%)	77.3					
Base Sat. H (%)	12.8					
Sand Fraction %	60.0	20 - 75	Y			
Silt Fraction %	37.0	5 - 50	Y			
Clay Fraction %	3.0	5 - 30	N			
Texture	Sandy Loam Loam/Sandy Loam					
Recommendations						
turf grass	N	P2O5	K2O		Mg	Lime (te/ha)
(lb/ac)	24	45	34		20	
(lb/1000 sq.ft)	0.56	1.05	0.79		0.47	
(kg/100 sq.m)	0.27	0.50	0.38		0.22	

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Authorized By: Jack Legg - CCA-ON, 4R NMS

PETO MACCALLUM LTD-BARRIE- Geoff-Richard - City Of
Barrie - BH2-BH10
19 Churchill Drive
Barrie, ON L4N 8Z5

Email

Date Received: Mar-23-2017

Date Reported: Mar-29-2017

Fax: 705-734-9911

Email: gwhite@petomacallum.com; barrie@petomacallum.com

Your personal information is managed according to the Privacy Act. We will not willfully disclose individually identifiable information.

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PETO MACCALLUM LTD - BARRIE - Geoff - City
Of Barrie BH2 - BH10 Atz
19 Churchill Drive
Barrie, ON L4N 8Z5

Email

Fax: 705-734-9911

Date Received: Mar-23-2017

Email: gwhite@petomacallum.com; rblair@petomacallum.com

Date Reported: Apr-03-2017

Sample ID:	Lab ID	Atrazine (ppm)
TS 1 - Adjacent BH2	31099701	< 0.05
TS 2 - Adjacent BH6	31099702	< 0.05
TS 3 - Adjacent BH10	31099703	< 0.05

Interpretation of Test Results

Triazine Residue Injury and Crop Information

- < 0.05 ppm Generally no injury except to very susceptible vegetables (i.e. cucumbers) and cash crops (i.e. tobacco) planted in sandy soil during warm, dry weather
- 0.05 - 0.10 ppm Slight injury or stunted growth may be expected to susceptible plants (see above) in sandy loam at normal weather conditions. Tomatoes, oats, alfalfa and lawn grass seed may be affected.
- 0.10 - 0.20 ppm Tomatoes, red beets, tobacco, oats and vegetables should not be planted, Beans (soya, kidney, white) and barley may be affected. Exception is soils with high organic matter content (12%).
- 0.20 - 0.30 ppm Injury to most crops except corn, flax, sorghum and grass sodding.
- > 0.30 ppm Severe injury can occur on all susceptible crops except triazine resistant canola (i.e. OAC Triton)

These residue levels are based on representative soil samples.
Increased organic matter content in soil reduces injury
Dry and warm weather accentuates triazine activity.

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Authorized By: *Jack Legg*

CCA-ON, 4R NMS



APPENDIX C

Certificates of Analysis for Soil

**CLIENT NAME: PETO MACCALLUM
19 CHURCHILL DRIVE
BARRIE, ON L4N8Z5
(705) 734-3900**

ATTENTION TO: Geoff White

PROJECT: 17BF005

AGAT WORK ORDER: 17T199461

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Coordinator

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

DATE REPORTED: Mar 31, 2017

PAGES (INCLUDING COVER): 15

VERSION*: 1

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

***NOTES**

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

Certificate of Analysis

AGAT WORK ORDER: 17T199461
PROJECT: 17BF005

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

CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2017-03-23

DATE REPORTED: 2017-03-31

Parameter	Unit	SAMPLE DESCRIPTION:		BH3 SS2	BH7 SS3	BH10 SS2	BH2 SS4
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2017-03-16	2017-03-20	2017-03-21	2017-03-21
		G / S	RDL	8276279	8276348	8276357	8276363
Antimony	µg/g	1.3	0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	2	1	1	1
Barium	µg/g	220	2	163	43	45	42
Beryllium	µg/g	2.5	0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/g	36	5	7	<5	<5	<5
Boron (Hot Water Soluble)	µg/g	NA	0.10	0.10	<0.10	<0.10	<0.10
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	70	2	25	9	10	8
Chromium VI	µg/g	0.66	0.2	<0.2	<0.2	<0.2	<0.2
Cobalt	µg/g	21	0.5	8.7	3.2	3.9	3.0
Copper	µg/g	92	1	16	6	8	6
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040
Electrical Conductivity	mS/cm	0.57	0.005	0.168	0.093	0.086	0.090
Lead	µg/g	120	1	8	2	3	2
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum	µg/g	2	0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	82	1	19	6	8	5
Selenium	µg/g	1.5	0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g	0.5	0.2	<0.2	<0.2	<0.2	<0.2
Sodium Adsorption Ratio	NA	2.4	NA	0.148	0.096	0.061	0.057
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	2.5	0.5	1.0	<0.5	<0.5	<0.5
Vanadium	µg/g	86	1	35	19	20	17
Zinc	µg/g	290	5	48	17	20	15
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.42	7.47	7.72	7.71

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard; Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

8276279-8276363 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio.

Certified By:

Amanjot Bhela



Certificate of Analysis

AGAT WORK ORDER: 17T199461

PROJECT: 17BF005

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CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2017-03-23

DATE REPORTED: 2017-03-31

Parameter	Unit	SAMPLE DESCRIPTION:		BH3 SS2	BH7 SS3	BH10 SS2	BH2 SS4
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2017-03-16	2017-03-20	2017-03-21	2017-03-21
		G / S	RDL	8276279	8276348	8276357	8276363
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007
DDD	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007
DDT	µg/g	1.4	0.007	<0.007	<0.007	<0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005
Gamma-Hexachlorocyclohexane	µg/g	0.01	0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.01	0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.01	0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.01	0.01	<0.01	<0.01	<0.01	<0.01
Methoxychlor	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005
Surrogate	Unit	Acceptable Limits					
Decachlorobiphenyl	%	60-130		78	84	62	74
TCMX	%	50-140		70	74	54	66

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

8276279-8276363 Results are based on the dry weight of the soil.
Note: DDT applies to the total of op'DDT and pp'DDT, DDD applies to the total of op'DDD and pp'DDD and DDE applies to the total of op'DDE and pp'DDE. Endosulfan applies to the total of Endosulfan I and Endosulfan II.
Chlordane applies to the total of Alpha-Chlordane and Gamma-Chlordane.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 17T199461

PROJECT: 17BF005

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CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2017-03-23

DATE REPORTED: 2017-03-31

Parameter	Unit	SAMPLE DESCRIPTION:		BH3 SS2	BH7 SS3	BH10 SS2	BH2 SS4
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2017-03-16	2017-03-20	2017-03-21	2017-03-21
		G / S	RDL	8276279	8276348	8276357	8276363
Acenaphthene	µg/g	0.072	0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.16	0.05	<0.05	<0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.36	0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.47	0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.68	0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.48	0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	2.8	0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.56	0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	0.12	0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.23	0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	18.0	10.3	11.1	9.5
Naphthalene	µg/g	0.09	0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	0.69	0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	µg/g	1	0.05	<0.05	<0.05	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g	0.59	0.05	<0.05	<0.05	<0.05	<0.05
Surrogate	Unit	Acceptable Limits					
Chrysene-d12	%	50-140		77	75	70	68

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

8276279-8276363 Results are based on the dry weight of the soil.

Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.

Certified By: _____



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AGAT WORK ORDER: 17T199461

PROJECT: 17BF005

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CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2017-03-23

DATE REPORTED: 2017-03-31

Parameter	Unit	SAMPLE DESCRIPTION:		BH3 SS2	BH7 SS3	BH10 SS2	BH2 SS4
		G / S	RDL	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2017-03-16	2017-03-20	2017-03-21	2017-03-21
				8276279	8276348	8276357	8276363
F1 (C6 to C10)	µg/g	25	5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	10	10	<10	<10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	240	50	<50	<50	<50	<50
F3 (C16 to C34) minus PAHs	µg/g		50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	120	50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA	NA	NA	NA
Moisture Content	%		0.1	18.0	10.3	11.1	9.5
Surrogate	Unit	Acceptable Limits					
Terphenyl	%	60-140		92	97	85	77

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

8276279-8276363 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

Certified By:

Certificate of Analysis

AGAT WORK ORDER: 17T199461

PROJECT: 17BF005

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CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

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

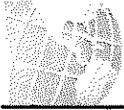
DATE RECEIVED: 2017-03-23

DATE REPORTED: 2017-03-31

Parameter	Unit	SAMPLE DESCRIPTION:		BH3 SS2	BH7 SS3	BH10 SS2	BH2 SS4
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2017-03-16	2017-03-20	2017-03-21	2017-03-21
		G / S	RDL	8276279	8276348	8276357	8276363
Acetone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50
Benzene	ug/g	0.02	0.02	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02	<0.02	<0.02	<0.02
Dibromochloromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03
1,3-Dichloropropene	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04
Ethylbenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Styrene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Toluene	ug/g	0.2	0.05	<0.05	<0.05	<0.05	<0.05

Certified By: _____





Certificate of Analysis

AGAT WORK ORDER: 17T199461

PROJECT: 17BF005

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CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2017-03-23

DATE REPORTED: 2017-03-31

Parameter	Unit	SAMPLE DESCRIPTION:		BH3 SS2	BH7 SS3	BH10 SS2	BH2 SS4
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2017-03-16	2017-03-20	2017-03-21	2017-03-21
		G / S	RDL	8276279	8276348	8276357	8276363
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04
Trichloroethylene	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03
Trichlorofluoromethane	ug/g	0.25	0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02	<0.02	<0.02	<0.02
Xylene Mixture	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	<0.05	<0.05	<0.05
n-Hexane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05	<0.05	<0.05
Surrogate	Unit	Acceptable Limits					
4-Bromofluorobenzene	% Recovery	50-140		89	93	91	87
Toluene-d8	% Recovery	50-140		111	109	110	105

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

8276279-8276363 The sample was analysed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil.

Certified By: _____



Quality Assurance

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T199461

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

Soil Analysis															
RPT Date: Mar 31, 2017			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

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

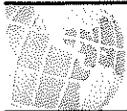
Antimony	8276363	8276363	<0.8	<0.8	NA	< 0.8	110%	70%	130%	108%	80%	120%	87%	70%	130%
Arsenic	8276363	8276363	1	1	NA	< 1	108%	70%	130%	106%	80%	120%	106%	70%	130%
Barium	8276363	8276363	42	42	0.0%	< 2	98%	70%	130%	99%	80%	120%	102%	70%	130%
Beryllium	8276363	8276363	<0.5	<0.5	NA	< 0.5	80%	70%	130%	110%	80%	120%	91%	70%	130%
Boron	8276363	8276363	<5	<5	NA	< 5	88%	70%	130%	104%	80%	120%	93%	70%	130%
Boron (Hot Water Soluble)	8276363	8276363	<0.10	<0.10	NA	< 0.10	107%	60%	140%	104%	70%	130%	98%	60%	140%
Cadmium	8276363	8276363	<0.5	<0.5	NA	< 0.5	99%	70%	130%	109%	80%	120%	107%	70%	130%
Chromium	8276363	8276363	8	8	NA	< 2	99%	70%	130%	109%	80%	120%	118%	70%	130%
Chromium VI	8277762		<0.2	<0.2	NA	< 0.2	93%	70%	130%	98%	80%	120%	100%	70%	130%
Cobalt	8276363	8276363	3.0	3.0	0.0%	< 0.5	104%	70%	130%	109%	80%	120%	101%	70%	130%
Copper	8276363	8276363	6	6	0.0%	< 1	99%	70%	130%	114%	80%	120%	96%	70%	130%
Cyanide	8273556		<0.040	<0.040	NA	< 0.040	101%	70%	130%	101%	80%	120%	95%	70%	130%
Electrical Conductivity	8276363	8276363	0.090	0.089	1.1%	< 0.005	93%	90%	110%	NA			NA		
Lead	8276363	8276363	2	2	NA	< 1	106%	70%	130%	105%	80%	120%	91%	70%	130%
Mercury	8276363	8276363	<0.10	<0.10	NA	< 0.10	103%	70%	130%	92%	80%	120%	96%	70%	130%
Molybdenum	8276363	8276363	<0.5	<0.5	NA	< 0.5	102%	70%	130%	109%	80%	120%	103%	70%	130%
Nickel	8276363	8276363	5	6	18.2%	< 1	109%	70%	130%	112%	80%	120%	121%	70%	130%
Selenium	8276363	8276363	<0.4	<0.4	NA	< 0.4	103%	70%	130%	106%	80%	120%	108%	70%	130%
Silver	8276363	8276363	<0.2	<0.2	NA	< 0.2	92%	70%	130%	120%	80%	120%	113%	70%	130%
Sodium Adsorption Ratio	8276363	8276363	0.057	0.053	7.3%	NA	NA			NA			NA		
Thallium	8276363	8276363	<0.4	<0.4	NA	< 0.4	108%	70%	130%	108%	80%	120%	103%	70%	130%
Uranium	8276363	8276363	<0.5	<0.5	NA	< 0.5	94%	70%	130%	93%	80%	120%	93%	70%	130%
Vanadium	8276363	8276363	17	17	0.0%	< 1	102%	70%	130%	107%	80%	120%	111%	70%	130%
Zinc	8276363	8276363	15	15	NA	< 5	103%	70%	130%	113%	80%	120%	74%	70%	130%
pH, 2:1 CaCl2 Extraction	8276279	8276279	7.42	7.36	0.8%	NA	101%	80%	120%	NA			NA		

Comments: NA signifies Not Applicable.

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

Certified By:

Amanjot Bhela



Quality Assurance

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T199461

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis															
RPT Date: Mar 31, 2017			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

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

F1 (C6 to C10)	8276524	< 5	< 5	NA	< 5	75%	60%	130%	85%	85%	115%	75%	70%	130%
F2 (C10 to C16)	8277762	< 10	< 10	NA	< 10	99%	60%	130%	92%	80%	120%	87%	70%	130%
F3 (C16 to C34)	8277762	< 50	< 50	NA	< 50	102%	60%	130%	91%	80%	120%	85%	70%	130%
F4 (C34 to C50)	8277762	< 50	< 50	NA	< 50	101%	60%	130%	91%	80%	120%	92%	70%	130%

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

Acetone	8269836	< 0.50	< 0.50	NA	< 0.50	108%	50%	140%	103%	50%	140%	98%	50%	140%
Benzene	8269836	< 0.02	< 0.02	NA	< 0.02	76%	50%	140%	85%	60%	130%	83%	50%	140%
Bromodichloromethane	8269836	< 0.05	< 0.05	NA	< 0.05	82%	50%	140%	74%	60%	130%	90%	50%	140%
Bromoform	8269836	< 0.05	< 0.05	NA	< 0.05	94%	50%	140%	80%	60%	130%	100%	50%	140%
Bromomethane	8269836	< 0.05	< 0.05	NA	< 0.05	100%	50%	140%	121%	50%	140%	110%	50%	140%
Carbon Tetrachloride	8269836	< 0.05	< 0.05	NA	< 0.05	70%	50%	140%	78%	60%	130%	72%	50%	140%
Chlorobenzene	8269836	< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	98%	60%	130%	103%	50%	140%
Chloroform	8269836	< 0.04	< 0.04	NA	< 0.04	82%	50%	140%	85%	60%	130%	76%	50%	140%
Cis- 1,2-Dichloroethylene	8269836	< 0.02	< 0.02	NA	< 0.02	83%	50%	140%	85%	60%	130%	83%	50%	140%
Dibromochloromethane	8269836	< 0.05	< 0.05	NA	< 0.05	79%	50%	140%	86%	60%	130%	107%	50%	140%
1,3-Dichlorobenzene	8269836	< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	73%	60%	130%	83%	50%	140%
1,2-Dichlorobenzene	8269836	< 0.05	< 0.05	NA	< 0.05	99%	50%	140%	71%	60%	130%	87%	50%	140%
1,4-Dichlorobenzene	8269836	< 0.05	< 0.05	NA	< 0.05	81%	50%	140%	84%	60%	130%	100%	50%	140%
Dichlorodifluoromethane	8269836	< 0.05	< 0.05	NA	< 0.05	71%	50%	140%	77%	50%	140%	120%	50%	140%
1,1-Dichloroethane	8269836	< 0.02	< 0.02	NA	< 0.02	81%	50%	140%	80%	60%	130%	68%	50%	140%
1,2-Dichloroethane	8269836	< 0.03	< 0.03	NA	< 0.03	83%	50%	140%	85%	60%	130%	84%	50%	140%
1,1-Dichloroethylene	8269836	< 0.05	< 0.05	NA	< 0.05	71%	50%	140%	94%	60%	130%	78%	50%	140%
1,2-Dichloropropane	8269836	< 0.03	< 0.03	NA	< 0.03	79%	50%	140%	74%	60%	130%	93%	50%	140%
1,3-Dichloropropene	8269836	< 0.04	< 0.04	NA	< 0.04	92%	50%	140%	83%	60%	130%	75%	50%	140%
Ethylbenzene	8269836	< 0.05	< 0.05	NA	< 0.05	70%	50%	140%	77%	60%	130%	88%	50%	140%
Ethylene Dibromide	8269836	< 0.04	< 0.04	NA	< 0.04	87%	50%	140%	90%	60%	130%	107%	50%	140%
Methyl Ethyl Ketone	8269836	< 0.50	< 0.50	NA	< 0.50	90%	50%	140%	72%	50%	140%	78%	50%	140%
Methyl Isobutyl Ketone	8269836	< 0.50	< 0.50	NA	< 0.50	90%	50%	140%	99%	50%	140%	122%	50%	140%
Methyl tert-butyl Ether	8269836	< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	82%	60%	130%	74%	50%	140%
Methylene Chloride	8269836	< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	101%	60%	130%	101%	50%	140%
Styrene	8269836	< 0.05	< 0.05	NA	< 0.05	79%	50%	140%	91%	60%	130%	80%	50%	140%
1,1,2,2-Tetrachloroethane	8269836	< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	94%	60%	130%	120%	50%	140%
1,1,1,2-Tetrachloroethane	8269836	< 0.04	< 0.04	NA	< 0.04	81%	50%	140%	90%	60%	130%	95%	50%	140%
Tetrachloroethylene	8269836	< 0.05	< 0.05	NA	< 0.05	74%	50%	140%	87%	60%	130%	99%	50%	140%
Toluene	8269836	< 0.05	< 0.05	NA	< 0.05	76%	50%	140%	98%	60%	130%	116%	50%	140%
Trans- 1,2-Dichloroethylene	8269836	< 0.05	< 0.05	NA	< 0.05	70%	50%	140%	84%	60%	130%	89%	50%	140%
1,1,1-Trichloroethane	8269836	< 0.05	< 0.05	NA	< 0.05	71%	50%	140%	82%	60%	130%	73%	50%	140%
1,1,2-Trichloroethane	8269836	< 0.04	< 0.04	NA	< 0.04	97%	50%	140%	95%	60%	130%	125%	50%	140%
Trichloroethylene	8269836	0.27	0.33	20.0%	< 0.03	74%	50%	140%	84%	60%	130%	90%	50%	140%



Quality Assurance

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T199461

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Mar 31, 2017			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Trichlorofluoromethane	8269836		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	96%	50%	140%	120%	50%	140%
Vinyl Chloride	8269836		< 0.02	< 0.02	NA	< 0.02	97%	50%	140%	122%	50%	140%	87%	50%	140%
m & p-Xylene	8269836		< 0.05	< 0.05	NA	< 0.05	76%	50%	140%	85%	60%	130%	96%	50%	140%
n-Hexane	8269836		< 0.05	< 0.05	NA	< 0.05	75%	50%	140%	84%	60%	130%	94%	50%	140%
o-Xylene	8269836		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	86%	60%	130%	99%	50%	140%
O. Reg. 153(511) - PAHs (Soil)															
Acenaphthene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	116%	50%	140%	113%	50%	140%
Acenaphthylene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	99%	50%	140%	114%	50%	140%	109%	50%	140%
Anthracene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	114%	50%	140%	107%	50%	140%
Benz(a)anthracene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	116%	50%	140%	111%	50%	140%
Benzo(a)pyrene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	105%	50%	140%	111%	50%	140%
Benzo(b)fluoranthene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	126%	50%	140%	117%	50%	140%
Benzo(g,h,i)perylene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	104%	50%	140%	84%	50%	140%	98%	50%	140%
Benzo(k)fluoranthene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	120%	50%	140%	106%	50%	140%	107%	50%	140%
Chrysene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	97%	50%	140%	109%	50%	140%	99%	50%	140%
Dibenz(a,h)anthracene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	104%	50%	140%	89%	50%	140%	114%	50%	140%
Fluoranthene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	110%	50%	140%	107%	50%	140%
Fluorene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	100%	50%	140%	116%	50%	140%	112%	50%	140%
Indeno(1,2,3-cd)pyrene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	90%	50%	140%	107%	50%	140%
Naphthalene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	118%	50%	140%	112%	50%	140%
Phenanthrene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	112%	50%	140%	110%	50%	140%
Pyrene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	111%	50%	140%	106%	50%	140%
2-and 1-methyl Naphthalene	8276363	8276363	< 0.05	< 0.05	NA	< 0.05	120%	50%	140%	118%	50%	140%	113%	50%	140%
O. Reg. 153(511) - OC Pesticides (Soil)															
Aldrin	8267227		< 0.005	< 0.005	NA	< 0.005	109%	50%	140%	94%	50%	140%	68%	50%	140%
Chlordane	8267227		< 0.007	< 0.007	NA	< 0.007	87%	50%	140%	91%	50%	140%	78%	50%	140%
DDD	8267227		< 0.007	< 0.007	NA	< 0.007	94%	50%	140%	94%	50%	140%	84%	50%	140%
DDE	8267227		< 0.007	< 0.007	NA	< 0.007	88%	50%	140%	98%	50%	140%	78%	50%	140%
DDT	8267227		< 0.007	< 0.007	NA	< 0.007	88%	50%	140%	87%	50%	140%	78%	50%	140%
Dieldrin	8267227		< 0.005	< 0.005	NA	< 0.005	84%	50%	140%	90%	50%	140%	80%	50%	140%
Endosulfan	8267227		< 0.005	< 0.005	NA	< 0.005	89%	50%	140%	88%	50%	140%	69%	50%	140%
Endrin	8267227		< 0.005	< 0.005	NA	< 0.005	84%	50%	140%	76%	50%	140%	82%	50%	140%
Gamma-Hexachlorocyclohexane	8267227		< 0.005	< 0.005	NA	< 0.005	92%	50%	140%	78%	50%	140%	66%	50%	140%
Heptachlor	8267227		< 0.005	< 0.005	NA	< 0.005	80%	50%	140%	90%	50%	140%	80%	50%	140%
Heptachlor Epoxide	8267227		< 0.005	< 0.005	NA	< 0.005	90%	50%	140%	96%	50%	140%	82%	50%	140%
Hexachlorobenzene	8267227		< 0.005	< 0.005	NA	< 0.005	92%	50%	140%	100%	50%	140%	92%	50%	140%
Hexachlorobutadiene	8267227		< 0.01	< 0.01	NA	< 0.01	93%	50%	140%	100%	50%	140%	68%	50%	140%
Hexachloroethane	8267227		< 0.01	< 0.01	NA	< 0.01	82%	50%	140%	96%	50%	140%	64%	50%	140%



Quality Assurance

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T199461

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Mar 31, 2017			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Methoxychlor	8267227		< 0.005	< 0.005	NA	< 0.005	76%	50%	140%	82%	50%	140%	96%	50%	140%

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

Certified By: _____



Method Summary

CLIENT NAME: PETO MACCALLUM

PROJECT: 17BF005

SAMPLING SITE:

AGAT WORK ORDER: 17T199461

ATTENTION TO: Geoff White

SAMPLED BY:

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



Method Summary

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T199461

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Aldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Chlordane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDD	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDE	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDT	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Decachlorobiphenyl	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Dieldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endosulfan	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor Epoxide	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobenzene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobutadiene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachloroethane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Methoxychlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
TCMX	ORG-91-5112	EPA SW-846 3541,3620 & 8081	GC/ECD
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Moisture Content	ORG-91-5106	EPA SW-846 3541 & 8270	BALANCE
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34) minus PAHs	VOL-91-5009	CCME Tier 1 Method	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID
Acetone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Benzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS



Method Summary

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T199461

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
4-Bromofluorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dichlorodifluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Styrene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS

**CLIENT NAME: PETO MACCALLUM
19 CHURCHILL DRIVE
BARRIE, ON L4N8Z5
(705) 734-3900**

ATTENTION TO: Geoff White

PROJECT: 17BF005

AGAT WORK ORDER: 17T197704

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Coordinator

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Mar 29, 2017

PAGES (INCLUDING COVER): 16

VERSION*: 1

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

***NOTES**

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

AGAT Laboratories (V1)

Page 1 of 16

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Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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



Certificate of Analysis

AGAT WORK ORDER: 17T197704

PROJECT: 17BF005

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<http://www.agatlabs.com>

CLIENT NAME: PETO MACCALLUM

SAMPLING SITE:

ATTENTION TO: Geoff White

SAMPLED BY: R. Mcfadden

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

DATE RECEIVED: 2017-03-20

DATE REPORTED: 2017-03-29

Parameter	Unit	SAMPLE DESCRIPTION:		BH6 SS5	BH5 SS3	BH1 SS2
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2017-03-14	2017-03-14	2017-03-14
		G / S	RDL	8264534	8264536	8264545
Antimony	µg/g	1.3	0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	<1	<1	2
Barium	µg/g	220	2	55	41	134
Beryllium	µg/g	2.5	0.5	<0.5	<0.5	<0.5
Boron	µg/g	36	5	<5	<5	9
Boron (Hot Water Soluble)	µg/g	NA	0.10	0.43	<0.10	<0.10
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5
Chromium	µg/g	70	2	10	8	22
Chromium VI	µg/g	0.66	0.2	<0.2	<0.2	<0.2
Cobalt	µg/g	21	0.5	3.7	2.5	8.3
Copper	µg/g	92	1	8	6	15
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040
Electrical Conductivity	mS/cm	0.57	0.005	0.109	0.100	0.147
Lead	µg/g	120	1	2	2	6
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10
Molybdenum	µg/g	2	0.5	0.6	<0.5	<0.5
Nickel	µg/g	82	1	7	5	16
Selenium	µg/g	1.5	0.4	<0.4	<0.4	<0.4
Silver	µg/g	0.5	0.2	<0.2	<0.2	<0.2
Sodium Adsorption Ratio	NA	2.4	NA	0.118	0.133	0.134
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4
Uranium	µg/g	2.5	0.5	<0.5	<0.5	<0.5
Vanadium	µg/g	86	1	19	16	34
Zinc	µg/g	290	5	19	14	45
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.91	7.94	7.73

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard; Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

8264534-8264545 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio.

Certified By:

Amanjot Bhela



Certificate of Analysis

AGAT WORK ORDER: 17T197704

PROJECT: 17BF005

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CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY: R. Mcfadden

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

DATE RECEIVED: 2017-03-20

DATE REPORTED: 2017-03-29

Parameter	Unit	SAMPLE DESCRIPTION:		BH6 SS5	BH5 SS3	BH1 SS2
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2017-03-14	2017-03-14	2017-03-14
		G / S	RDL	8264534	8264536	8264545
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007
DDD	µg/g	0.05	0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.05	0.007	<0.007	<0.007	<0.007
DDT	µg/g	1.4	0.007	<0.007	<0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005
Gamma-Hexachlorocyclohexane	µg/g	0.01	0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.05	0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.01	0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.01	0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.01	0.01	<0.01	<0.01	<0.01
Methoxychlor	µg/g	0.05	0.005	<0.005	<0.005	<0.005
Surrogate	Unit	Acceptable Limits				
Decachlorobiphenyl	%	60-130		102	108	114
TCMX	%	50-140		76	90	100

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard; Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

8264534-8264545 Results are based on the dry weight of the soil.
 Note: DDT applies to the total of op'DDT and pp'DDT, DDD applies to the total of op'DDD and pp'DDD and DDE applies to the total of op'DDE and pp'DDE. Endosulfan applies to the total of Endosulfan I and Endosulfan II.
 Chlordane applies to the total of Alpha-Chlordane and Gamma-Chlordane.

Certified By:

Certificate of Analysis

AGAT WORK ORDER: 17T197704

PROJECT: 17BF005

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CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY: R. Mcfadden

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

DATE RECEIVED: 2017-03-20

DATE REPORTED: 2017-03-29

Parameter	Unit	SAMPLE DESCRIPTION:		BH6 SS5	BH5 SS3	BH1 SS2
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2017-03-14	2017-03-14	2017-03-14
		G / S	RDL	8264534	8264536	8264545
Acenaphthene	µg/g	0.072	0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.16	0.05	<0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.36	0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.47	0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.68	0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.48	0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	2.8	0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.56	0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	0.12	0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.23	0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	24.1	11.1	14.6
Naphthalene	µg/g	0.09	0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	0.69	0.05	<0.05	<0.05	<0.05
Pyrene	µg/g	1	0.05	<0.05	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g	0.59	0.05	<0.05	<0.05	<0.05
Surrogate	Unit	Acceptable Limits				
Chrysene-d12	%	50-140		77	61	78

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

8264534-8264545 Results are based on the dry weight of the soil.

Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 17T197704

PROJECT: 17BF005

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CLIENT NAME: PETO MACCALLUM

SAMPLING SITE:

ATTENTION TO: Geoff White

SAMPLED BY: R. Mcfadden

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)						
DATE RECEIVED: 2017-03-20			DATE REPORTED: 2017-03-29			
Parameter	Unit	SAMPLE DESCRIPTION:		BH6 SS5	BH5 SS3	BH1 SS2
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2017-03-14	2017-03-14	2017-03-14
		G / S	RDL	8264534	8264536	8264545
F1 (C6 to C10)	µg/g	25	5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5	<5	<5
F2 (C10 to C16)	µg/g	10	10	<10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10	<10	<10
F3 (C16 to C34)	µg/g	240	50	<50	<50	<50
F3 (C16 to C34) minus PAHs	µg/g		50	<50	<50	<50
F4 (C34 to C50)	µg/g	120	50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA	NA	NA
Moisture Content	%		0.1	24.1	11.1	14.6
Surrogate	Unit	Acceptable Limits				
Terphenyl	%	60-140		74	81	86

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

8264534-8264545 Results are based on sample dry weight.

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

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

Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.

The chromatogram has returned to baseline by the retention time of nC50.

Total C6 - C50 results are corrected for BTEX and PAH contributions.

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

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

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

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

Linearity is within 15%.

Extraction and holding times were met for this sample.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 17T197704

PROJECT: 17BF005

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CLIENT NAME: PETO MACCALLUM

SAMPLING SITE:

ATTENTION TO: Geoff White

SAMPLED BY: R. Mcfadden

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

DATE RECEIVED: 2017-03-20

DATE REPORTED: 2017-03-29

Parameter	Unit	SAMPLE DESCRIPTION:		BH6 SS5	BH5 SS3	BH1 SS2
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2017-03-14	2017-03-14	2017-03-14
		G / S	RDL	8264534	8264536	8264545
Acetone	ug/g	0.5	0.50	<0.50	<0.50	<0.50
Benzene	ug/g	0.02	0.02	<0.02	<0.02	<0.02
Bromodichloromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05
Bromoform	ug/g	0.05	0.05	<0.05	<0.05	<0.05
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05
Chlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05
Chloroform	ug/g	0.05	0.04	<0.04	<0.04	<0.04
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02	<0.02	<0.02
Dibromochloromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02	<0.02	<0.02
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03	<0.03	<0.03
1,3-Dichloropropene	ug/g	0.05	0.04	<0.04	<0.04	<0.04
Ethylbenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50	<0.50	<0.50
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05
Styrene	ug/g	0.05	0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05
Toluene	ug/g	0.2	0.05	<0.05	<0.05	<0.05

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 17T197704

PROJECT: 17BF005

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

CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY: R. Mcfadden

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

DATE RECEIVED: 2017-03-20

DATE REPORTED: 2017-03-29

Parameter	Unit	SAMPLE DESCRIPTION:		BH6 SS5	BH5 SS3	BH1 SS2
		SAMPLE TYPE:		Soil	Soil	Soil
DATE SAMPLED:		2017-03-14		2017-03-14	2017-03-14	2017-03-14
G / S		RDL		8264534	8264536	8264545
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04
Trichloroethylene	ug/g	0.05	0.03	<0.03	<0.03	<0.03
Trichlorofluoromethane	ug/g	0.25	0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02	<0.02	<0.02
Xylene Mixture	ug/g	0.05	0.05	<0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	<0.05	<0.05
n-Hexane	ug/g	0.05	0.05	<0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05	<0.05
Surrogate	Unit	Acceptable Limits				
4-Bromofluorobenzene	% Recovery	50-140		92	92	92
Toluene-d8	% Recovery	50-140		99	99	99

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

8264534-8264545 The sample was analysed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil.

Certified By:



Quality Assurance

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T197704

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY: R. Mcfadden

Soil Analysis															
RPT Date: Mar 29, 2017			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
						Lower		Upper	Lower		Upper	Lower		Upper	

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

Antimony	8264536	8264536	<0.8	<0.8	NA	< 0.8	109%	70%	130%	101%	80%	120%	103%	70%	130%
Arsenic	8264536	8264536	<1	<1	NA	< 1	108%	70%	130%	101%	80%	120%	110%	70%	130%
Barium	8264536	8264536	41	40	2.5%	< 2	104%	70%	130%	98%	80%	120%	110%	70%	130%
Beryllium	8264536	8264536	<0.5	<0.5	NA	< 0.5	89%	70%	130%	101%	80%	120%	100%	70%	130%
Boron	8264536	8264536	<5	<5	NA	< 5	73%	70%	130%	104%	80%	120%	103%	70%	130%
Boron (Hot Water Soluble)	8270109		<0.10	<0.10	NA	< 0.10	104%	60%	140%	100%	70%	130%	94%	60%	140%
Cadmium	8264536	8264536	<0.5	<0.5	NA	< 0.5	102%	70%	130%	105%	80%	120%	114%	70%	130%
Chromium	8264536	8264536	8	8	NA	< 2	90%	70%	130%	100%	80%	120%	113%	70%	130%
Chromium VI	8257361		<0.2	<0.2	NA	< 0.2	96%	70%	130%	96%	80%	120%	95%	70%	130%
Cobalt	8264536	8264536	2.5	2.5	0.0%	< 0.5	98%	70%	130%	105%	80%	120%	105%	70%	130%
Copper	8264536	8264536	6	5	18.2%	< 1	94%	70%	130%	112%	80%	120%	104%	70%	130%
Cyanide	8262148		<0.040	<0.040	NA	< 0.040	106%	70%	130%	105%	80%	120%	107%	70%	130%
Electrical Conductivity	8264536	8264536	0.100	0.102	2.0%	< 0.005	94%	90%	110%	NA			NA		
Lead	8264536	8264536	2	2	NA	< 1	106%	70%	130%	101%	80%	120%	102%	70%	130%
Mercury	8264536	8264536	<0.10	<0.10	NA	< 0.10	98%	70%	130%	95%	80%	120%	83%	70%	130%
Molybdenum	8264536	8264536	<0.5	<0.5	NA	< 0.5	110%	70%	130%	103%	80%	120%	118%	70%	130%
Nickel	8264536	8264536	5	5	0.0%	< 1	98%	70%	130%	106%	80%	120%	105%	70%	130%
Selenium	8264536	8264536	<0.4	<0.4	NA	< 0.4	114%	70%	130%	100%	80%	120%	114%	70%	130%
Silver	8264536	8264536	<0.2	<0.2	NA	< 0.2	118%	70%	130%	115%	80%	120%	122%	70%	130%
Sodium Adsorption Ratio	8264536	8264536	0.133	0.131	1.5%	NA	NA			NA			NA		
Thallium	8264536	8264536	<0.4	<0.4	NA	< 0.4	102%	70%	130%	102%	80%	120%	106%	70%	130%
Uranium	8264536	8264536	<0.5	<0.5	NA	< 0.5	95%	70%	130%	94%	80%	120%	98%	70%	130%
Vanadium	8264536	8264536	16	15	6.5%	< 1	96%	70%	130%	99%	80%	120%	112%	70%	130%
Zinc	8264536	8264536	14	13	NA	< 5	100%	70%	130%	110%	80%	120%	113%	70%	130%
pH, 2:1 CaCl2 Extraction	8259663		9.79	9.77	0.2%	NA	100%	80%	120%	NA			NA		

Comments: NA signifies Not Applicable.

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

Certified By:

Amanjot Bhela



Quality Assurance

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T197704

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY: R. Mcfadden

Trace Organics Analysis															
RPT Date: Mar 29, 2017			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - VOCs (Soil)															
Acetone	8259671		< 0.50	< 0.50	NA	< 0.50	98%	50%	140%	86%	50%	140%	114%	50%	140%
Benzene	8259671		< 0.02	< 0.02	NA	< 0.02	105%	50%	140%	70%	60%	130%	85%	50%	140%
Bromodichloromethane	8259671		< 0.05	< 0.05	NA	< 0.05	126%	50%	140%	76%	60%	130%	91%	50%	140%
Bromoform	8259671		< 0.05	< 0.05	NA	< 0.05	113%	50%	140%	104%	60%	130%	113%	50%	140%
Bromomethane	8259671		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	110%	50%	140%	90%	50%	140%
Carbon Tetrachloride	8259671		< 0.05	< 0.05	NA	< 0.05	120%	50%	140%	82%	60%	130%	106%	50%	140%
Chlorobenzene	8259671		< 0.05	< 0.05	NA	< 0.05	120%	50%	140%	114%	60%	130%	118%	50%	140%
Chloroform	8259671		< 0.04	< 0.04	NA	< 0.04	102%	50%	140%	73%	60%	130%	89%	50%	140%
Cis- 1,2-Dichloroethylene	8259671		< 0.02	< 0.02	NA	< 0.02	105%	50%	140%	72%	60%	130%	83%	50%	140%
Dibromochloromethane	8259671		< 0.05	< 0.05	NA	< 0.05	97%	50%	140%	103%	60%	130%	95%	50%	140%
1,3-Dichlorobenzene	8259671		< 0.05	< 0.05	NA	< 0.05	119%	50%	140%	119%	60%	130%	115%	50%	140%
1,2-Dichlorobenzene	8259671		< 0.05	< 0.05	NA	< 0.05	120%	50%	140%	115%	60%	130%	116%	50%	140%
1,4-Dichlorobenzene	8259671		< 0.05	< 0.05	NA	< 0.05	126%	50%	140%	119%	60%	130%	126%	50%	140%
Dichlorodifluoromethane	8259671		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	81%	50%	140%	89%	50%	140%
1,1-Dichloroethane	8259671		< 0.02	< 0.02	NA	< 0.02	121%	50%	140%	97%	60%	130%	107%	50%	140%
1,2-Dichloroethane	8259671		< 0.03	< 0.03	NA	< 0.03	119%	50%	140%	93%	60%	130%	102%	50%	140%
1,1-Dichloroethylene	8259671		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	94%	60%	130%	117%	50%	140%
1,2-Dichloropropane	8259671		< 0.03	< 0.03	NA	< 0.03	108%	50%	140%	118%	60%	130%	83%	50%	140%
1,3-Dichloropropene	8259671		< 0.04	< 0.04	NA	< 0.04	90%	50%	140%	92%	60%	130%	79%	50%	140%
Ethylbenzene	8259671		< 0.05	< 0.05	NA	< 0.05	106%	50%	140%	103%	60%	130%	109%	50%	140%
Ethylene Dibromide	8259671		< 0.04	< 0.04	NA	< 0.04	105%	50%	140%	102%	60%	130%	100%	50%	140%
Methyl Ethyl Ketone	8259671		< 0.50	< 0.50	NA	< 0.50	103%	50%	140%	70%	50%	140%	83%	50%	140%
Methyl Isobutyl Ketone	8259671		< 0.50	< 0.50	NA	< 0.50	76%	50%	140%	81%	50%	140%	87%	50%	140%
Methyl tert-butyl Ether	8259671		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	81%	60%	130%	92%	50%	140%
Methylene Chloride	8259671		< 0.05	< 0.05	NA	< 0.05	114%	50%	140%	79%	60%	130%	81%	50%	140%
Styrene	8259671		< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	93%	60%	130%	103%	50%	140%
1,1,2,2-Tetrachloroethane	8259671		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	111%	60%	130%	107%	50%	140%
1,1,1,2-Tetrachloroethane	8259671		< 0.04	< 0.04	NA	< 0.04	116%	50%	140%	112%	60%	130%	111%	50%	140%
Tetrachloroethylene	8259671		< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	112%	60%	130%	120%	50%	140%
Toluene	8259671		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	105%	60%	130%	92%	50%	140%
Trans- 1,2-Dichloroethylene	8259671		< 0.05	< 0.05	NA	< 0.05	123%	50%	140%	89%	60%	130%	113%	50%	140%
1,1,1-Trichloroethane	8259671		< 0.05	< 0.05	NA	< 0.05	125%	50%	140%	86%	60%	130%	103%	50%	140%
1,1,2-Trichloroethane	8259671		< 0.04	< 0.04	NA	< 0.04	100%	50%	140%	112%	60%	130%	91%	50%	140%
Trichloroethylene	8259671		< 0.03	< 0.03	NA	< 0.03	121%	50%	140%	81%	60%	130%	100%	50%	140%
Trichlorofluoromethane	8259671		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	110%	50%	140%	114%	50%	140%
Vinyl Chloride	8259671		< 0.02	< 0.02	NA	< 0.02	82%	50%	140%	119%	50%	140%	95%	50%	140%
m & p-Xylene	8259671		< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	111%	60%	130%	118%	50%	140%
n-Hexane	8259671		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	87%	60%	130%	128%	50%	140%
o-Xylene	8259671		< 0.05	< 0.05	NA	< 0.05	114%	50%	140%	117%	60%	130%	118%	50%	140%



Quality Assurance

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T197704

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY: R. Mcfadden

Trace Organics Analysis (Continued)

RPT Date: Mar 29, 2017			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

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

F1 (C6 to C10)	8258069	< 5	< 5	NA	< 5	82%	60%	130%	106%	85%	115%	82%	70%	130%
F2 (C10 to C16)	8259889	< 10	< 10	NA	< 10	96%	60%	130%	81%	80%	120%	71%	70%	130%
F3 (C16 to C34)	8259889	< 50	< 50	NA	< 50	105%	60%	130%	85%	80%	120%	72%	70%	130%
F4 (C34 to C50)	8259889	< 50	< 50	NA	< 50	100%	60%	130%	103%	80%	120%	94%	70%	130%

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

Acenaphthene	8259667	< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	112%	50%	140%	87%	50%	140%
Acenaphthylene	8259667	< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	109%	50%	140%	78%	50%	140%
Anthracene	8259667	< 0.05	< 0.05	NA	< 0.05	100%	50%	140%	109%	50%	140%	82%	50%	140%
Benz(a)anthracene	8259667	< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	64%	50%	140%	75%	50%	140%
Benzo(a)pyrene	8259667	< 0.05	< 0.05	NA	< 0.05	83%	50%	140%	96%	50%	140%	98%	50%	140%
Benzo(b)fluoranthene	8259667	< 0.05	< 0.05	NA	< 0.05	82%	50%	140%	94%	50%	140%	95%	50%	140%
Benzo(g,h,i)perylene	8259667	< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	86%	50%	140%	90%	50%	140%
Benzo(k)fluoranthene	8259667	< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	99%	50%	140%	109%	50%	140%
Chrysene	8259667	< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	70%	50%	140%	81%	50%	140%
Dibenz(a,h)anthracene	8259667	< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	85%	50%	140%	99%	50%	140%
Fluoranthene	8259667	< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	92%	50%	140%	87%	50%	140%
Fluorene	8259667	< 0.05	< 0.05	NA	< 0.05	104%	50%	140%	110%	50%	140%	79%	50%	140%
Indeno(1,2,3-cd)pyrene	8259667	< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	81%	50%	140%	85%	50%	140%
Naphthalene	8259667	< 0.05	< 0.05	NA	< 0.05	107%	50%	140%	110%	50%	140%	123%	50%	140%
Phenanthrene	8259667	< 0.05	< 0.05	NA	< 0.05	97%	50%	140%	103%	50%	140%	97%	50%	140%
Pyrene	8259667	< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	92%	50%	140%	87%	50%	140%
2-and 1-methyl Naphthalene	8259667	< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	129%	50%	140%	112%	50%	140%

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

Aldrin	8267227	< 0.005	< 0.005	NA	< 0.005	109%	50%	140%	94%	50%	140%	68%	50%	140%
Chlordane	8267227	< 0.007	< 0.007	NA	< 0.007	87%	50%	140%	91%	50%	140%	78%	50%	140%
DDD	8267227	< 0.007	< 0.007	NA	< 0.007	94%	50%	140%	94%	50%	140%	84%	50%	140%
DDE	8267227	< 0.007	< 0.007	NA	< 0.007	88%	50%	140%	98%	50%	140%	78%	50%	140%
DDT	8267227	< 0.007	< 0.007	NA	< 0.007	88%	50%	140%	87%	50%	140%	78%	50%	140%
Dieldrin	8267227	< 0.005	< 0.005	NA	< 0.005	84%	50%	140%	90%	50%	140%	80%	50%	140%
Endosulfan	8267227	< 0.005	< 0.005	NA	< 0.005	89%	50%	140%	88%	50%	140%	69%	50%	140%
Endrin	8267227	< 0.005	< 0.005	NA	< 0.005	84%	50%	140%	76%	50%	140%	82%	50%	140%
Gamma-Hexachlorocyclohexane	8267227	< 0.005	< 0.005	NA	< 0.005	92%	50%	140%	78%	50%	140%	66%	50%	140%
Heptachlor	8267227	< 0.005	< 0.005	NA	< 0.005	80%	50%	140%	90%	50%	140%	80%	50%	140%
Heptachlor Epoxide	8267227	< 0.005	< 0.005	NA	< 0.005	90%	50%	140%	96%	50%	140%	82%	50%	140%
Hexachlorobenzene	8267227	< 0.005	< 0.005	NA	< 0.005	92%	50%	140%	100%	50%	140%	92%	50%	140%
Hexachlorobutadiene	8267227	< 0.01	< 0.01	NA	< 0.01	93%	50%	140%	100%	50%	140%	68%	50%	140%
Hexachloroethane	8267227	< 0.01	< 0.01	NA	< 0.01	82%	50%	140%	96%	50%	140%	64%	50%	140%



Quality Assurance

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T197704

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY: R. Mcfadden

Trace Organics Analysis (Continued)

RPT Date: Mar 29, 2017			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Methoxychlor	8267227		< 0.005	< 0.005	NA	< 0.005	76%	50%	140%	82%	50%	140%	96%	50%	140%

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

Certified By:



Method Summary

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T197704

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY: R. Mcfadden

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



Method Summary

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T197704

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY: R. Mcfadden

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Aldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Chlordane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDD	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDE	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDT	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Decachlorobiphenyl	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Dieldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endosulfan	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor Epoxide	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobenzene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobutadiene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachloroethane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Methoxychlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
TCMX	ORG-91-5112	EPA SW-846 3541,3620 & 8081	GC/ECD
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Moisture Content	ORG-91-5106	EPA SW-846 3541 & 8270	BALANCE
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34) minus PAHs	VOL-91-5009	CCME Tier 1 Method	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID
Acetone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Benzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS



Method Summary

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T197704

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY: R. Mcfadden

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
4-Bromofluorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dichlorodifluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Styrene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS



APPENDIX D

Certificates of Analysis for Water



**CLIENT NAME: PETO MACCALLUM
19 CHURCHILL DRIVE
BARRIE, ON L4N8Z5
(705) 734-3900**

ATTENTION TO: Geoff White

PROJECT: 17BF005

AGAT WORK ORDER: 17T200385

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

WATER ANALYSIS REVIEWED BY: Sofka Pehlyova, Senior Analyst

DATE REPORTED: Apr 04, 2017

PAGES (INCLUDING COVER): 13

VERSION*: 1

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

***NOTES**

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

AGAT Laboratories (V1)

Page 1 of 13

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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

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



Certificate of Analysis

AGAT WORK ORDER: 17T200385

PROJECT: 17BF005

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

CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PAHs (Water)					
DATE RECEIVED: 2017-03-28			DATE REPORTED: 2017-04-04		
Parameter	Unit	SAMPLE DESCRIPTION:		BH10	BH3
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2017-03-28	2017-03-28
		G / S	RDL	8283381	8283397
Acenaphthene	µg/L	4.1	0.20	<0.20	<0.20
Acenaphthylene	µg/L	1	0.20	<0.20	<0.20
Anthracene	µg/L	0.1	0.10	<0.10	<0.10
Benz(a)anthracene	µg/L	0.2	0.20	<0.20	<0.20
Benzo(a)pyrene	µg/L	0.01	0.01	<0.01	<0.01
Benzo(b)fluoranthene	µg/L	0.1	0.10	<0.10	<0.10
Benzo(g,h,i)perylene	µg/L	0.2	0.20	<0.20	<0.20
Benzo(k)fluoranthene	µg/L	0.1	0.10	<0.10	<0.10
Chrysene	µg/L	0.1	0.10	<0.10	<0.10
Dibenz(a,h)anthracene	µg/L	0.2	0.20	<0.20	<0.20
Fluoranthene	µg/L	0.4	0.20	<0.20	<0.20
Fluorene	µg/L	120	0.20	<0.20	<0.20
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.20	<0.20	<0.20
Naphthalene	µg/L	7	0.20	0.65	<0.20
Phenanthrene	µg/L	0.1	0.10	<0.10	<0.10
Pyrene	µg/L	0.2	0.20	<0.20	<0.20
2-and 1-methyl Naphthalene	µg/L	2	0.20	<0.20	<0.20
Surrogate	Unit	Acceptable Limits			
Chrysene-d12	%	50-140		61	63

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Ground Water - All Types of Property Uses
 8283381-8283397 Note: The result for Benzo(b)Flouranthene is the total of the Benzo(b)&(j)Flouranthene isomers because the isomers co-elute on the GC column.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 17T200385

PROJECT: 17BF005

5835 COOPERS AVENUE
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CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Water)

DATE RECEIVED: 2017-03-28

DATE REPORTED: 2017-04-04

Parameter	Unit	SAMPLE DESCRIPTION:		BH10	BH3
		G / S	RDL	Water	Water
		DATE SAMPLED:		2017-03-28	2017-03-28
				8283381	8283397
F1 (C6 to C10)	µg/L	420	25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L	420	25	<25	<25
F2 (C10 to C16)	µg/L	150	100	<100	<100
F2 (C10 to C16) minus Naphthalene	µg/L		100	<100	<100
F3 (C16 to C34)	µg/L	500	100	<100	<100
F3 (C16 to C34) minus PAHs	µg/L		100	<100	<100
F4 (C34 to C50)	µg/L	500	100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA	NA
Surrogate	Unit	Acceptable Limits			
Terphenyl	%	60-140		123	102

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

8283381-8283397 The C6-C10 fraction is calculated using Toluene response factor.
 The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
 Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
 The chromatogram has returned to baseline by the retention time of nC50.
 Total C6-C50 results are corrected for BTEX and PAH contributions.
 This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
 nC6 and nC10 response factors are within 30% of Toluene response factor.
 nC10, nC16 and nC34 response factors are within 10% of their average.
 C50 response factor is within 70% of nC10 + nC16 nC34 average.
 Linearity is within 15%.
 Extraction and holding times were met for this sample.

Certified By:

Certificate of Analysis

AGAT WORK ORDER: 17T200385

PROJECT: 17BF005

5835 COOPERS AVENUE
 MISSISSAUGA, ONTARIO
 CANADA L4Z 1Y2
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<http://www.agatlabs.com>

CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2017-03-28

DATE REPORTED: 2017-04-04

Parameter	Unit	SAMPLE DESCRIPTION:		BH10	BH3
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2017-03-28	2017-03-28
		G / S	RDL	8283381	8283397
Acetone	µg/L	2700	1.0	<1.0	<1.0
Benzene	µg/L	0.5	0.20	<0.20	0.37
Bromodichloromethane	µg/L	2	0.20	<0.20	<0.20
Bromoform	µg/L	5	0.10	<0.10	<0.10
Bromomethane	µg/L	0.89	0.20	<0.20	<0.20
Carbon Tetrachloride	µg/L	0.2	0.20	<0.20	<0.20
Chlorobenzene	µg/L	0.5	0.10	<0.10	<0.10
Chloroform	µg/L	2	0.20	<0.20	<0.20
Dibromochloromethane	µg/L	2	0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	0.5	0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	0.5	0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	0.5	0.10	<0.10	<0.10
Dichlorodifluoromethane	µg/L	590	0.20	<0.20	<0.20
1,2-Dichloroethane	µg/L	0.5	0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	0.5	0.30	<0.30	<0.30
1,1-Dichloroethylene	µg/L	0.5	0.30	<0.30	<0.30
1,2-Dichloropropane	µg/L	0.5	0.20	<0.20	<0.20
1,3-Dichloropropene	µg/L	0.5	0.30	<0.30	<0.30
Ethylbenzene	µg/L	0.5	0.10	<0.10	0.44
Ethylene Dibromide	µg/L	0.2	0.10	<0.10	<0.10
Methyl Ethyl Ketone	µg/L	400	1.0	<1.0	<1.0
Methyl Isobutyl Ketone	µg/L	640	1.0	<1.0	<1.0
Methyl tert-butyl ether	µg/L	15	0.20	<0.20	<0.20
Methylene Chloride	µg/L	5	0.30	<0.30	<0.30
Styrene	µg/L	0.5	0.10	<0.10	<0.10
1,1,1,2-Tetrachloroethane	µg/L	1.1	0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	0.5	0.10	<0.10	<0.10
Tetrachloroethylene	µg/L	0.5	0.20	<0.20	<0.20
Toluene	µg/L	0.8	0.20	0.28	1.7
1,1,2-Trichloroethane	µg/L	0.5	0.20	<0.20	<0.20

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 17T200385

PROJECT: 17BF005

5835 COOPERS AVENUE
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<http://www.agatlabs.com>

CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2017-03-28

DATE REPORTED: 2017-04-04

Parameter	Unit	SAMPLE DESCRIPTION:		BH10	BH3
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2017-03-28	2017-03-28
		G / S	RDL	8283381	8283397
1,1,1-Trichloroethane	µg/L	0.5	0.30	<0.30	<0.30
Trichloroethylene	µg/L	0.5	0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	150	0.40	<0.40	<0.40
Vinyl Chloride	µg/L	0.5	0.17	<0.17	<0.17
Xylene Mixture	µg/L	72	0.20	<0.20	0.51
cis- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	<0.20
m & p-Xylene	µg/L		0.20	<0.20	0.40
n-Hexane	µg/L	5	0.20	<0.20	<0.20
o-Xylene	µg/L		0.10	<0.10	0.11
trans- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	<0.20
Surrogate	Unit	Acceptable Limits			
4-Bromofluorobenzene	% Recovery	50-140		85	83
Toluene-d8	% Recovery	50-140		92	107

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

Certified By:

Certificate of Analysis

AGAT WORK ORDER: 17T200385

PROJECT: 17BF005

5835 COOPERS AVENUE
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 FAX (905)712-5122
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CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2017-03-28

DATE REPORTED: 2017-04-04

Parameter	Unit	SAMPLE DESCRIPTION:		BH10		BH3
		SAMPLE TYPE:		Water		Water
		DATE SAMPLED:		2017-03-28		2017-03-28
		G / S	RDL	8283381	RDL	8283397
Antimony	µg/L	1.5	1.0	<1.0	1.0	<1.0
Arsenic	µg/L	13	1.0	<1.0	1.0	<1.0
Barium	µg/L	610	2.0	35.2	2.0	82.3
Beryllium	µg/L	0.5	0.5	<0.5	0.5	<0.5
Boron	µg/L	1700	10.0	25.5	10.0	229
Cadmium	µg/L	0.5	0.2	<0.2	0.2	<0.2
Chloride	µg/L	790000	200	30000	100	12700
Chromium	µg/L	11	2.0	3.3	2.0	<2.0
Chromium VI	µg/L	25	5	<5	5	<5
Cobalt	µg/L	3.8	0.5	<0.5	0.5	<0.5
Copper	µg/L	5	1.0	<1.0	1.0	<1.0
Cyanide	µg/L	5	2	<2	2	<2
Electrical Conductivity	µS/cm		2	675	2	469
Lead	µg/L	1.9	0.5	<0.5	0.5	<0.5
Mercury	µg/L	0.1	0.02	<0.02	0.02	<0.02
Molybdenum	µg/L	23	0.5	1.1	0.5	37.7
Nickel	µg/L	14	1.0	1.7	1.0	1.6
Selenium	µg/L	5	1.0	1.0	1.0	<1.0
Silver	µg/L	0.3	0.2	<0.2	0.2	<0.2
Sodium	µg/L	490000	500	4760	500	9150
Thallium	µg/L	0.5	0.3	<0.3	0.3	<0.3
Uranium	µg/L	8.9	0.5	<0.5	0.5	4.0
Vanadium	µg/L	3.9	0.4	1.4	0.4	1.0
Zinc	µg/L	160	5.0	<5.0	5.0	6.8
pH	pH Units		NA	8.15	NA	8.10

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Ground Water - All Types of Property Uses
 8283397 Please note that the analytical result for Molybdenum has been confirmed by re-analysis.

Certified By:

Sofia Pehlyova



Guideline Violation

AGAT WORK ORDER: 17T200385

PROJECT: 17BF005

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
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CLIENT NAME: PETO MACCALLUM

ATTENTION TO: Geoff White

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
8283397	BH3	ON T1 GW	O. Reg. 153(511) - Metals & Inorganics (Water)	Molybdenum	µg/L	23	37.7
8283397	BH3	ON T1 GW	O. Reg. 153(511) - VOCs (Water)	Toluene	µg/L	0.8	1.7



Quality Assurance

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T200385

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis															
RPT Date: Apr 04, 2017			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Water)															
F1 (C6 to C10)	8285086		< 25	< 25	NA	< 25	80%	60%	140%	88%	60%	140%	95%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	103%	60%	140%	63%	60%	140%	62%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	102%	60%	140%	73%	60%	140%	78%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	88%	60%	140%	102%	60%	140%	93%	60%	140%
O. Reg. 153(511) - VOCs (Water)															
Acetone	8273671		< 1.0	< 1.0	NA	< 1.0	103%	50%	140%	102%	50%	140%	91%	50%	140%
Benzene	8273671		< 0.20	< 0.20	NA	< 0.20	100%	50%	140%	113%	60%	130%	84%	50%	140%
Bromodichloromethane	8273671		< 0.20	< 0.20	NA	< 0.20	108%	50%	140%	101%	60%	130%	89%	50%	140%
Bromoform	8273671		< 0.10	< 0.10	NA	< 0.10	108%	50%	140%	107%	60%	130%	85%	50%	140%
Bromomethane	8273671		< 0.20	< 0.20	NA	< 0.20	73%	50%	140%	86%	50%	140%	117%	50%	140%
Carbon Tetrachloride	8273671		< 0.20	< 0.20	NA	< 0.20	109%	50%	140%	105%	60%	130%	90%	50%	140%
Chlorobenzene	8273671		< 0.10	< 0.10	NA	< 0.10	76%	50%	140%	86%	60%	130%	77%	50%	140%
Chloroform	8273671		< 0.20	< 0.20	NA	< 0.20	115%	50%	140%	114%	60%	130%	96%	50%	140%
Dibromochloromethane	8273671		< 0.10	< 0.10	NA	< 0.10	118%	50%	140%	109%	60%	130%	86%	50%	140%
1,4-Dichlorobenzene	8273671		< 0.10	< 0.10	NA	< 0.10	94%	50%	140%	99%	60%	130%	83%	50%	140%
1,2-Dichlorobenzene	8273671		< 0.10	< 0.10	NA	< 0.10	86%	50%	140%	104%	60%	130%	92%	50%	140%
1,3-Dichlorobenzene	8273671		< 0.10	< 0.10	NA	< 0.10	81%	50%	140%	102%	60%	130%	86%	50%	140%
Dichlorodifluoromethane	8273671		< 0.20	< 0.20	NA	< 0.20	72%	50%	140%	113%	50%	140%	80%	50%	140%
1,2-Dichloroethane	8273671		< 0.20	< 0.20	NA	< 0.20	107%	50%	140%	104%	60%	130%	78%	50%	140%
1,1-Dichloroethane	8273671		< 0.30	< 0.30	NA	< 0.30	118%	50%	140%	112%	60%	130%	82%	50%	140%
1,1-Dichloroethylene	8273671		< 0.30	< 0.30	NA	< 0.30	116%	50%	140%	103%	60%	130%	89%	50%	140%
1,2-Dichloropropane	8273671		< 0.20	< 0.20	NA	< 0.20	100%	50%	140%	87%	60%	130%	92%	50%	140%
1,3-Dichloropropene	8273671		< 0.30	< 0.30	NA	< 0.30	105%	50%	140%	83%	60%	130%	80%	50%	140%
Ethylbenzene	8273671		< 0.10	< 0.10	NA	< 0.10	88%	50%	140%	111%	60%	130%	93%	50%	140%
Ethylene Dibromide	8273671		< 0.10	< 0.10	NA	< 0.10	112%	50%	140%	100%	60%	130%	71%	50%	140%
Methyl Ethyl Ketone	8273671		< 1.0	< 1.0	NA	< 1.0	84%	50%	140%	102%	50%	140%	103%	50%	140%
Methyl Isobutyl Ketone	8273671		< 1.0	< 1.0	NA	< 1.0	104%	50%	140%	89%	50%	140%	75%	50%	140%
Methyl tert-butyl ether	8273671		< 0.20	< 0.20	NA	< 0.20	112%	50%	140%	95%	60%	130%	80%	50%	140%
Methylene Chloride	8273671		< 0.30	< 0.30	NA	< 0.30	88%	50%	140%	102%	60%	130%	87%	50%	140%
Styrene	8273671		< 0.10	< 0.10	NA	< 0.10	101%	50%	140%	113%	60%	130%	95%	50%	140%
1,1,1,2-Tetrachloroethane	8273671		< 0.10	< 0.10	NA	< 0.10	113%	50%	140%	104%	60%	130%	81%	50%	140%
1,1,1,2,2-Tetrachloroethane	8273671		< 0.10	< 0.10	NA	< 0.10	118%	50%	140%	95%	60%	130%	81%	50%	140%
Tetrachloroethylene	8273671		< 0.20	< 0.20	NA	< 0.20	82%	50%	140%	107%	60%	130%	80%	50%	140%
Toluene	8273671		< 0.20	< 0.20	NA	< 0.20	91%	50%	140%	116%	60%	130%	85%	50%	140%
1,1,2-Trichloroethane	8273671		< 0.20	< 0.20	NA	< 0.20	100%	50%	140%	96%	60%	130%	87%	50%	140%
1,1,1-Trichloroethane	8273671		< 0.30	< 0.30	NA	< 0.30	106%	50%	140%	119%	60%	130%	86%	50%	140%
Trichloroethylene	8273671		< 0.20	< 0.20	NA	< 0.20	97%	50%	140%	93%	60%	130%	70%	50%	140%
Trichlorofluoromethane	8273671		< 0.40	< 0.40	NA	< 0.40	74%	50%	140%	112%	50%	140%	110%	50%	140%
Vinyl Chloride	8273671		< 0.17	< 0.17	NA	< 0.17	84%	50%	140%	113%	50%	140%	109%	50%	140%



Quality Assurance

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T200385

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Apr 04, 2017			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
cis- 1,2-Dichloroethylene	8273671		< 0.20	< 0.20	NA	< 0.20	96%	50%	140%	95%	60%	130%	82%	50%	140%
m & p-Xylene	8273671		< 0.20	< 0.20	NA	< 0.20	100%	50%	140%	120%	60%	130%	107%	50%	140%
n-Hexane	8273671		< 0.20	< 0.20	NA	< 0.20	80%	50%	140%	95%	60%	130%	109%	50%	140%
o-Xylene	8273671		< 0.10	< 0.10	NA	< 0.10	93%	50%	140%	107%	60%	130%	92%	50%	140%
trans- 1,2-Dichloroethylene	8273671		< 0.20	< 0.20	NA	< 0.20	85%	50%	140%	98%	60%	130%	85%	50%	140%
O. Reg. 153(511) - PAHs (Water)															
Acenaphthene	8283534		< 0.20	< 0.20	NA	< 0.20	112%	50%	140%	111%	50%	140%	113%	50%	140%
Acenaphthylene	8283534		< 0.20	< 0.20	NA	< 0.20	102%	50%	140%	109%	50%	140%	114%	50%	140%
Anthracene	8283534		< 0.10	< 0.10	NA	< 0.10	101%	50%	140%	99%	50%	140%	103%	50%	140%
Benz(a)anthracene	8283534		< 0.20	< 0.20	NA	< 0.20	74%	50%	140%	86%	50%	140%	73%	50%	140%
Benzo(a)pyrene	8283534		< 0.01	< 0.01	NA	< 0.01	103%	50%	140%	97%	50%	140%	112%	50%	140%
Benzo(b)fluoranthene	8283534		< 0.10	< 0.10	NA	< 0.10	98%	50%	140%	99%	50%	140%	105%	50%	140%
Benzo(g,h,i)perylene	8283534		< 0.20	< 0.20	NA	< 0.20	92%	50%	140%	98%	50%	140%	93%	50%	140%
Benzo(k)fluoranthene	8283534		< 0.10	< 0.10	NA	< 0.10	120%	50%	140%	111%	50%	140%	116%	50%	140%
Chrysene	8283534		< 0.10	< 0.10	NA	< 0.10	85%	50%	140%	95%	50%	140%	77%	50%	140%
Dibenz(a,h)anthracene	8283534		< 0.20	< 0.20	NA	< 0.20	80%	50%	140%	85%	50%	140%	83%	50%	140%
Fluoranthene	8283534		< 0.20	< 0.20	NA	< 0.20	98%	50%	140%	105%	50%	140%	102%	50%	140%
Fluorene	8283534		< 0.20	< 0.20	NA	< 0.20	107%	50%	140%	105%	50%	140%	110%	50%	140%
Indeno(1,2,3-cd)pyrene	8283534		< 0.20	< 0.20	NA	< 0.20	83%	50%	140%	85%	50%	140%	127%	50%	140%
Naphthalene	8283534		< 0.20	< 0.20	NA	< 0.20	112%	50%	140%	113%	50%	140%	127%	50%	140%
Phenanthrene	8283534		< 0.10	< 0.10	NA	< 0.10	106%	50%	140%	108%	50%	140%	109%	50%	140%
Pyrene	8283534		< 0.20	< 0.20	NA	< 0.20	97%	50%	140%	103%	50%	140%	99%	50%	140%
2-and 1-methyl Naphthalene	8283534		< 0.20	< 0.20	NA	< 0.20	134%	50%	140%	91%	50%	140%	104%	50%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume. When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

Quality Assurance

CLIENT NAME: PETO MACCALLUM

AGAT WORK ORDER: 17T200385

PROJECT: 17BF005

ATTENTION TO: Geoff White

SAMPLING SITE:

SAMPLED BY:

Water Analysis															
RPT Date: Apr 04, 2017			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

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

Antimony	8285290		<1.0	<1.0	NA	< 1.0	103%	70%	130%	100%	80%	120%	99%	70%	130%
Arsenic	8285290		1.4	1.3	NA	< 1.0	100%	70%	130%	98%	80%	120%	99%	70%	130%
Barium	8285290		30.6	30.0	2.0%	< 2.0	102%	70%	130%	100%	80%	120%	96%	70%	130%
Beryllium	8285290		<0.5	<0.5	NA	< 0.5	100%	70%	130%	95%	80%	120%	103%	70%	130%
Boron	8285290		68.8	72.8	5.6%	< 10.0	105%	70%	130%	100%	80%	120%	103%	70%	130%
Cadmium	8285290		<0.2	<0.2	NA	< 0.2	103%	70%	130%	105%	80%	120%	104%	70%	130%
Chloride	8286912		467000	447000	4.4%	< 100	102%	70%	130%	101%	70%	130%	106%	70%	130%
Chromium	8285290		3.9	4.1	NA	< 2.0	105%	70%	130%	105%	80%	120%	101%	70%	130%
Chromium VI	8283381	8283381	<5	<5	NA	< 5	101%	70%	130%	103%	80%	120%	102%	70%	130%
Cobalt	8285290		<0.5	<0.5	NA	< 0.5	99%	70%	130%	105%	80%	120%	101%	70%	130%
Copper	8285290		4.3	4.6	NA	< 1.0	109%	70%	130%	107%	80%	120%	101%	70%	130%
Cyanide	8282792		<2	<2	NA	< 2	100%	70%	130%	104%	80%	120%	87%	70%	130%
Electrical Conductivity	8283381	8283381	675	676	0.1%	< 2	104%	90%	110%	NA			NA		
Lead	8285290		<0.5	<0.5	NA	< 0.5	101%	70%	130%	100%	80%	120%	100%	70%	130%
Mercury	8283381	8283381	< 0.02	< 0.02	NA	< 0.02	97%	70%	130%	95%	80%	120%	93%	70%	130%
Molybdenum	8285290		11.2	11.4	1.8%	< 0.5	101%	70%	130%	102%	80%	120%	99%	70%	130%
Nickel	8285290		4.2	3.9	NA	< 1.0	104%	70%	130%	105%	80%	120%	101%	70%	130%
Selenium	8285290		1.1	<1.0	NA	< 1.0	101%	70%	130%	101%	80%	120%	102%	70%	130%
Silver	8285290		<0.2	<0.2	NA	< 0.2	107%	70%	130%	109%	80%	120%	116%	70%	130%
Sodium	8282971		61900	61300	1.0%	< 500	97%	70%	130%	97%	80%	120%	96%	70%	130%
Thallium	8285290		<0.3	<0.3	NA	< 0.3	107%	70%	130%	109%	80%	120%	105%	70%	130%
Uranium	8285290		4.6	4.5	2.2%	< 0.5	102%	70%	130%	102%	80%	120%	102%	70%	130%
Vanadium	8285290		1.7	1.7	NA	< 0.4	99%	70%	130%	101%	80%	120%	97%	70%	130%
Zinc	8285290		8.5	9.0	NA	< 5.0	105%	70%	130%	110%	80%	120%	113%	70%	130%
pH	8283381	8283381	8.15	8.07	1.0%	NA	100%	90%	110%	NA			NA		

Comments: NA signifies Not Applicable.

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

Certified By:

Sofra Pehlyova

Method Summary

CLIENT NAME: PETO MACCALLUM

PROJECT: 17BF005

SAMPLING SITE:

AGAT WORK ORDER: 17T200385

ATTENTION TO: Geoff White

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Acenaphthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acenaphthylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene-d12	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluorene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Phenanthrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
F1 (C6 to C10)	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC E3421	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5010	MOE PHC E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC- E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID
Acetone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Benzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Dichlorodifluoromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS

Method Summary

CLIENT NAME: PETO MACCALLUM
PROJECT: 17BF005
SAMPLING SITE:
AGAT WORK ORDER: 17T200385
ATTENTION TO: Geoff White
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Methyl Isobutyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl tert-butyl ether	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Styrene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
trans- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Water Analysis			
Antimony	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Barium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Boron	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chloride	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Chromium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chromium VI	INOR-93-6034	SM 3500-Cr B	SPECTROPHOTOMETER
Cobalt	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Copper	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cyanide	INOR-93-6052	MOE METHOD CN- 3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
Electrical Conductivity	INOR-93-6000	SM 2510 B	PC TITRATE
Lead	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Mercury	MET-93-6100	EPA SW-846 7470 & 245.1	CVAAS
Molybdenum	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Nickel	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Selenium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Silver	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Sodium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Thallium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Uranium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Zinc	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
pH	INOR-93-6000	SM 4500-H+ B	PC TITRATE

Laboratory Use Only

Work Order #: 17T200385
Cooler Quantity: 9.6 9.8 9.9
Arrival Temperatures: 8.3 8.4 7.6
Custody Seal Intact: Yes No N/A
Notes:

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Report Information:

Company: Peto MacCallum Ltd.
Contact: Geoff White
Address: 19 Churchhill Dr. Barrie ON
Phone: 705 734 8900 Fax: 705 734 9911
Reports to be sent to:
1. Email: akimberley@petomacallum.com
2. Email: rblair@petomacallum.com

Regulatory Requirements:

Regulation 153/04 No Regulatory Requirement
(Please check all applicable boxes)
Table: Industrial Use Sewer Use Regulation 558
 White/Comm Sanitary CCME
 Streets/Highways Storm Prov. Water Quality Objectives (PWQO)
 Agriculture Other
Soil Texture (Check One) Region: _____ Indicate One
 Coarse Fine _____ Indicate One
 Yes No

Project Information:

Project: 16.173FOOS
Site Location: Lockhart
Sampled By: A. Kimberley / K. Stave
AGAT Quote #: _____ PO: _____
Please note: If quotation number is not provided, client will be billed full price for analysis

Report Guideline on Certificate of Analysis

Yes No

Invoice Information:

Company: _____
Contact: _____
Address: _____
Email: _____
Bill To Same: Yes No

Sample Matrix Legend

B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/Special Instructions	Y/N	Field Filtered - Metals, Hg, CrVI	Metals and Inorganics	ORPs	pH	Full Metals Scan	Regulatory/Custom Metals	Nutrients	Volatiles	CCME Fractions 1 to 4	ABNS	PAHS	PCBs	Organochlorine Pesticides	TCLP	Sewer Use	
BH 10	Mar 28	10:30		GW	Limited sample	Y	X							X								
BH 3	"	2:00		GW	"	Y	X							X								

Prepared by: A. Kimberley Date: Mar 28 Time: 12:30
Reviewed by: [Signature] Date: 28/3/17 Time: 5:46
Samples Received by: [Signature] Date: 28/3/17 Time: 1:00
Page 1 of 1
No. T 047788



APPENDIX E

Statement of Limitations



STATEMENT OF LIMITATIONS

This report is prepared for and made available for the sole use of the client named. Peto MacCallum Ltd. (PML) hereby disclaims any liability or responsibility to any person or entity, other than those for whom this report is specifically issued, for any loss, damage, expenses, or penalties that may arise or result from the use of any information or recommendations contained in this report. The contents of this report may not be used or relied upon by any other person without the express written consent and authorization of PML.

This report shall not be relied upon for any purpose other than as agreed with the client named without the written consent of PML. It shall not be used to express or imply warranty as to the fitness of the property for a particular purpose. A portion of this report may not be used as a separate entity: that is to say the report is to be read in its entirety at all times.

The report is based solely on the scope of services which are specifically referred to in this report. No physical or intrusive testing has been performed, except as specifically referenced in this report. This report is not a certification of compliance with past or present regulations, codes, guidelines and policies.

The scope of services carried out by PML is based on details of the proposed development and land use to address certain issues, purposes and objectives with respect to the specific site as identified by the client. Services not expressly set forth in writing are expressly excluded from the services provided by PML. In other words, PML has not performed any observations, investigations, study analysis, engineering evaluation or testing that is not specifically listed in the scope of services in this report. PML assumes no responsibility or duty to the client for any such services and shall not be liable for failing to discover any condition, whose discovery would require the performance of services not specifically referred to in this report.



STATEMENT OF LIMITATIONS (continued)

The findings and comments made by PML in this report are based on the conditions observed at the time of PML's site reconnaissance. No assurances can be made and no assurances are given with respect to any potential changes in site conditions following the time of completion of PML's field work. Furthermore, regulations, codes and guidelines may change at any time subsequent to the date of this report and these changes may effect the validity of the findings and recommendations given in this report.

The results and conclusions with respect to site conditions are therefore in no way intended to be taken as a guarantee or representation, expressed or implied, that the site is free from any contaminants from past or current land use activities or that the conditions in all areas of the site and beneath or within structures are the same as those areas specifically sampled.

Any investigation, examination, measurements or sampling explorations at a particular location may not be representative of conditions between sampled locations. Soil, ground water, surface water, or building material conditions between and beyond the sampled locations may differ from those encountered at the sampling locations and conditions may become apparent during construction which could not be detected or anticipated at the time of the intrusive sampling investigation.

Budget estimates contained in this report are to be viewed as an engineering estimate of probable costs and provided solely for the purposes of assisting the client in its budgeting process. It is understood and agreed that PML will not in any way be held liable as a result of any budget figures provided by it.

The Client expressly waives its right to withhold PML's fees, either in whole or in part, or to make any claim or commence an action or bring any other proceedings, whether in contract, tort, or otherwise against PML in anyway connected with advice or information given by PML relating to the cost estimate or Environmental Remediation/Cleanup and Restoration or Soil and Ground Water Management Plan Cost Estimate.



Appendix D

**WSP Canada Inc. (2020). Technical Memorandum – Go Village Subdivision,
Yonge Street, Barrie, Ontario, Chemical Characterization of Excess Soil**



TECHNICAL MEMORANDUM

TO: Ardy Nikzad and Chris Corosky, Barrie Heritage Developments
FROM: Kent Malcolm, P.Eng.
SUBJECT: Go Village Subdivision, Yonge Street, Barrie, Chemical Characterization of Excess Soil
DATE: November 5, 2020

The purpose of this Memorandum is to document an excess soil stockpile, located at the Yonge-Go village subdivision site, through a sampling and chemical characterization event undertaken within the above-referenced property (the Site) by WSP Canada Inc (WSP). WSP was directed by Barrie Heritage Developments (Heritage) to collect samples of excess soil generated during construction of the subdivision to date, analyze the soil for Contaminants of Concern (CoCs) and provide recommendations for re-use.

A WSP O. Reg. 153/04 Qualified Person attended at the Site on October 3 and 9, 2020 to collect excess soil samples. Photographs of the excess soil stockpile are Appended. A Tatham Engineering, General Fill Stockpile Plan, SA-1, updated July 30, 2020, showing the approximate stockpile location is attached, as **Figure 1**.

WSP collected a total of 40 grab-samples from the excess soil stockpile. The number of samples were selected based on an estimated total excess soil volume to be shipped off site, being tentatively 20,000 m³.

Samples were collected from test pits advanced into the stockpile by an excavator from the top and sides. The sample depths ranged between 2 m to 8.5 m from the stockpile surface. The soil observed within the test pits excavated into the stockpile was noted to be consistent with laboratory Particle Size Analysis and comprised sand with trace to some silt and gravel. Based upon the laboratory analyses completed, the soil conforms to OPS Select Subgrade Material specifications. Test pit sample locations were distributed evenly over the stockpile surface. A plan view showing each grab sample location (GS1 through GS40) is provided as **Figure 2**. The soil observed within the stockpile was represented within the 40 samples collected by WSP.

All 40 grab-samples were collected in laboratory-prepared and preserved jars and placed in a cooler on ice for transport to a laboratory via overnight courier. Each sample was analyzed for O. Reg. 153/04 Metals and Inorganics, O. Reg. 153/04 Volatile Organic Compounds (VOCs), F1-F1 aliphatic Petroleum Hydrocarbons and Organochlorine Pesticides. These analytes include all Contaminants of Concern of potential consideration for the Site.

Since the soil is to be reused, WSP did not collect composite soil samples for analysis of O. Reg. 347 Schedule 4 TCLP Metals and Inorganics, TCLP VOCs, TCLP Benzo(a)pyrene and TCLP PCBs.

All soil samples were transported to ALS Environmental in Mississauga on October 5 & 13, 2020. ALS is a member of the Canadian Association for Laboratory Accreditation (CALA). Analytical results were delivered by ALS on

Units C and D
561 Bryne Drive
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wsp.com



October 19 & 20, 2020 and are appended to this memo (ALS Work Order No. L2512641, Report Date October 18, 2020 and Work Order No. L2515508, Report Date October 20, 2020).

WSP directed ALS to compare the analytical results with Table 1 *Full Depth Background Site Condition Standards* and Table 2.1 *Full-Depth Excess Soil Re-Use Standards in a Potable Groundwater Condition, Volume Independent* under the forthcoming document *Rules for On-Site and Excess Soil Management*. A summary of the lab results is provided below:

- All O. Reg. 153/04 parameters tested for the 40 soil samples met their Table 1 *Full Depth Background Site Condition Standards* for Residential / Parkland / Institutional / Industrial / Commercial / Community Property Use and Table 2.1 *Full-Depth Excess Soil Re-Use Standards in a Potable Groundwater Condition, Volume Independent* for all property uses.

All stockpiled soil, represented by the samples acquired may be re-used within the Site, or re-used within any Ontario Residential / Parkland / Institutional / Industrial / Commercial / Community property.

We advise that new provincial guidelines for managing site generated excess soils are anticipated to come into effect at the beginning of 2021 that have stipulated further testing requirements and guidelines related to excess soil management.

Please direct any questions or comments to the undersigned.

Respectfully submitted,

WSP CANADA INC.

Kent Malcolm, P.Eng., QP_{ESA}
Senior Geotechnical Engineer

Reviewed by:

Jay Dolan, P.Eng., QP_{ESA}
Senior Engineer, Environment

APPENDICES

A SOIL STOCKPILE PHOTOS





APPENDIX – STOCKPILE PHOTOGRAPHS

Photo 1 – North view of stockpile from south end of site.



Photo 2 – South view of stockpile.



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Photo 3 – East view of stockpile.



Photo 4– West view of stockpile.



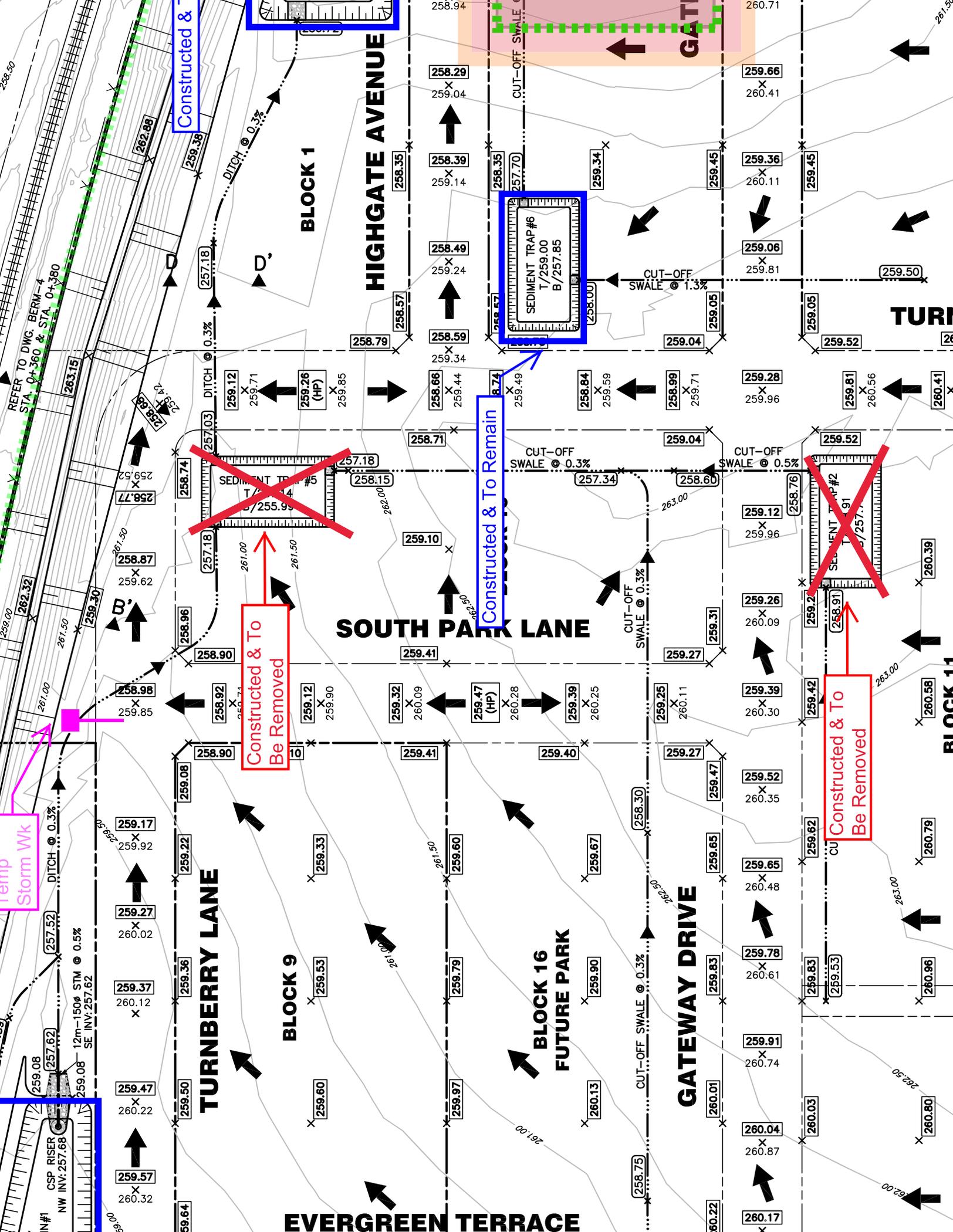
All photographs taken on October 23, 2020.

FIGURES

FIGURE 1 : STOCKPILE LOCATION

FIGURE 2 : SAMPLE LOCATION





Sample ID	Depth (mbgs)
GS1	3
GS2	4.5
GS3	8
GS4	3
GS5	4
GS6	8.5
GS7	2
GS8	4
GS9	8.5
GS10	3
GS11	3
GS12	6.5
GS13	4
GS14	5
GS15	8
GS16	3
GS17	3
GS18	7
GS19	4
GS20	4
GS21	3
GS22	7.5
GS23	3
GS24	3.5
GS25	3.5
GS26	7.5
GS27	2
GS28	5
GS29	2
GS30	5
GS31	2
GS32	4.5
GS33	8
GS34	3.5
GS35	2
GS36	4
GS37	7
GS38	4
GS39	3.5
GS40	5.5



LEGEND
 X APPROXIMATE BOREHOLE LOCATION
 NOTES: BASE IMAGE PROVIDED BY SIMCOE COUNTY MAPPING 2018.



 <p>561 BRYNE DRIVE, UNITS C & D BARRIE, ONTARIO CANADA L4N 9Y3 TEL.: 705-735-9771 FAX: 705-735-6450 WWW.WSP.COM</p>	PROJECT: YONGE - GO VILLAGE SUBDIVISION, PHASE 1, BARRIE, ONTARIO CLIENT: BARRIE HERITAGE DEVELOPMENT TITLE: STOCKPILE SAMPLING LOCATION PLAN	SCALE: 1:650 DATE: OCTOBER / 2020 PROJECT NO: 181-07967-00 FIGURE NO: 2
	REV.#	2

ENCLOSURES

ENCLOSURES: ALS

REPORT SAMPLES





WSP Canada Inc. (Barrie)
ATTN: Kent Malcom
561 Bryne Drive
Unit C & D
Barrie ON L4N 9Y3

Date Received: 06-OCT-20
Report Date: 18-OCT-20 18:26 (MT)
Version: FINAL REV. 2

Client Phone: 705-712-0174

Certificate of Analysis

Lab Work Order #: L2512641
Project P.O. #: HERITAGE
Job Reference: 181-07967-00
C of C Numbers: 17-870029
Legal Site Desc:

Comments:



Emily Hansen
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 5730 Coopers Avenue, Unit #26, Mississauga, ON L4Z 2E9 Canada | Phone: +1 905 507 6910 | Fax: +1 905 507 6927
ALS CANADA LTD Part of the ALS Group An ALS Limited Company



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-1	GS1							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Physical Tests								
Conductivity		0.0966		0.0040	mS/cm	14-OCT-20	0.47	0.57
% Moisture		8.71		0.25	%	09-OCT-20		
pH		7.57		0.10	pH units	13-OCT-20		
Cyanides								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	09-OCT-20	0.051	0.051
Saturated Paste Extractables								
SAR		0.27	SAR:M	0.10	SAR	14-OCT-20	1	2.4
Calcium (Ca)		9.13		0.50	mg/L	14-OCT-20		
Magnesium (Mg)		<0.50		0.50	mg/L	14-OCT-20		
Sodium (Na)		2.95		0.50	mg/L	14-OCT-20		
Metals								
Antimony (Sb)		<1.0		1.0	ug/g	14-OCT-20	1	1.3
Arsenic (As)		1.1		1.0	ug/g	14-OCT-20	11	18
Barium (Ba)		40.4		1.0	ug/g	14-OCT-20	210	220
Beryllium (Be)		<0.50		0.50	ug/g	14-OCT-20	2.5	2.5
Boron (B)		<5.0		5.0	ug/g	14-OCT-20	36	36
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	14-OCT-20	36	36
Cadmium (Cd)		<0.50		0.50	ug/g	14-OCT-20	1	1.2
Chromium (Cr)		12.2		1.0	ug/g	14-OCT-20	67	70
Cobalt (Co)		3.9		1.0	ug/g	14-OCT-20	19	21
Copper (Cu)		7.6		1.0	ug/g	14-OCT-20	62	92
Lead (Pb)		2.8		1.0	ug/g	14-OCT-20	45	120
Mercury (Hg)		0.0072		0.0050	ug/g	14-OCT-20	0.16	0.27
Molybdenum (Mo)		<1.0		1.0	ug/g	14-OCT-20	2	2
Nickel (Ni)		7.0		1.0	ug/g	14-OCT-20	37	82
Selenium (Se)		<1.0		1.0	ug/g	14-OCT-20	1.2	1.5
Silver (Ag)		<0.20		0.20	ug/g	14-OCT-20	0.5	0.5
Thallium (Tl)		<0.50		0.50	ug/g	14-OCT-20	1	1
Uranium (U)		<1.0		1.0	ug/g	14-OCT-20	1.9	2.5
Vanadium (V)		26.8		1.0	ug/g	14-OCT-20	86	86
Zinc (Zn)		18.8		5.0	ug/g	14-OCT-20	290	290
Speciated Metals								
Chromium, Hexavalent		<0.20		0.20	ug/g	14-OCT-20	0.66	0.66
Volatile Organic Compounds								
Benzene		<0.0068		0.0068	ug/g	08-OCT-20	0.02	0.02
Ethylbenzene		<0.018		0.018	ug/g	08-OCT-20	0.05	0.05
Toluene		<0.080		0.080	ug/g	08-OCT-20	0.2	0.2
o-Xylene		<0.020		0.020	ug/g	08-OCT-20		
m+p-Xylenes		<0.030		0.030	ug/g	08-OCT-20		
Xylenes (Total)		<0.050		0.050	ug/g	16-OCT-20	0.05	0.05
Surrogate: 4-Bromofluorobenzene		115.9		50-140	%	08-OCT-20		
Surrogate: 1,4-Difluorobenzene		124.7		50-140	%	08-OCT-20		
Hydrocarbons								
F1 (C6-C10)		<5.0		5.0	ug/g	08-OCT-20	17	25
F1-BTEX		<5.0		5.0	ug/g	13-OCT-20	17	25

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-1	GS1							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Hydrocarbons								
F2 (C10-C16)		<10		10	ug/g	13-OCT-20	10	10
F3 (C16-C34)		<50		50	ug/g	13-OCT-20	240	240
F4 (C34-C50)		<50		50	ug/g	13-OCT-20	120	120
Total Hydrocarbons (C6-C50)		<72		72	ug/g	13-OCT-20		
Chrom. to baseline at nC50		YES			No Unit	13-OCT-20		
Surrogate: 2-Bromobenzotrifluoride		82.2		60-140	%	13-OCT-20		
Surrogate: 3,4-Dichlorotoluene		103.6		60-140	%	08-OCT-20		
Organochlorine Pesticides								
Aldrin		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
gamma-hexachlorocyclohexane		<0.010		0.010	ug/g	14-OCT-20		0.01
a-chlordane		<0.020		0.020	ug/g	14-OCT-20		
Chlordane (Total)		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
g-chlordane		<0.020		0.020	ug/g	14-OCT-20		
op-DDD		<0.020		0.020	ug/g	14-OCT-20		
pp-DDD		<0.020		0.020	ug/g	14-OCT-20		
Total DDD		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
o,p-DDE		<0.020		0.020	ug/g	14-OCT-20		
pp-DDE		<0.020		0.020	ug/g	14-OCT-20		
Total DDE		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
op-DDT		<0.020		0.020	ug/g	14-OCT-20		
pp-DDT		<0.020		0.020	ug/g	14-OCT-20		
Total DDT		<0.028		0.028	ug/g	14-OCT-20	0.078	1.4
Dieldrin		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Endosulfan I		<0.020		0.020	ug/g	14-OCT-20		
Endosulfan II		<0.020		0.020	ug/g	14-OCT-20		
Endosulfan (Total)		<0.028		0.028	ug/g	14-OCT-20	0.04	0.04
Endrin		<0.020		0.020	ug/g	14-OCT-20	0.04	0.04
Heptachlor		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Heptachlor Epoxide		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Hexachlorobenzene		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Hexachlorobutadiene		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Hexachloroethane		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Methoxychlor		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Surrogate: 2-Fluorobiphenyl		71.2		50-140	%	14-OCT-20		
Surrogate: d14-Terphenyl		74.0		50-140	%	14-OCT-20		
L2512641-2	GS2							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Physical Tests								
Conductivity		0.144		0.0040	mS/cm	14-OCT-20	0.47	0.57
% Moisture		10.7		0.25	%	09-OCT-20		
pH		7.43		0.10	pH units	13-OCT-20		
Cyanides								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	09-OCT-20	0.051	0.051
Saturated Paste Extractables								

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-2	GS2							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Saturated Paste Extractables								
	SAR	0.18		0.10	SAR	14-OCT-20	1	2.4
	Calcium (Ca)	17.9		0.50	mg/L	14-OCT-20		
	Magnesium (Mg)	0.79		0.50	mg/L	14-OCT-20		
	Sodium (Na)	2.94		0.50	mg/L	14-OCT-20		
Metals								
	Antimony (Sb)	<1.0		1.0	ug/g	14-OCT-20	1	1.3
	Arsenic (As)	1.4		1.0	ug/g	14-OCT-20	11	18
	Barium (Ba)	61.5		1.0	ug/g	14-OCT-20	210	220
	Beryllium (Be)	<0.50		0.50	ug/g	14-OCT-20	2.5	2.5
	Boron (B)	6.1		5.0	ug/g	14-OCT-20	36	36
	Boron (B), Hot Water Ext.	0.17		0.10	ug/g	14-OCT-20	36	36
	Cadmium (Cd)	<0.50		0.50	ug/g	14-OCT-20	1	1.2
	Chromium (Cr)	19.8		1.0	ug/g	14-OCT-20	67	70
	Cobalt (Co)	4.7		1.0	ug/g	14-OCT-20	19	21
	Copper (Cu)	8.2		1.0	ug/g	14-OCT-20	62	92
	Lead (Pb)	4.4		1.0	ug/g	14-OCT-20	45	120
	Mercury (Hg)	0.0157		0.0050	ug/g	14-OCT-20	0.16	0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	14-OCT-20	2	2
	Nickel (Ni)	9.2		1.0	ug/g	14-OCT-20	37	82
	Selenium (Se)	<1.0		1.0	ug/g	14-OCT-20	1.2	1.5
	Silver (Ag)	<0.20		0.20	ug/g	14-OCT-20	0.5	0.5
	Thallium (Tl)	<0.50		0.50	ug/g	14-OCT-20	1	1
	Uranium (U)	<1.0		1.0	ug/g	14-OCT-20	1.9	2.5
	Vanadium (V)	33.7		1.0	ug/g	14-OCT-20	86	86
	Zinc (Zn)	27.6		5.0	ug/g	14-OCT-20	290	290
Speciated Metals								
	Chromium, Hexavalent	<0.20		0.20	ug/g	14-OCT-20	0.66	0.66
Volatile Organic Compounds								
	Benzene	<0.0068		0.0068	ug/g	08-OCT-20	0.02	0.02
	Ethylbenzene	<0.018		0.018	ug/g	08-OCT-20	0.05	0.05
	Toluene	<0.080		0.080	ug/g	08-OCT-20	0.2	0.2
	o-Xylene	<0.020		0.020	ug/g	08-OCT-20		
	m+p-Xylenes	<0.030		0.030	ug/g	08-OCT-20		
	Xylenes (Total)	<0.050		0.050	ug/g	16-OCT-20	0.05	0.05
	Surrogate: 4-Bromofluorobenzene	123.2		50-140	%	08-OCT-20		
	Surrogate: 1,4-Difluorobenzene	132.1		50-140	%	08-OCT-20		
Hydrocarbons								
	F1 (C6-C10)	<5.0		5.0	ug/g	08-OCT-20	17	25
	F1-BTEX	<5.0		5.0	ug/g	13-OCT-20	17	25
	F2 (C10-C16)	<10		10	ug/g	13-OCT-20	10	10
	F3 (C16-C34)	<50		50	ug/g	13-OCT-20	240	240
	F4 (C34-C50)	<50		50	ug/g	13-OCT-20	120	120
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	13-OCT-20		
	Chrom. to baseline at nC50	YES			No Unit	13-OCT-20		
	Surrogate: 2-Bromobenzotrifluoride	80.5		60-140	%	13-OCT-20		
	Surrogate: 3,4-Dichlorotoluene	101.5		60-140	%	08-OCT-20		

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-2	GS2							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Organochlorine Pesticides								
Aldrin		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
gamma-hexachlorocyclohexane		<0.010		0.010	ug/g	14-OCT-20		0.01
a-chlordane		<0.020		0.020	ug/g	14-OCT-20		
Chlordane (Total)		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
g-chlordane		<0.020		0.020	ug/g	14-OCT-20		
op-DDD		<0.020		0.020	ug/g	14-OCT-20		
pp-DDD		<0.020		0.020	ug/g	14-OCT-20		
Total DDD		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
o,p-DDE		<0.020		0.020	ug/g	14-OCT-20		
pp-DDE		<0.020		0.020	ug/g	14-OCT-20		
Total DDE		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
op-DDT		<0.020		0.020	ug/g	14-OCT-20		
pp-DDT		<0.020		0.020	ug/g	14-OCT-20		
Total DDT		<0.028		0.028	ug/g	14-OCT-20	0.078	1.4
Dieldrin		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Endosulfan I		<0.020		0.020	ug/g	14-OCT-20		
Endosulfan II		<0.020		0.020	ug/g	14-OCT-20		
Endosulfan (Total)		<0.028		0.028	ug/g	14-OCT-20	0.04	0.04
Endrin		<0.020		0.020	ug/g	14-OCT-20	0.04	0.04
Heptachlor		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Heptachlor Epoxide		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Hexachlorobenzene		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Hexachlorobutadiene		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Hexachloroethane		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Methoxychlor		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Surrogate: 2-Fluorobiphenyl		71.0		50-140	%	14-OCT-20		
Surrogate: d14-Terphenyl		63.0		50-140	%	14-OCT-20		
L2512641-3	GS3							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Physical Tests								
Conductivity		0.102		0.0040	mS/cm	14-OCT-20	0.47	0.57
% Moisture		11.1		0.25	%	09-OCT-20		
pH		7.45		0.10	pH units	13-OCT-20		
Cyanides								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	09-OCT-20	0.051	0.051
Saturated Paste Extractables								
SAR		0.18	SAR:M	0.10	SAR	14-OCT-20	1	2.4
Calcium (Ca)		11.3		0.50	mg/L	14-OCT-20		
Magnesium (Mg)		<0.50		0.50	mg/L	14-OCT-20		
Sodium (Na)		2.17		0.50	mg/L	14-OCT-20		
Metals								
Antimony (Sb)		<1.0		1.0	ug/g	14-OCT-20	1	1.3
Arsenic (As)		1.4		1.0	ug/g	14-OCT-20	11	18
Barium (Ba)		45.7		1.0	ug/g	14-OCT-20	210	220

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-3	GS3							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Metals								
	Beryllium (Be)	<0.50		0.50	ug/g	14-OCT-20	2.5	2.5
	Boron (B)	<5.0		5.0	ug/g	14-OCT-20	36	36
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	14-OCT-20	36	36
	Cadmium (Cd)	<0.50		0.50	ug/g	14-OCT-20	1	1.2
	Chromium (Cr)	14.6		1.0	ug/g	14-OCT-20	67	70
	Cobalt (Co)	4.3		1.0	ug/g	14-OCT-20	19	21
	Copper (Cu)	6.0		1.0	ug/g	14-OCT-20	62	92
	Lead (Pb)	3.8		1.0	ug/g	14-OCT-20	45	120
	Mercury (Hg)	0.0214		0.0050	ug/g	14-OCT-20	0.16	0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	14-OCT-20	2	2
	Nickel (Ni)	7.5		1.0	ug/g	14-OCT-20	37	82
	Selenium (Se)	<1.0		1.0	ug/g	14-OCT-20	1.2	1.5
	Silver (Ag)	<0.20		0.20	ug/g	14-OCT-20	0.5	0.5
	Thallium (Tl)	<0.50		0.50	ug/g	14-OCT-20	1	1
	Uranium (U)	<1.0		1.0	ug/g	14-OCT-20	1.9	2.5
	Vanadium (V)	34.4		1.0	ug/g	14-OCT-20	86	86
	Zinc (Zn)	22.5		5.0	ug/g	14-OCT-20	290	290
Speciated Metals								
	Chromium, Hexavalent	0.31		0.20	ug/g	14-OCT-20	0.66	0.66
Volatile Organic Compounds								
	Benzene	<0.0068		0.0068	ug/g	08-OCT-20	0.02	0.02
	Ethylbenzene	<0.018		0.018	ug/g	08-OCT-20	0.05	0.05
	Toluene	<0.080		0.080	ug/g	08-OCT-20	0.2	0.2
	o-Xylene	<0.020		0.020	ug/g	08-OCT-20		
	m+p-Xylenes	<0.030		0.030	ug/g	08-OCT-20		
	Xylenes (Total)	<0.050		0.050	ug/g	16-OCT-20	0.05	0.05
	Surrogate: 4-Bromofluorobenzene	118.8		50-140	%	08-OCT-20		
	Surrogate: 1,4-Difluorobenzene	128.1		50-140	%	08-OCT-20		
Hydrocarbons								
	F1 (C6-C10)	<5.0		5.0	ug/g	08-OCT-20	17	25
	F1-BTEX	<5.0		5.0	ug/g	13-OCT-20	17	25
	F2 (C10-C16)	<10		10	ug/g	13-OCT-20	10	10
	F3 (C16-C34)	<50		50	ug/g	13-OCT-20	240	240
	F4 (C34-C50)	<50		50	ug/g	13-OCT-20	120	120
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	13-OCT-20		
	Chrom. to baseline at nC50	YES			No Unit	13-OCT-20		
	Surrogate: 2-Bromobenzotrifluoride	82.1		60-140	%	13-OCT-20		
	Surrogate: 3,4-Dichlorotoluene	97.6		60-140	%	08-OCT-20		
Organochlorine Pesticides								
	Aldrin	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	14-OCT-20		0.01
	a-chlordane	<0.020		0.020	ug/g	14-OCT-20		
	Chlordane (Total)	<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
	g-chlordane	<0.020		0.020	ug/g	14-OCT-20		
	op-DDD	<0.020		0.020	ug/g	14-OCT-20		
	pp-DDD	<0.020		0.020	ug/g	14-OCT-20		

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-3	GS3							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Organochlorine Pesticides								
Total DDD		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
o,p-DDE		<0.020		0.020	ug/g	14-OCT-20		
pp-DDE		<0.020		0.020	ug/g	14-OCT-20		
Total DDE		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
op-DDT		<0.020		0.020	ug/g	14-OCT-20		
pp-DDT		<0.020		0.020	ug/g	14-OCT-20		
Total DDT		<0.028		0.028	ug/g	14-OCT-20	0.078	1.4
Dieldrin		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Endosulfan I		<0.020		0.020	ug/g	14-OCT-20		
Endosulfan II		<0.020		0.020	ug/g	14-OCT-20		
Endosulfan (Total)		<0.028		0.028	ug/g	14-OCT-20	0.04	0.04
Endrin		<0.020		0.020	ug/g	14-OCT-20	0.04	0.04
Heptachlor		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Heptachlor Epoxide		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Hexachlorobenzene		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Hexachlorobutadiene		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Hexachloroethane		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Methoxychlor		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Surrogate: 2-Fluorobiphenyl		75.1		50-140	%	14-OCT-20		
Surrogate: d14-Terphenyl		73.9		50-140	%	14-OCT-20		
L2512641-4	GS4							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Physical Tests								
Conductivity		0.283		0.0040	mS/cm	14-OCT-20	0.47	0.57
% Moisture		8.61		0.25	%	09-OCT-20		
pH		7.52		0.10	pH units	13-OCT-20		
Cyanides								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	09-OCT-20	0.051	0.051
Saturated Paste Extractables								
SAR		0.35		0.10	SAR	14-OCT-20	1	2.4
Calcium (Ca)		40.9		0.50	mg/L	14-OCT-20		
Magnesium (Mg)		1.97		0.50	mg/L	14-OCT-20		
Sodium (Na)		8.46		0.50	mg/L	14-OCT-20		
Metals								
Antimony (Sb)		<1.0		1.0	ug/g	14-OCT-20	1	1.3
Arsenic (As)		1.3		1.0	ug/g	14-OCT-20	11	18
Barium (Ba)		56.4		1.0	ug/g	14-OCT-20	210	220
Beryllium (Be)		<0.50		0.50	ug/g	14-OCT-20	2.5	2.5
Boron (B)		5.7		5.0	ug/g	14-OCT-20	36	36
Boron (B), Hot Water Ext.		0.16		0.10	ug/g	14-OCT-20	36	36
Cadmium (Cd)		<0.50		0.50	ug/g	14-OCT-20	1	1.2
Chromium (Cr)		17.0		1.0	ug/g	14-OCT-20	67	70
Cobalt (Co)		4.4		1.0	ug/g	14-OCT-20	19	21
Copper (Cu)		7.4		1.0	ug/g	14-OCT-20	62	92

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-4	GS4							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Metals								
	Lead (Pb)	3.6		1.0	ug/g	14-OCT-20	45	120
	Mercury (Hg)	0.0114		0.0050	ug/g	14-OCT-20	0.16	0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	14-OCT-20	2	2
	Nickel (Ni)	8.4		1.0	ug/g	14-OCT-20	37	82
	Selenium (Se)	<1.0		1.0	ug/g	14-OCT-20	1.2	1.5
	Silver (Ag)	<0.20		0.20	ug/g	14-OCT-20	0.5	0.5
	Thallium (Tl)	<0.50		0.50	ug/g	14-OCT-20	1	1
	Uranium (U)	<1.0		1.0	ug/g	14-OCT-20	1.9	2.5
	Vanadium (V)	30.8		1.0	ug/g	14-OCT-20	86	86
	Zinc (Zn)	23.1		5.0	ug/g	14-OCT-20	290	290
Speciated Metals								
	Chromium, Hexavalent	0.33		0.20	ug/g	14-OCT-20	0.66	0.66
Volatile Organic Compounds								
	Benzene	<0.0068		0.0068	ug/g	08-OCT-20	0.02	0.02
	Ethylbenzene	<0.018		0.018	ug/g	08-OCT-20	0.05	0.05
	Toluene	<0.080		0.080	ug/g	08-OCT-20	0.2	0.2
	o-Xylene	<0.020		0.020	ug/g	08-OCT-20		
	m+p-Xylenes	<0.030		0.030	ug/g	08-OCT-20		
	Xylenes (Total)	<0.050		0.050	ug/g	16-OCT-20	0.05	0.05
	Surrogate: 4-Bromofluorobenzene	122.8		50-140	%	08-OCT-20		
	Surrogate: 1,4-Difluorobenzene	133.0		50-140	%	08-OCT-20		
Hydrocarbons								
	F1 (C6-C10)	<5.0		5.0	ug/g	08-OCT-20	17	25
	F1-BTEX	<5.0		5.0	ug/g	13-OCT-20	17	25
	F2 (C10-C16)	<10		10	ug/g	13-OCT-20	10	10
	F3 (C16-C34)	<50		50	ug/g	13-OCT-20	240	240
	F4 (C34-C50)	<50		50	ug/g	13-OCT-20	120	120
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	13-OCT-20		
	Chrom. to baseline at nC50	YES			No Unit	13-OCT-20		
	Surrogate: 2-Bromobenzotrifluoride	81.8		60-140	%	13-OCT-20		
	Surrogate: 3,4-Dichlorotoluene	107.6		60-140	%	08-OCT-20		
Organochlorine Pesticides								
	Aldrin	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	14-OCT-20		0.01
	a-chlordane	<0.020		0.020	ug/g	14-OCT-20		
	Chlordane (Total)	<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
	g-chlordane	<0.020		0.020	ug/g	14-OCT-20		
	op-DDD	<0.020		0.020	ug/g	14-OCT-20		
	pp-DDD	<0.020		0.020	ug/g	14-OCT-20		
	Total DDD	<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
	o,p-DDE	<0.020		0.020	ug/g	14-OCT-20		
	pp-DDE	<0.020		0.020	ug/g	14-OCT-20		
	Total DDE	<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
	op-DDT	<0.020		0.020	ug/g	14-OCT-20		
	pp-DDT	<0.020		0.020	ug/g	14-OCT-20		
	Total DDT	<0.028		0.028	ug/g	14-OCT-20	0.078	1.4

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-4	GS4							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Organochlorine Pesticides								
	Dieldrin	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	Endosulfan I	<0.020		0.020	ug/g	14-OCT-20		
	Endosulfan II	<0.020		0.020	ug/g	14-OCT-20		
	Endosulfan (Total)	<0.028		0.028	ug/g	14-OCT-20	0.04	0.04
	Endrin	<0.020		0.020	ug/g	14-OCT-20	0.04	0.04
	Heptachlor	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	Heptachlor Epoxide	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	Hexachlorobenzene	<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
	Hexachlorobutadiene	<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
	Hexachloroethane	<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
	Methoxychlor	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	Surrogate: 2-Fluorobiphenyl	70.7		50-140	%	14-OCT-20		
	Surrogate: d14-Terphenyl	71.0		50-140	%	14-OCT-20		
L2512641-5	GS5							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Physical Tests								
	Conductivity	0.151		0.0040	mS/cm	14-OCT-20	0.47	0.57
	% Moisture	10.9		0.25	%	09-OCT-20		
	pH	7.44		0.10	pH units	13-OCT-20		
Cyanides								
	Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	09-OCT-20	0.051	0.051
Saturated Paste Extractables								
	SAR	0.27		0.10	SAR	14-OCT-20	1	2.4
	Calcium (Ca)	16.7		0.50	mg/L	14-OCT-20		
	Magnesium (Mg)	0.75		0.50	mg/L	14-OCT-20		
	Sodium (Na)	4.22		0.50	mg/L	14-OCT-20		
Metals								
	Antimony (Sb)	<1.0		1.0	ug/g	14-OCT-20	1	1.3
	Arsenic (As)	1.4		1.0	ug/g	14-OCT-20	11	18
	Barium (Ba)	63.8		1.0	ug/g	14-OCT-20	210	220
	Beryllium (Be)	<0.50		0.50	ug/g	14-OCT-20	2.5	2.5
	Boron (B)	5.6		5.0	ug/g	14-OCT-20	36	36
	Boron (B), Hot Water Ext.	0.14		0.10	ug/g	14-OCT-20	36	36
	Cadmium (Cd)	<0.50		0.50	ug/g	14-OCT-20	1	1.2
	Chromium (Cr)	16.9		1.0	ug/g	14-OCT-20	67	70
	Cobalt (Co)	4.8		1.0	ug/g	14-OCT-20	19	21
	Copper (Cu)	8.8		1.0	ug/g	14-OCT-20	62	92
	Lead (Pb)	4.8		1.0	ug/g	14-OCT-20	45	120
	Mercury (Hg)	0.0132		0.0050	ug/g	14-OCT-20	0.16	0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	14-OCT-20	2	2
	Nickel (Ni)	9.2		1.0	ug/g	14-OCT-20	37	82
	Selenium (Se)	<1.0		1.0	ug/g	14-OCT-20	1.2	1.5
	Silver (Ag)	<0.20		0.20	ug/g	14-OCT-20	0.5	0.5
	Thallium (Tl)	<0.50		0.50	ug/g	14-OCT-20	1	1

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-5	GS5							
Sampled By:	KMT on 03-OCT-20							
Matrix:	SOIL							
Metals								
Uranium (U)		<1.0		1.0	ug/g	14-OCT-20	1.9	2.5
Vanadium (V)		31.5		1.0	ug/g	14-OCT-20	86	86
Zinc (Zn)		26.9		5.0	ug/g	14-OCT-20	290	290
Speciated Metals								
Chromium, Hexavalent		0.22		0.20	ug/g	14-OCT-20	0.66	0.66
Volatile Organic Compounds								
Benzene		<0.0068		0.0068	ug/g	08-OCT-20	0.02	0.02
Ethylbenzene		<0.018		0.018	ug/g	08-OCT-20	0.05	0.05
Toluene		<0.080		0.080	ug/g	08-OCT-20	0.2	0.2
o-Xylene		<0.020		0.020	ug/g	08-OCT-20		
m+p-Xylenes		<0.030		0.030	ug/g	08-OCT-20		
Xylenes (Total)		<0.050		0.050	ug/g	16-OCT-20	0.05	0.05
Surrogate: 4-Bromofluorobenzene		130.3		50-140	%	08-OCT-20		
Surrogate: 1,4-Difluorobenzene		140.3	SURR-ND	50-140	%	08-OCT-20		
Hydrocarbons								
F1 (C6-C10)		<5.0		5.0	ug/g	08-OCT-20	17	25
F1-BTEX		<5.0		5.0	ug/g	13-OCT-20	17	25
F2 (C10-C16)		<10		10	ug/g	13-OCT-20	10	10
F3 (C16-C34)		<50		50	ug/g	13-OCT-20	240	240
F4 (C34-C50)		<50		50	ug/g	13-OCT-20	120	120
Total Hydrocarbons (C6-C50)		<72		72	ug/g	13-OCT-20		
Chrom. to baseline at nC50		YES			No Unit	13-OCT-20		
Surrogate: 2-Bromobenzotrifluoride		83.0		60-140	%	13-OCT-20		
Surrogate: 3,4-Dichlorotoluene		102.2		60-140	%	08-OCT-20		
Organochlorine Pesticides								
Aldrin		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
gamma-hexachlorocyclohexane		<0.010		0.010	ug/g	14-OCT-20		0.01
a-chlordane		<0.020		0.020	ug/g	14-OCT-20		
Chlordane (Total)		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
g-chlordane		<0.020		0.020	ug/g	14-OCT-20		
op-DDD		<0.020		0.020	ug/g	14-OCT-20		
pp-DDD		<0.020		0.020	ug/g	14-OCT-20		
Total DDD		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
o,p-DDE		<0.020		0.020	ug/g	14-OCT-20		
pp-DDE		<0.020		0.020	ug/g	14-OCT-20		
Total DDE		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
op-DDT		<0.020		0.020	ug/g	14-OCT-20		
pp-DDT		<0.020		0.020	ug/g	14-OCT-20		
Total DDT		<0.028		0.028	ug/g	14-OCT-20	0.078	1.4
Dieldrin		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Endosulfan I		<0.020		0.020	ug/g	14-OCT-20		
Endosulfan II		<0.020		0.020	ug/g	14-OCT-20		
Endosulfan (Total)		<0.028		0.028	ug/g	14-OCT-20	0.04	0.04
Endrin		<0.020		0.020	ug/g	14-OCT-20	0.04	0.04
Heptachlor		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-5	GS5							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Organochlorine Pesticides								
	Heptachlor Epoxide	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	Hexachlorobenzene	<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
	Hexachlorobutadiene	<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
	Hexachloroethane	<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
	Methoxychlor	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	Surrogate: 2-Fluorobiphenyl	70.1		50-140	%	14-OCT-20		
	Surrogate: d14-Terphenyl	67.4		50-140	%	14-OCT-20		
L2512641-6	GS6							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Physical Tests								
	Conductivity	0.138		0.0040	mS/cm	14-OCT-20	0.47	0.57
	% Moisture	16.1		0.25	%	09-OCT-20		
	pH	7.20		0.10	pH units	13-OCT-20		
Cyanides								
	Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	09-OCT-20	0.051	0.051
Saturated Paste Extractables								
	SAR	0.13		0.10	SAR	14-OCT-20	1	2.4
	Calcium (Ca)	16.1		0.50	mg/L	14-OCT-20		
	Magnesium (Mg)	0.53		0.50	mg/L	14-OCT-20		
	Sodium (Na)	1.96		0.50	mg/L	14-OCT-20		
Metals								
	Antimony (Sb)	<1.0		1.0	ug/g	14-OCT-20	1	1.3
	Arsenic (As)	1.4		1.0	ug/g	14-OCT-20	11	18
	Barium (Ba)	51.6		1.0	ug/g	14-OCT-20	210	220
	Beryllium (Be)	<0.50		0.50	ug/g	14-OCT-20	2.5	2.5
	Boron (B)	<5.0		5.0	ug/g	14-OCT-20	36	36
	Boron (B), Hot Water Ext.	0.13		0.10	ug/g	14-OCT-20	36	36
	Cadmium (Cd)	<0.50		0.50	ug/g	14-OCT-20	1	1.2
	Chromium (Cr)	15.1		1.0	ug/g	14-OCT-20	67	70
	Cobalt (Co)	4.5		1.0	ug/g	14-OCT-20	19	21
	Copper (Cu)	6.8		1.0	ug/g	14-OCT-20	62	92
	Lead (Pb)	4.3		1.0	ug/g	14-OCT-20	45	120
	Mercury (Hg)	0.0248		0.0050	ug/g	14-OCT-20	0.16	0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	14-OCT-20	2	2
	Nickel (Ni)	7.7		1.0	ug/g	14-OCT-20	37	82
	Selenium (Se)	<1.0		1.0	ug/g	14-OCT-20	1.2	1.5
	Silver (Ag)	<0.20		0.20	ug/g	14-OCT-20	0.5	0.5
	Thallium (Tl)	<0.50		0.50	ug/g	14-OCT-20	1	1
	Uranium (U)	<1.0		1.0	ug/g	14-OCT-20	1.9	2.5
	Vanadium (V)	30.8		1.0	ug/g	14-OCT-20	86	86
	Zinc (Zn)	24.2		5.0	ug/g	14-OCT-20	290	290
Speciated Metals								
	Chromium, Hexavalent	0.21		0.20	ug/g	14-OCT-20	0.66	0.66

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

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Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Table with columns: Sample Details Grouping, Analyte, Result, Qualifier, D.L., Units, Analyzed, Guideline Limits #1, #2. Rows include Volatile Organic Compounds, Hydrocarbons, and Organochlorine Pesticides.

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-7	GS7							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Physical Tests								
Conductivity		0.112		0.0040	mS/cm	14-OCT-20	0.47	0.57
% Moisture		5.65		0.25	%	09-OCT-20		
pH		7.70		0.10	pH units	13-OCT-20		
Cyanides								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	09-OCT-20	0.051	0.051
Saturated Paste Extractables								
SAR		0.45	SAR:M	0.10	SAR	14-OCT-20	1	2.4
Calcium (Ca)		9.61		0.50	mg/L	14-OCT-20		
Magnesium (Mg)		<0.50		0.50	mg/L	14-OCT-20		
Sodium (Na)		5.03		0.50	mg/L	14-OCT-20		
Metals								
Antimony (Sb)		<1.0		1.0	ug/g	14-OCT-20	1	1.3
Arsenic (As)		<1.0		1.0	ug/g	14-OCT-20	11	18
Barium (Ba)		15.3		1.0	ug/g	14-OCT-20	210	220
Beryllium (Be)		<0.50		0.50	ug/g	14-OCT-20	2.5	2.5
Boron (B)		<5.0		5.0	ug/g	14-OCT-20	36	36
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	14-OCT-20	36	36
Cadmium (Cd)		<0.50		0.50	ug/g	14-OCT-20	1	1.2
Chromium (Cr)		7.5		1.0	ug/g	14-OCT-20	67	70
Cobalt (Co)		2.2		1.0	ug/g	14-OCT-20	19	21
Copper (Cu)		3.7		1.0	ug/g	14-OCT-20	62	92
Lead (Pb)		1.6		1.0	ug/g	14-OCT-20	45	120
Mercury (Hg)		<0.0050		0.0050	ug/g	14-OCT-20	0.16	0.27
Molybdenum (Mo)		<1.0		1.0	ug/g	14-OCT-20	2	2
Nickel (Ni)		3.8		1.0	ug/g	14-OCT-20	37	82
Selenium (Se)		<1.0		1.0	ug/g	14-OCT-20	1.2	1.5
Silver (Ag)		<0.20		0.20	ug/g	14-OCT-20	0.5	0.5
Thallium (Tl)		<0.50		0.50	ug/g	14-OCT-20	1	1
Uranium (U)		<1.0		1.0	ug/g	14-OCT-20	1.9	2.5
Vanadium (V)		19.4		1.0	ug/g	14-OCT-20	86	86
Zinc (Zn)		9.6		5.0	ug/g	14-OCT-20	290	290
Speciated Metals								
Chromium, Hexavalent		<0.20		0.20	ug/g	14-OCT-20	0.66	0.66
Volatile Organic Compounds								
Benzene		<0.0068		0.0068	ug/g	08-OCT-20	0.02	0.02
Ethylbenzene		<0.018		0.018	ug/g	08-OCT-20	0.05	0.05
Toluene		<0.080		0.080	ug/g	08-OCT-20	0.2	0.2
o-Xylene		<0.020		0.020	ug/g	08-OCT-20		
m+p-Xylenes		<0.030		0.030	ug/g	08-OCT-20		
Xylenes (Total)		<0.050		0.050	ug/g	16-OCT-20	0.05	0.05
Surrogate: 4-Bromofluorobenzene		127.6		50-140	%	08-OCT-20		
Surrogate: 1,4-Difluorobenzene		139.0		50-140	%	08-OCT-20		
Hydrocarbons								
F1 (C6-C10)		<5.0		5.0	ug/g	08-OCT-20	17	25
F1-BTEX		<5.0		5.0	ug/g	13-OCT-20	17	25

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Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-7	GS7							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Hydrocarbons								
F2 (C10-C16)		<10		10	ug/g	13-OCT-20	10	10
F3 (C16-C34)		<50		50	ug/g	13-OCT-20	240	240
F4 (C34-C50)		<50		50	ug/g	13-OCT-20	120	120
Total Hydrocarbons (C6-C50)		<72		72	ug/g	13-OCT-20		
Chrom. to baseline at nC50		YES			No Unit	13-OCT-20		
Surrogate: 2-Bromobenzotrifluoride		82.5		60-140	%	13-OCT-20		
Surrogate: 3,4-Dichlorotoluene		102.1		60-140	%	08-OCT-20		
Organochlorine Pesticides								
Aldrin		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
gamma-hexachlorocyclohexane		<0.010		0.010	ug/g	14-OCT-20		0.01
a-chlordane		<0.020		0.020	ug/g	14-OCT-20		
Chlordane (Total)		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
g-chlordane		<0.020		0.020	ug/g	14-OCT-20		
op-DDD		<0.020		0.020	ug/g	14-OCT-20		
pp-DDD		<0.020		0.020	ug/g	14-OCT-20		
Total DDD		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
o,p-DDE		<0.020		0.020	ug/g	14-OCT-20		
pp-DDE		<0.020		0.020	ug/g	14-OCT-20		
Total DDE		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
op-DDT		<0.020		0.020	ug/g	14-OCT-20		
pp-DDT		<0.020		0.020	ug/g	14-OCT-20		
Total DDT		<0.028		0.028	ug/g	14-OCT-20	0.078	1.4
Dieldrin		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Endosulfan I		<0.020		0.020	ug/g	14-OCT-20		
Endosulfan II		<0.020		0.020	ug/g	14-OCT-20		
Endosulfan (Total)		<0.028		0.028	ug/g	14-OCT-20	0.04	0.04
Endrin		<0.020		0.020	ug/g	14-OCT-20	0.04	0.04
Heptachlor		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Heptachlor Epoxide		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Hexachlorobenzene		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Hexachlorobutadiene		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Hexachloroethane		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Methoxychlor		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Surrogate: 2-Fluorobiphenyl		67.5		50-140	%	14-OCT-20		
Surrogate: d14-Terphenyl		64.8		50-140	%	14-OCT-20		
L2512641-8	GS8							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Physical Tests								
Conductivity		0.122		0.0040	mS/cm	14-OCT-20	0.47	0.57
% Moisture		12.1		0.25	%	09-OCT-20		
pH		7.44		0.10	pH units	13-OCT-20		
Cyanides								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	09-OCT-20	0.051	0.051
Saturated Paste Extractables								

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

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Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-8	GS8							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Saturated Paste Extractables								
	SAR	0.25	SAR:M	0.10	SAR	14-OCT-20	1	2.4
	Calcium (Ca)	13.9		0.50	mg/L	14-OCT-20		
	Magnesium (Mg)	<0.50		0.50	mg/L	14-OCT-20		
	Sodium (Na)	3.40		0.50	mg/L	14-OCT-20		
Metals								
	Antimony (Sb)	<1.0		1.0	ug/g	14-OCT-20	1	1.3
	Arsenic (As)	1.8		1.0	ug/g	14-OCT-20	11	18
	Barium (Ba)	63.8		1.0	ug/g	14-OCT-20	210	220
	Beryllium (Be)	<0.50		0.50	ug/g	14-OCT-20	2.5	2.5
	Boron (B)	6.9		5.0	ug/g	14-OCT-20	36	36
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	14-OCT-20	36	36
	Cadmium (Cd)	<0.50		0.50	ug/g	14-OCT-20	1	1.2
	Chromium (Cr)	19.3		1.0	ug/g	14-OCT-20	67	70
	Cobalt (Co)	5.7		1.0	ug/g	14-OCT-20	19	21
	Copper (Cu)	9.5		1.0	ug/g	14-OCT-20	62	92
	Lead (Pb)	4.1		1.0	ug/g	14-OCT-20	45	120
	Mercury (Hg)	0.0199		0.0050	ug/g	14-OCT-20	0.16	0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	14-OCT-20	2	2
	Nickel (Ni)	11.1		1.0	ug/g	14-OCT-20	37	82
	Selenium (Se)	<1.0		1.0	ug/g	14-OCT-20	1.2	1.5
	Silver (Ag)	<0.20		0.20	ug/g	14-OCT-20	0.5	0.5
	Thallium (Tl)	<0.50		0.50	ug/g	14-OCT-20	1	1
	Uranium (U)	<1.0		1.0	ug/g	14-OCT-20	1.9	2.5
	Vanadium (V)	36.4		1.0	ug/g	14-OCT-20	86	86
	Zinc (Zn)	26.5		5.0	ug/g	14-OCT-20	290	290
Speciated Metals								
	Chromium, Hexavalent	<0.20		0.20	ug/g	14-OCT-20	0.66	0.66
Volatile Organic Compounds								
	Benzene	<0.0068		0.0068	ug/g	08-OCT-20	0.02	0.02
	Ethylbenzene	<0.018		0.018	ug/g	08-OCT-20	0.05	0.05
	Toluene	<0.080		0.080	ug/g	08-OCT-20	0.2	0.2
	o-Xylene	<0.020		0.020	ug/g	08-OCT-20		
	m+p-Xylenes	<0.030		0.030	ug/g	08-OCT-20		
	Xylenes (Total)	<0.050		0.050	ug/g	16-OCT-20	0.05	0.05
	Surrogate: 4-Bromofluorobenzene	118.2		50-140	%	08-OCT-20		
	Surrogate: 1,4-Difluorobenzene	127.8		50-140	%	08-OCT-20		
Hydrocarbons								
	F1 (C6-C10)	<5.0		5.0	ug/g	08-OCT-20	17	25
	F1-BTEX	<5.0		5.0	ug/g	13-OCT-20	17	25
	F2 (C10-C16)	<10		10	ug/g	13-OCT-20	10	10
	F3 (C16-C34)	<50		50	ug/g	13-OCT-20	240	240
	F4 (C34-C50)	<50		50	ug/g	13-OCT-20	120	120
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	13-OCT-20		
	Chrom. to baseline at nC50	YES			No Unit	13-OCT-20		
	Surrogate: 2-Bromobenzotrifluoride	83.8		60-140	%	13-OCT-20		
	Surrogate: 3,4-Dichlorotoluene	105.1		60-140	%	08-OCT-20		

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Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-8	GS8							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Organochlorine Pesticides								
Aldrin		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
gamma-hexachlorocyclohexane		<0.010		0.010	ug/g	14-OCT-20		0.01
a-chlordane		<0.020		0.020	ug/g	14-OCT-20		
Chlordane (Total)		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
g-chlordane		<0.020		0.020	ug/g	14-OCT-20		
op-DDD		<0.020		0.020	ug/g	14-OCT-20		
pp-DDD		<0.020		0.020	ug/g	14-OCT-20		
Total DDD		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
o,p-DDE		<0.020		0.020	ug/g	14-OCT-20		
pp-DDE		<0.020		0.020	ug/g	14-OCT-20		
Total DDE		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
op-DDT		<0.020		0.020	ug/g	14-OCT-20		
pp-DDT		<0.020		0.020	ug/g	14-OCT-20		
Total DDT		<0.028		0.028	ug/g	14-OCT-20	0.078	1.4
Dieldrin		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Endosulfan I		<0.020		0.020	ug/g	14-OCT-20		
Endosulfan II		<0.020		0.020	ug/g	14-OCT-20		
Endosulfan (Total)		<0.028		0.028	ug/g	14-OCT-20	0.04	0.04
Endrin		<0.020		0.020	ug/g	14-OCT-20	0.04	0.04
Heptachlor		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Heptachlor Epoxide		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Hexachlorobenzene		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Hexachlorobutadiene		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Hexachloroethane		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Methoxychlor		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Surrogate: 2-Fluorobiphenyl		74.1		50-140	%	14-OCT-20		
Surrogate: d14-Terphenyl		78.5		50-140	%	14-OCT-20		
L2512641-9	GS9							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Physical Tests								
Conductivity		0.117		0.0040	mS/cm	14-OCT-20	0.47	0.57
% Moisture		8.30		0.25	%	09-OCT-20		
pH		7.64		0.10	pH units	13-OCT-20		
Cyanides								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	09-OCT-20	0.051	0.051
Saturated Paste Extractables								
SAR		0.19	SAR:M	0.10	SAR	14-OCT-20	1	2.4
Calcium (Ca)		13.1		0.50	mg/L	14-OCT-20		
Magnesium (Mg)		<0.50		0.50	mg/L	14-OCT-20		
Sodium (Na)		2.46		0.50	mg/L	14-OCT-20		
Metals								
Antimony (Sb)		<1.0		1.0	ug/g	14-OCT-20	1	1.3
Arsenic (As)		1.4		1.0	ug/g	14-OCT-20	11	18
Barium (Ba)		46.1		1.0	ug/g	14-OCT-20	210	220

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Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Table with columns: Sample Details Grouping, Analyte, Result, Qualifier, D.L., Units, Analyzed, Guideline Limits #1, #2. Rows include Metals (Beryllium, Boron, Cadmium, etc.), Speciated Metals (Chromium), Volatile Organic Compounds (Benzene, Ethylbenzene, etc.), Hydrocarbons (F1, F2, Total Hydrocarbons), and Organochlorine Pesticides (Aldrin, Chlordane, etc.).

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Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

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ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-9	GS9							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Organochlorine Pesticides								
Total DDD		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
o,p-DDE		<0.020		0.020	ug/g	14-OCT-20		
pp-DDE		<0.020		0.020	ug/g	14-OCT-20		
Total DDE		<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
op-DDT		<0.020		0.020	ug/g	14-OCT-20		
pp-DDT		<0.020		0.020	ug/g	14-OCT-20		
Total DDT		<0.028		0.028	ug/g	14-OCT-20	0.078	1.4
Dieldrin		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Endosulfan I		<0.020		0.020	ug/g	14-OCT-20		
Endosulfan II		<0.020		0.020	ug/g	14-OCT-20		
Endosulfan (Total)		<0.028		0.028	ug/g	14-OCT-20	0.04	0.04
Endrin		<0.020		0.020	ug/g	14-OCT-20	0.04	0.04
Heptachlor		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Heptachlor Epoxide		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Hexachlorobenzene		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Hexachlorobutadiene		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Hexachloroethane		<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
Methoxychlor		<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
Surrogate: 2-Fluorobiphenyl		72.2		50-140	%	14-OCT-20		
Surrogate: d14-Terphenyl		79.2		50-140	%	14-OCT-20		
L2512641-10	GS10							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Physical Tests								
Conductivity		0.288		0.0040	mS/cm	14-OCT-20	0.47	0.57
% Moisture		9.50		0.25	%	09-OCT-20		
pH		7.62		0.10	pH units	13-OCT-20		
Cyanides								
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	09-OCT-20	0.051	0.051
Saturated Paste Extractables								
SAR		0.24		0.10	SAR	14-OCT-20	1	2.4
Calcium (Ca)		43.5		0.50	mg/L	14-OCT-20		
Magnesium (Mg)		2.37		0.50	mg/L	14-OCT-20		
Sodium (Na)		5.93		0.50	mg/L	14-OCT-20		
Metals								
Antimony (Sb)		<1.0		1.0	ug/g	14-OCT-20	1	1.3
Arsenic (As)		1.2		1.0	ug/g	14-OCT-20	11	18
Barium (Ba)		52.2		1.0	ug/g	14-OCT-20	210	220
Beryllium (Be)		<0.50		0.50	ug/g	14-OCT-20	2.5	2.5
Boron (B)		5.4		5.0	ug/g	14-OCT-20	36	36
Boron (B), Hot Water Ext.		0.18		0.10	ug/g	14-OCT-20	36	36
Cadmium (Cd)		<0.50		0.50	ug/g	14-OCT-20	1	1.2
Chromium (Cr)		13.8		1.0	ug/g	14-OCT-20	67	70
Cobalt (Co)		4.0		1.0	ug/g	14-OCT-20	19	21
Copper (Cu)		8.0		1.0	ug/g	14-OCT-20	62	92

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Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-10	GS10							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Metals								
	Lead (Pb)	3.4		1.0	ug/g	14-OCT-20	45	120
	Mercury (Hg)	0.0093		0.0050	ug/g	14-OCT-20	0.16	0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	14-OCT-20	2	2
	Nickel (Ni)	7.8		1.0	ug/g	14-OCT-20	37	82
	Selenium (Se)	<1.0		1.0	ug/g	14-OCT-20	1.2	1.5
	Silver (Ag)	<0.20		0.20	ug/g	14-OCT-20	0.5	0.5
	Thallium (Tl)	<0.50		0.50	ug/g	14-OCT-20	1	1
	Uranium (U)	<1.0		1.0	ug/g	14-OCT-20	1.9	2.5
	Vanadium (V)	27.9		1.0	ug/g	14-OCT-20	86	86
	Zinc (Zn)	22.0		5.0	ug/g	14-OCT-20	290	290
Speciated Metals								
	Chromium, Hexavalent	0.23		0.20	ug/g	14-OCT-20	0.66	0.66
Volatile Organic Compounds								
	Benzene	<0.0068		0.0068	ug/g	08-OCT-20	0.02	0.02
	Ethylbenzene	<0.018		0.018	ug/g	08-OCT-20	0.05	0.05
	Toluene	<0.080		0.080	ug/g	08-OCT-20	0.2	0.2
	o-Xylene	<0.020		0.020	ug/g	08-OCT-20		
	m+p-Xylenes	<0.030		0.030	ug/g	08-OCT-20		
	Xylenes (Total)	<0.050		0.050	ug/g	16-OCT-20	0.05	0.05
	Surrogate: 4-Bromofluorobenzene	128.0		50-140	%	08-OCT-20		
	Surrogate: 1,4-Difluorobenzene	136.6		50-140	%	08-OCT-20		
Hydrocarbons								
	F1 (C6-C10)	<5.0		5.0	ug/g	08-OCT-20	17	25
	F1-BTEX	<5.0		5.0	ug/g	13-OCT-20	17	25
	F2 (C10-C16)	<10		10	ug/g	13-OCT-20	10	10
	F3 (C16-C34)	<50		50	ug/g	13-OCT-20	240	240
	F4 (C34-C50)	<50		50	ug/g	13-OCT-20	120	120
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	13-OCT-20		
	Chrom. to baseline at nC50	YES			No Unit	13-OCT-20		
	Surrogate: 2-Bromobenzotrifluoride	86.6		60-140	%	13-OCT-20		
	Surrogate: 3,4-Dichlorotoluene	109.1		60-140	%	08-OCT-20		
Organochlorine Pesticides								
	Aldrin	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	14-OCT-20		0.01
	a-chlordane	<0.020		0.020	ug/g	14-OCT-20		
	Chlordane (Total)	<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
	g-chlordane	<0.020		0.020	ug/g	14-OCT-20		
	op-DDD	<0.020		0.020	ug/g	14-OCT-20		
	pp-DDD	<0.020		0.020	ug/g	14-OCT-20		
	Total DDD	<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
	o,p-DDE	<0.020		0.020	ug/g	14-OCT-20		
	pp-DDE	<0.020		0.020	ug/g	14-OCT-20		
	Total DDE	<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
	op-DDT	<0.020		0.020	ug/g	14-OCT-20		
	pp-DDT	<0.020		0.020	ug/g	14-OCT-20		
	Total DDT	<0.028		0.028	ug/g	14-OCT-20	0.078	1.4

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Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-10	GS10							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Organochlorine Pesticides								
	Dieldrin	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	Endosulfan I	<0.020		0.020	ug/g	14-OCT-20		
	Endosulfan II	<0.020		0.020	ug/g	14-OCT-20		
	Endosulfan (Total)	<0.028		0.028	ug/g	14-OCT-20	0.04	0.04
	Endrin	<0.020		0.020	ug/g	14-OCT-20	0.04	0.04
	Heptachlor	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	Heptachlor Epoxide	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	Hexachlorobenzene	<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
	Hexachlorobutadiene	<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
	Hexachloroethane	<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
	Methoxychlor	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	Surrogate: 2-Fluorobiphenyl	66.1		50-140	%	14-OCT-20		
	Surrogate: d14-Terphenyl	62.1		50-140	%	14-OCT-20		
L2512641-11	GS11							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Physical Tests								
	Conductivity	0.0736		0.0040	mS/cm	14-OCT-20	0.47	0.57
	% Moisture	7.27		0.25	%	09-OCT-20		
	pH	7.66		0.10	pH units	13-OCT-20		
Cyanides								
	Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	09-OCT-20	0.051	0.051
Saturated Paste Extractables								
	SAR	0.18	SAR:M	0.10	SAR	14-OCT-20	1	2.4
	Calcium (Ca)	6.00		0.50	mg/L	14-OCT-20		
	Magnesium (Mg)	<0.50		0.50	mg/L	14-OCT-20		
	Sodium (Na)	1.64		0.50	mg/L	14-OCT-20		
Metals								
	Antimony (Sb)	<1.0		1.0	ug/g	14-OCT-20	1	1.3
	Arsenic (As)	<1.0		1.0	ug/g	14-OCT-20	11	18
	Barium (Ba)	19.6		1.0	ug/g	14-OCT-20	210	220
	Beryllium (Be)	<0.50		0.50	ug/g	14-OCT-20	2.5	2.5
	Boron (B)	<5.0		5.0	ug/g	14-OCT-20	36	36
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	14-OCT-20	36	36
	Cadmium (Cd)	<0.50		0.50	ug/g	14-OCT-20	1	1.2
	Chromium (Cr)	10.9		1.0	ug/g	14-OCT-20	67	70
	Cobalt (Co)	2.6		1.0	ug/g	14-OCT-20	19	21
	Copper (Cu)	3.7		1.0	ug/g	14-OCT-20	62	92
	Lead (Pb)	1.4		1.0	ug/g	14-OCT-20	45	120
	Mercury (Hg)	<0.0050		0.0050	ug/g	14-OCT-20	0.16	0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	14-OCT-20	2	2
	Nickel (Ni)	3.7		1.0	ug/g	14-OCT-20	37	82
	Selenium (Se)	<1.0		1.0	ug/g	14-OCT-20	1.2	1.5
	Silver (Ag)	<0.20		0.20	ug/g	14-OCT-20	0.5	0.5
	Thallium (Tl)	<0.50		0.50	ug/g	14-OCT-20	1	1

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#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-11	GS11							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Metals								
	Uranium (U)	<1.0		1.0	ug/g	14-OCT-20	1.9	2.5
	Vanadium (V)	41.6		1.0	ug/g	14-OCT-20	86	86
	Zinc (Zn)	10.2		5.0	ug/g	14-OCT-20	290	290
Speciated Metals								
	Chromium, Hexavalent	<0.20		0.20	ug/g	14-OCT-20	0.66	0.66
Volatile Organic Compounds								
	Benzene	<0.0068		0.0068	ug/g	08-OCT-20	0.02	0.02
	Ethylbenzene	<0.018		0.018	ug/g	08-OCT-20	0.05	0.05
	Toluene	<0.080		0.080	ug/g	08-OCT-20	0.2	0.2
	o-Xylene	<0.020		0.020	ug/g	08-OCT-20		
	m+p-Xylenes	<0.030		0.030	ug/g	08-OCT-20		
	Xylenes (Total)	<0.050		0.050	ug/g	16-OCT-20	0.05	0.05
	Surrogate: 4-Bromofluorobenzene	123.0		50-140	%	08-OCT-20		
	Surrogate: 1,4-Difluorobenzene	133.2		50-140	%	08-OCT-20		
Hydrocarbons								
	F1 (C6-C10)	<5.0		5.0	ug/g	08-OCT-20	17	25
	F1-BTEX	<5.0		5.0	ug/g	13-OCT-20	17	25
	F2 (C10-C16)	<10		10	ug/g	13-OCT-20	10	10
	F3 (C16-C34)	<50		50	ug/g	13-OCT-20	240	240
	F4 (C34-C50)	<50		50	ug/g	13-OCT-20	120	120
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	13-OCT-20		
	Chrom. to baseline at nC50	YES			No Unit	13-OCT-20		
	Surrogate: 2-Bromobenzotrifluoride	86.9		60-140	%	13-OCT-20		
	Surrogate: 3,4-Dichlorotoluene	104.2		60-140	%	08-OCT-20		
Organochlorine Pesticides								
	Aldrin	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	14-OCT-20		0.01
	a-chlordane	<0.020		0.020	ug/g	14-OCT-20		
	Chlordane (Total)	<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
	g-chlordane	<0.020		0.020	ug/g	14-OCT-20		
	op-DDD	<0.020		0.020	ug/g	14-OCT-20		
	pp-DDD	<0.020		0.020	ug/g	14-OCT-20		
	Total DDD	<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
	o,p-DDE	<0.020		0.020	ug/g	14-OCT-20		
	pp-DDE	<0.020		0.020	ug/g	14-OCT-20		
	Total DDE	<0.028		0.028	ug/g	14-OCT-20	0.05	0.05
	op-DDT	<0.020		0.020	ug/g	14-OCT-20		
	pp-DDT	<0.020		0.020	ug/g	14-OCT-20		
	Total DDT	<0.028		0.028	ug/g	14-OCT-20	0.078	1.4
	Dieldrin	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	Endosulfan I	<0.020		0.020	ug/g	14-OCT-20		
	Endosulfan II	<0.020		0.020	ug/g	14-OCT-20		
	Endosulfan (Total)	<0.028		0.028	ug/g	14-OCT-20	0.04	0.04
	Endrin	<0.020		0.020	ug/g	14-OCT-20	0.04	0.04
	Heptachlor	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	Heptachlor Epoxide	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits	
Grouping	Analyte						#1	#2
L2512641-11	GS11							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Organochlorine Pesticides								
	Hexachlorobenzene	<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
	Hexachlorobutadiene	<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
	Hexachloroethane	<0.010		0.010	ug/g	14-OCT-20	0.01	0.01
	Methoxychlor	<0.020		0.020	ug/g	14-OCT-20	0.05	0.05
	Surrogate: 2-Fluorobiphenyl	70.1		50-140	%	14-OCT-20		
	Surrogate: d14-Terphenyl	68.6		50-140	%	14-OCT-20		
L2512641-12	GS12							
Sampled By: KMT on 03-OCT-20								
Matrix: SOIL								
Physical Tests								
	Conductivity	0.218		0.0040	mS/cm	14-OCT-20	0.47	0.57
	% Moisture	10.4		0.25	%	09-OCT-20		
	pH	7.59		0.10	pH units	13-OCT-20		
Cyanides								
	Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	09-OCT-20	0.051	0.051
Saturated Paste Extractables								
	SAR	0.28		0.10	SAR	14-OCT-20	1	2.4
	Calcium (Ca)	29.3		0.50	mg/L	14-OCT-20		
	Magnesium (Mg)	1.31		0.50	mg/L	14-OCT-20		
	Sodium (Na)	5.65		0.50	mg/L	14-OCT-20		
Metals								
	Antimony (Sb)	<1.0		1.0	ug/g	14-OCT-20	1	1.3
	Arsenic (As)	1.4		1.0	ug/g	14-OCT-20	11	18
	Barium (Ba)	59.0		1.0	ug/g	14-OCT-20	210	220
	Beryllium (Be)	<0.50		0.50	ug/g	14-OCT-20	2.5	2.5
	Boron (B)	5.2		5.0	ug/g	14-OCT-20	36	36
	Boron (B), Hot Water Ext.	0.13		0.10	ug/g	14-OCT-20	36	36
	Cadmium (Cd)	<0.50		0.50	ug/g	14-OCT-20	1	1.2
	Chromium (Cr)	16.0		1.0	ug/g	14-OCT-20	67	70
	Cobalt (Co)	4.6		1.0	ug/g	14-OCT-20	19	21
	Copper (Cu)	8.6		1.0	ug/g	14-OCT-20	62	92
	Lead (Pb)	3.5		1.0	ug/g	14-OCT-20	45	120
	Mercury (Hg)	0.0096		0.0050	ug/g	14-OCT-20	0.16	0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	14-OCT-20	2	2
	Nickel (Ni)	8.6		1.0	ug/g	14-OCT-20	37	82
	Selenium (Se)	<1.0		1.0	ug/g	14-OCT-20	1.2	1.5
	Silver (Ag)	<0.20		0.20	ug/g	14-OCT-20	0.5	0.5
	Thallium (Tl)	<0.50		0.50	ug/g	14-OCT-20	1	1
	Uranium (U)	<1.0		1.0	ug/g	14-OCT-20	1.9	2.5
	Vanadium (V)	35.8		1.0	ug/g	14-OCT-20	86	86
	Zinc (Zn)	24.6		5.0	ug/g	14-OCT-20	290	290
Speciated Metals								
	Chromium, Hexavalent	0.24		0.20	ug/g	14-OCT-20	0.66	0.66
Volatile Organic Compounds								

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Table with columns: Sample Details Grouping, Analyte, Result, Qualifier, D.L., Units, Analyzed, Guideline Limits #1, #2. Rows include Volatile Organic Compounds, Hydrocarbons, and Organochlorine Pesticides.

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

Ontario Regulation 153/04 - April 15, 2011 Standards = [Suite] - ON511/11-T1-SOIL

#1: T1-Soil-Agricultural or Other Property Use

#2: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
SURR-ND	Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.
SAR:M	Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

BTX-511-HS-WT	Soil	BTEX-O.Reg 153/04 (July 2011)	SW846 8260
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BTX is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

BTX-HS-WT	Soil	BTEX by Headspace	SW846 8260 (HEADSPACE)
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BTX is determined by extracting a soil or sediment sample as received with methanol and then analyzed by headspace-GC/MS.

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION
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Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD
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The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199
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This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION
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Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138
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A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION
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Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Reference Information

F1-F4-CALC-WT Soil CCME Total Hydrocarbons CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-WT Soil F1 (O.Reg.153/04) E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

F2-F4-WT Soil F2-F4 (O.Reg.153/04) CCME Tier 1

A sub-sample of the solid sample is extracted with a solvent mixture. Following extraction, the sample extract is treated in situ with Silica Gel analyzed by GC/FID.

The F2 fraction is determined by integrating the area in the chromatogram from the apex of nC10 to the apex nC16 and quantitating using external calibration using a standard mix containing nC10, nC16 and nC34. Similarly, the F3 fraction extends from the apex of nC16 to the apex nC34 and the F4 fraction covers the area from the apex nC34 to the apex nC50. If the chromatogram does not return to the baseline by the time nC50 elutes, a gravimetric determination of the F4 is performed.

HG-200.2-CVAA-WT Soil Mercury in Soil by CVAAS EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

MET-200.2-CCMS-WT Soil Metals in Soil by CRC ICPMS EPA 200.2/6020B (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H₂S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

MOISTURE-WT Soil % Moisture CCME PHC in Soil - Tier 1 (mod)

PEST-OC-511-WT Soil OC Pesticides-O.Reg 153/04 SW846 8270 (511)
(July 2011)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

Reference Information

PH-WT Soil pH MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT Soil SAR-O.Reg 153/04 (July 2011) SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

XYLENES-SUM-CALC- Soil Sum of Xylene Isomer CALCULATION
WT Concentrations

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

17-870029

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.



Quality Control Report

Workorder: L2512641

Report Date: 18-OCT-20

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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcom

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT Soil								
Batch R5254110								
WG3423635-4	DUP	L2515066-1						
Boron (B), Hot Water Ext.		0.32	0.31		ug/g	2.5	30	14-OCT-20
WG3423635-2	IRM	WT SAR4						
Boron (B), Hot Water Ext.			113.7		%		70-130	14-OCT-20
WG3423635-3	LCS							
Boron (B), Hot Water Ext.			103.0		%		70-130	14-OCT-20
WG3423635-1	MB							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	14-OCT-20
Batch R5254150								
WG3423638-4	DUP	L2513690-2						
Boron (B), Hot Water Ext.		0.42	0.41		ug/g	2.7	30	14-OCT-20
WG3423638-2	IRM	WT SAR4						
Boron (B), Hot Water Ext.			108.2		%		70-130	14-OCT-20
WG3423638-3	LCS							
Boron (B), Hot Water Ext.			103.0		%		70-130	14-OCT-20
WG3423638-1	MB							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	14-OCT-20
BTX-511-HS-WT Soil								
Batch R5251281								
WG3419796-4	DUP	WG3419796-3						
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	08-OCT-20
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	08-OCT-20
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	08-OCT-20
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	08-OCT-20
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	08-OCT-20
WG3419796-2	LCS							
Benzene			112.5		%		70-130	08-OCT-20
Ethylbenzene			100.0		%		70-130	08-OCT-20
m+p-Xylenes			103.5		%		70-130	08-OCT-20
o-Xylene			107.1		%		70-130	08-OCT-20
Toluene			106.5		%		70-130	08-OCT-20
WG3419796-1	MB							
Benzene			<0.0068		ug/g		0.0068	08-OCT-20
Ethylbenzene			<0.018		ug/g		0.018	08-OCT-20
m+p-Xylenes			<0.030		ug/g		0.03	08-OCT-20
o-Xylene			<0.020		ug/g		0.02	08-OCT-20



Quality Control Report

Workorder: L2512641

Report Date: 18-OCT-20

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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcom

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX-511-HS-WT Soil								
Batch R5251281								
WG3419796-1 MB								
Toluene			<0.080		ug/g		0.08	08-OCT-20
Surrogate: 1,4-Difluorobenzene			125.0		%		50-140	08-OCT-20
Surrogate: 4-Bromofluorobenzene			117.0		%		50-140	08-OCT-20
WG3419796-5 MS WG3419796-3								
Benzene			119.5		%		60-140	08-OCT-20
Ethylbenzene			106.8		%		60-140	08-OCT-20
m+p-Xylenes			110.6		%		60-140	08-OCT-20
o-Xylene			114.1		%		60-140	08-OCT-20
Toluene			114.0		%		60-140	08-OCT-20
CN-WAD-R511-WT Soil								
Batch R5252210								
WG3420649-3 DUP L2512641-1								
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	09-OCT-20
WG3420679-3 DUP L2512641-11								
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	09-OCT-20
WG3420649-2 LCS								
Cyanide, Weak Acid Diss			98.2		%		80-120	09-OCT-20
WG3420679-2 LCS								
Cyanide, Weak Acid Diss			94.1		%		80-120	09-OCT-20
WG3420649-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	09-OCT-20
WG3420679-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	09-OCT-20
WG3420649-4 MS L2512641-1								
Cyanide, Weak Acid Diss			112.5		%		70-130	09-OCT-20
WG3420679-4 MS L2512641-11								
Cyanide, Weak Acid Diss			108.7		%		70-130	09-OCT-20
CR-CR6-IC-WT Soil								
Batch R5254291								
WG3423243-4 CRM WT-SQC012								
Chromium, Hexavalent			89.1		%		70-130	14-OCT-20
WG3423243-3 DUP L2513711-7								
Chromium, Hexavalent		<0.20	0.23	RPD-NA	ug/g	N/A	35	14-OCT-20
WG3423243-2 LCS								
Chromium, Hexavalent			90.0		%		80-120	14-OCT-20
WG3423243-1 MB								



Quality Control Report

Workorder: L2512641

Report Date: 18-OCT-20

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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcom

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CR-CR6-IC-WT	Soil							
Batch R5254291								
WG3423243-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	14-OCT-20
EC-WT	Soil							
Batch R5253909								
WG3423637-4 DUP		WG3423637-3						
Conductivity		1.38	1.39		mS/cm	0.4	20	14-OCT-20
WG3423637-2 IRM		WT SAR4						
Conductivity			103.6		%		70-130	14-OCT-20
WG3423810-1 LCS								
Conductivity			98.7		%		90-110	14-OCT-20
WG3423637-1 MB								
Conductivity			<0.0040		mS/cm		0.004	14-OCT-20
Batch R5254194								
WG3423639-2 IRM		WT SAR4						
Conductivity			101.0		%		70-130	14-OCT-20
WG3423815-1 LCS								
Conductivity			99.0		%		90-110	14-OCT-20
WG3423639-1 MB								
Conductivity			<0.0040		mS/cm		0.004	14-OCT-20
F1-HS-WT	Soil							
Batch R5251281								
WG3419796-4 DUP		WG3419796-3						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	08-OCT-20
WG3419796-2 LCS								
F1 (C6-C10)			102.8		%		80-120	08-OCT-20
WG3419796-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	08-OCT-20
Surrogate: 3,4-Dichlorotoluene			112.4		%		60-140	08-OCT-20
WG3419796-6 MS		WG3419796-7						
F1 (C6-C10)			87.4		%		50-150	08-OCT-20
F2-F4-WT	Soil							
Batch R5253350								
WG3421495-3 DUP		WG3421495-5						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	13-OCT-20
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	13-OCT-20
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	13-OCT-20



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcom

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-WT	Soil							
Batch	R5253350							
WG3421495-2	LCS							
F2 (C10-C16)			94.4		%		80-120	13-OCT-20
F3 (C16-C34)			101.0		%		80-120	13-OCT-20
F4 (C34-C50)			99.1		%		80-120	13-OCT-20
WG3421495-1	MB							
F2 (C10-C16)			<10		ug/g		10	13-OCT-20
F3 (C16-C34)			<50		ug/g		50	13-OCT-20
F4 (C34-C50)			<50		ug/g		50	13-OCT-20
Surrogate: 2-Bromobenzotrifluoride			84.1		%		60-140	13-OCT-20
WG3421495-4	MS	WG3421495-5						
F2 (C10-C16)			98.3		%		50-150	13-OCT-20
F3 (C16-C34)			104.4		%		50-150	13-OCT-20
F4 (C34-C50)			103.8		%		50-150	13-OCT-20
HG-200.2-CVAA-WT	Soil							
Batch	R5253996							
WG3423633-2	CRM	WT-SS-2						
Mercury (Hg)			101.5		%		70-130	14-OCT-20
WG3423633-6	DUP	WG3423633-5						
Mercury (Hg)		0.0138	0.0133		ug/g	3.5	40	14-OCT-20
WG3423633-3	LCS							
Mercury (Hg)			102.0		%		80-120	14-OCT-20
WG3423633-1	MB							
Mercury (Hg)			<0.0050		mg/kg		0.005	14-OCT-20
Batch	R5253997							
WG3423634-2	CRM	WT-SS-2						
Mercury (Hg)			109.5		%		70-130	14-OCT-20
WG3423634-6	DUP	WG3423634-5						
Mercury (Hg)		0.0175	0.0193		ug/g	9.7	40	14-OCT-20
WG3423634-3	LCS							
Mercury (Hg)			106.0		%		80-120	14-OCT-20
WG3423634-1	MB							
Mercury (Hg)			<0.0050		mg/kg		0.005	14-OCT-20
MET-200.2-CCMS-WT	Soil							
Batch	R5254190							
WG3423633-2	CRM	WT-SS-2						
Antimony (Sb)			107.4		%		70-130	14-OCT-20
Arsenic (As)			102.7		%		70-130	14-OCT-20



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcom

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT Soil								
Batch R5254190								
WG3423633-2 CRM		WT-SS-2						
Barium (Ba)			98.4		%		70-130	14-OCT-20
Beryllium (Be)			104.0		%		70-130	14-OCT-20
Boron (B)			8.7		mg/kg		3.5-13.5	14-OCT-20
Cadmium (Cd)			97.4		%		70-130	14-OCT-20
Chromium (Cr)			97.5		%		70-130	14-OCT-20
Cobalt (Co)			98.4		%		70-130	14-OCT-20
Copper (Cu)			101.5		%		70-130	14-OCT-20
Lead (Pb)			105.3		%		70-130	14-OCT-20
Molybdenum (Mo)			103.2		%		70-130	14-OCT-20
Nickel (Ni)			99.6		%		70-130	14-OCT-20
Selenium (Se)			0.11		mg/kg		0-0.34	14-OCT-20
Silver (Ag)			97.7		%		70-130	14-OCT-20
Thallium (Tl)			0.075		mg/kg		0.029-0.129	14-OCT-20
Uranium (U)			98.7		%		70-130	14-OCT-20
Vanadium (V)			98.5		%		70-130	14-OCT-20
Zinc (Zn)			99.2		%		70-130	14-OCT-20
WG3423633-6 DUP		WG3423633-5						
Antimony (Sb)		0.15	0.13		ug/g	14	30	14-OCT-20
Arsenic (As)		2.37	2.42		ug/g	2.2	30	14-OCT-20
Barium (Ba)		30.0	29.5		ug/g	1.6	40	14-OCT-20
Beryllium (Be)		0.29	0.30		ug/g	3.1	30	14-OCT-20
Boron (B)		6.9	6.5		ug/g	6.9	30	14-OCT-20
Cadmium (Cd)		0.101	0.116		ug/g	14	30	14-OCT-20
Chromium (Cr)		12.3	12.4		ug/g	0.9	30	14-OCT-20
Cobalt (Co)		3.88	3.74		ug/g	3.8	30	14-OCT-20
Copper (Cu)		10.4	10.4		ug/g	0.8	30	14-OCT-20
Lead (Pb)		9.25	7.93		ug/g	15	40	14-OCT-20
Molybdenum (Mo)		0.27	0.26		ug/g	4.9	40	14-OCT-20
Nickel (Ni)		8.50	8.56		ug/g	0.8	30	14-OCT-20
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	14-OCT-20
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	14-OCT-20
Thallium (Tl)		0.062	0.057		ug/g	8.4	30	14-OCT-20
Uranium (U)		0.421	0.413		ug/g	1.8	30	14-OCT-20



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561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcom

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	Soil							
Batch	R5254190							
WG3423633-6	DUP	WG3423633-5						
Vanadium (V)		22.1	20.7		ug/g	6.3	30	14-OCT-20
Zinc (Zn)		43.8	44.7		ug/g	2.0	30	14-OCT-20
WG3423633-4	LCS							
Antimony (Sb)			101.2		%		80-120	14-OCT-20
Arsenic (As)			101.5		%		80-120	14-OCT-20
Barium (Ba)			98.8		%		80-120	14-OCT-20
Beryllium (Be)			96.2		%		80-120	14-OCT-20
Boron (B)			94.1		%		80-120	14-OCT-20
Cadmium (Cd)			97.9		%		80-120	14-OCT-20
Chromium (Cr)			100.9		%		80-120	14-OCT-20
Cobalt (Co)			96.8		%		80-120	14-OCT-20
Copper (Cu)			96.2		%		80-120	14-OCT-20
Lead (Pb)			98.1		%		80-120	14-OCT-20
Molybdenum (Mo)			99.0		%		80-120	14-OCT-20
Nickel (Ni)			97.8		%		80-120	14-OCT-20
Selenium (Se)			94.9		%		80-120	14-OCT-20
Silver (Ag)			97.0		%		80-120	14-OCT-20
Thallium (Tl)			98.7		%		80-120	14-OCT-20
Uranium (U)			96.4		%		80-120	14-OCT-20
Vanadium (V)			101.7		%		80-120	14-OCT-20
Zinc (Zn)			98.3		%		80-120	14-OCT-20
WG3423633-1	MB							
Antimony (Sb)			<0.10		mg/kg		0.1	14-OCT-20
Arsenic (As)			<0.10		mg/kg		0.1	14-OCT-20
Barium (Ba)			<0.50		mg/kg		0.5	14-OCT-20
Beryllium (Be)			<0.10		mg/kg		0.1	14-OCT-20
Boron (B)			<5.0		mg/kg		5	14-OCT-20
Cadmium (Cd)			<0.020		mg/kg		0.02	14-OCT-20
Chromium (Cr)			<0.50		mg/kg		0.5	14-OCT-20
Cobalt (Co)			<0.10		mg/kg		0.1	14-OCT-20
Copper (Cu)			<0.50		mg/kg		0.5	14-OCT-20
Lead (Pb)			<0.50		mg/kg		0.5	14-OCT-20
Molybdenum (Mo)			<0.10		mg/kg		0.1	14-OCT-20
Nickel (Ni)			<0.50		mg/kg		0.5	14-OCT-20



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561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcom

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT Soil								
Batch R5254190								
WG3423633-1 MB								
			<0.20		mg/kg		0.2	14-OCT-20
			<0.10		mg/kg		0.1	14-OCT-20
			<0.050		mg/kg		0.05	14-OCT-20
			<0.050		mg/kg		0.05	14-OCT-20
			<0.20		mg/kg		0.2	14-OCT-20
			<2.0		mg/kg		2	14-OCT-20
Batch R5254713								
WG3423634-2 CRM WT-SS-2								
			87.7		%		70-130	14-OCT-20
			91.2		%		70-130	14-OCT-20
			102.4		%		70-130	14-OCT-20
			100.3		%		70-130	14-OCT-20
			8.4		mg/kg		3.5-13.5	14-OCT-20
			93.5		%		70-130	14-OCT-20
			90.4		%		70-130	14-OCT-20
			92.4		%		70-130	14-OCT-20
			96.4		%		70-130	14-OCT-20
			101.5		%		70-130	14-OCT-20
			104.4		%		70-130	14-OCT-20
			95.9		%		70-130	14-OCT-20
			0.14		mg/kg		0-0.34	14-OCT-20
			101.5		%		70-130	14-OCT-20
			0.068		mg/kg		0.029-0.129	14-OCT-20
			97.0		%		70-130	14-OCT-20
			94.4		%		70-130	14-OCT-20
			90.1		%		70-130	14-OCT-20
WG3423634-6 DUP WG3423634-5								
		0.11	0.10		ug/g	5.4	30	14-OCT-20
		4.70	4.93		ug/g	4.6	30	14-OCT-20
		119	123		ug/g	3.0	40	14-OCT-20
		0.86	0.91		ug/g	5.8	30	14-OCT-20
		14.7	13.9		ug/g	5.1	30	14-OCT-20
		0.096	0.096		ug/g	0.0	30	14-OCT-20
		29.5	30.7		ug/g	4.2	30	14-OCT-20



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Barrie ON L4N 9Y3

Contact: Kent Malcom

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	Soil							
Batch	R5254713							
WG3423634-6	DUP	WG3423634-5						
Cobalt (Co)		14.4	15.2		ug/g	5.4	30	14-OCT-20
Copper (Cu)		24.1	25.4		ug/g	5.4	30	14-OCT-20
Lead (Pb)		11.7	11.8		ug/g	0.4	40	14-OCT-20
Molybdenum (Mo)		0.47	0.43		ug/g	7.5	40	14-OCT-20
Nickel (Ni)		30.6	32.1		ug/g	4.8	30	14-OCT-20
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	14-OCT-20
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	14-OCT-20
Thallium (Tl)		0.174	0.170		ug/g	2.6	30	14-OCT-20
Uranium (U)		0.589	0.606		ug/g	2.9	30	14-OCT-20
Vanadium (V)		42.0	43.7		ug/g	4.1	30	14-OCT-20
Zinc (Zn)		57.9	60.5		ug/g	4.4	30	14-OCT-20
WG3423634-4	LCS							
Antimony (Sb)			103.4		%		80-120	14-OCT-20
Arsenic (As)			100.4		%		80-120	14-OCT-20
Barium (Ba)			96.3		%		80-120	14-OCT-20
Beryllium (Be)			100.3		%		80-120	14-OCT-20
Boron (B)			97.5		%		80-120	14-OCT-20
Cadmium (Cd)			100.2		%		80-120	14-OCT-20
Chromium (Cr)			98.7		%		80-120	14-OCT-20
Cobalt (Co)			97.0		%		80-120	14-OCT-20
Copper (Cu)			94.6		%		80-120	14-OCT-20
Lead (Pb)			94.5		%		80-120	14-OCT-20
Molybdenum (Mo)			97.0		%		80-120	14-OCT-20
Nickel (Ni)			95.2		%		80-120	14-OCT-20
Selenium (Se)			98.5		%		80-120	14-OCT-20
Silver (Ag)			93.4		%		80-120	14-OCT-20
Thallium (Tl)			98.4		%		80-120	14-OCT-20
Uranium (U)			85.0		%		80-120	14-OCT-20
Vanadium (V)			103.4		%		80-120	14-OCT-20
Zinc (Zn)			95.7		%		80-120	14-OCT-20
WG3423634-1	MB							
Antimony (Sb)			<0.10		mg/kg		0.1	14-OCT-20
Arsenic (As)			<0.10		mg/kg		0.1	14-OCT-20
Barium (Ba)			<0.50		mg/kg		0.5	14-OCT-20



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Contact: Kent Malcom

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	Soil							
Batch	R5254713							
WG3423634-1	MB							
Barium (Ba)			<0.50		mg/kg		0.5	14-OCT-20
Beryllium (Be)			<0.10		mg/kg		0.1	14-OCT-20
Boron (B)			<5.0		mg/kg		5	14-OCT-20
Cadmium (Cd)			<0.020		mg/kg		0.02	14-OCT-20
Chromium (Cr)			<0.50		mg/kg		0.5	14-OCT-20
Cobalt (Co)			<0.10		mg/kg		0.1	14-OCT-20
Copper (Cu)			<0.50		mg/kg		0.5	14-OCT-20
Lead (Pb)			<0.50		mg/kg		0.5	14-OCT-20
Molybdenum (Mo)			<0.10		mg/kg		0.1	14-OCT-20
Nickel (Ni)			<0.50		mg/kg		0.5	14-OCT-20
Selenium (Se)			<0.20		mg/kg		0.2	14-OCT-20
Silver (Ag)			<0.10		mg/kg		0.1	14-OCT-20
Thallium (Tl)			<0.050		mg/kg		0.05	14-OCT-20
Uranium (U)			<0.050		mg/kg		0.05	14-OCT-20
Vanadium (V)			<0.20		mg/kg		0.2	14-OCT-20
Zinc (Zn)			<2.0		mg/kg		2	14-OCT-20
MOISTURE-WT	Soil							
Batch	R5251914							
WG3420153-3	DUP	L2513711-7						
% Moisture		8.75	8.85		%	1.2	20	09-OCT-20
WG3420153-2	LCS							
% Moisture			102.0		%		90-110	09-OCT-20
WG3420153-1	MB							
% Moisture			<0.25		%		0.25	09-OCT-20
PEST-OC-511-WT	Soil							
Batch	R5252277							
WG3419106-3	DUP	WG3419106-5						
Aldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
a-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
g-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
op-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
pp-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
o,p-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
pp-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20



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561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcom

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	Soil							
Batch	R5252277							
WG3419106-3	DUP	WG3419106-5						
op-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
pp-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
Dieldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
Endosulfan I		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
Endosulfan II		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
Endrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
gamma-hexachlorocyclohexane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	09-OCT-20
Heptachlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
Heptachlor Epoxide		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
Hexachlorobenzene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	09-OCT-20
Hexachlorobutadiene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	09-OCT-20
Hexachloroethane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	09-OCT-20
Methoxychlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	09-OCT-20
WG3419106-2	LCS							
Aldrin			110.7		%		50-140	09-OCT-20
a-chlordane			88.6		%		50-140	09-OCT-20
g-chlordane			97.5		%		50-140	09-OCT-20
op-DDD			93.8		%		50-140	09-OCT-20
pp-DDD			96.3		%		50-140	09-OCT-20
o,p-DDE			97.1		%		50-140	09-OCT-20
pp-DDE			101.3		%		50-140	09-OCT-20
op-DDT			93.1		%		50-140	09-OCT-20
pp-DDT			78.5		%		50-140	09-OCT-20
Dieldrin			108.4		%		50-140	09-OCT-20
Endosulfan I			98.4		%		50-140	09-OCT-20
Endosulfan II			96.9		%		50-140	09-OCT-20
Endrin			111.1		%		50-140	09-OCT-20
gamma-hexachlorocyclohexane			84.1		%		50-140	09-OCT-20
Heptachlor			96.3		%		50-140	09-OCT-20
Heptachlor Epoxide			104.3		%		50-140	09-OCT-20
Hexachlorobenzene			85.3		%		50-140	09-OCT-20
Hexachlorobutadiene			78.0		%		50-140	09-OCT-20
Hexachloroethane			73.4		%		50-140	09-OCT-20



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561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcom

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	Soil							
Batch	R5252277							
WG3419106-2	LCS							
Methoxychlor			89.6		%		50-140	09-OCT-20
WG3419106-1	MB							
Aldrin			<0.020		ug/g		0.02	09-OCT-20
a-chlordane			<0.020		ug/g		0.02	09-OCT-20
g-chlordane			<0.020		ug/g		0.02	09-OCT-20
op-DDD			<0.020		ug/g		0.02	09-OCT-20
pp-DDD			<0.020		ug/g		0.02	09-OCT-20
o,p-DDE			<0.020		ug/g		0.02	09-OCT-20
pp-DDE			<0.020		ug/g		0.02	09-OCT-20
op-DDT			<0.020		ug/g		0.02	09-OCT-20
pp-DDT			<0.020		ug/g		0.02	09-OCT-20
Dieldrin			<0.020		ug/g		0.02	09-OCT-20
Endosulfan I			<0.020		ug/g		0.02	09-OCT-20
Endosulfan II			<0.020		ug/g		0.02	09-OCT-20
Endrin			<0.020		ug/g		0.02	09-OCT-20
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	09-OCT-20
Heptachlor			<0.020		ug/g		0.02	09-OCT-20
Heptachlor Epoxide			<0.020		ug/g		0.02	09-OCT-20
Hexachlorobenzene			<0.010		ug/g		0.01	09-OCT-20
Hexachlorobutadiene			<0.010		ug/g		0.01	09-OCT-20
Hexachloroethane			<0.010		ug/g		0.01	09-OCT-20
Methoxychlor			<0.020		ug/g		0.02	09-OCT-20
Surrogate: 2-Fluorobiphenyl			72.2		%		50-140	09-OCT-20
Surrogate: d14-Terphenyl			69.2		%		50-140	09-OCT-20
WG3419106-4	MS	WG3419106-5						
Aldrin			108.8		%		50-140	09-OCT-20
a-chlordane			60.1		%		50-140	09-OCT-20
g-chlordane			66.0		%		50-140	09-OCT-20
op-DDD			62.4		%		50-140	09-OCT-20
pp-DDD			70.3		%		50-140	09-OCT-20
o,p-DDE			65.9		%		50-140	09-OCT-20
pp-DDE			70.7		%		50-140	09-OCT-20
op-DDT			93.0		%		50-140	09-OCT-20
pp-DDT			97.9		%		50-140	09-OCT-20



Quality Control Report

Workorder: L2512641

Report Date: 18-OCT-20

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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcom

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	Soil							
Batch	R5252277							
WG3419106-4 MS		WG3419106-5						
Dieldrin			71.3		%		50-140	09-OCT-20
Endosulfan I			65.1		%		50-140	09-OCT-20
Endosulfan II			70.3		%		50-140	09-OCT-20
Endrin			89.4		%		50-140	09-OCT-20
gamma-hexachlorocyclohexane			80.1		%		50-140	09-OCT-20
Heptachlor			104.8		%		50-140	09-OCT-20
Heptachlor Epoxide			69.1		%		50-140	09-OCT-20
Hexachlorobenzene			78.7		%		50-140	09-OCT-20
Hexachlorobutadiene			70.7		%		50-140	09-OCT-20
Hexachloroethane			73.1		%		50-140	09-OCT-20
Methoxychlor			119.6		%		50-140	09-OCT-20
PH-WT	Soil							
Batch	R5253411							
WG3420650-1 DUP		L2512300-1						
pH		7.56	7.75	J	pH units	0.19	0.3	13-OCT-20
WG3422994-1 LCS								
pH			6.99		pH units		6.9-7.1	13-OCT-20
Batch	R5253414							
WG3420476-1 DUP		L2512651-1						
pH		7.35	7.45	J	pH units	0.10	0.3	13-OCT-20
WG3422996-1 LCS								
pH			6.97		pH units		6.9-7.1	13-OCT-20
SAR-R511-WT	Soil							
Batch	R5254136							
WG3423637-4 DUP		WG3423637-3						
Calcium (Ca)		1.91	1.99		mg/L	4.1	30	14-OCT-20
Sodium (Na)		264	266		mg/L	0.8	30	14-OCT-20
Magnesium (Mg)		<0.50	<0.50	RPD-NA	mg/L	N/A	30	14-OCT-20
WG3423637-2 IRM		WT SAR4						
Calcium (Ca)			99.1		%		70-130	14-OCT-20
Sodium (Na)			95.7		%		70-130	14-OCT-20
Magnesium (Mg)			103.4		%		70-130	14-OCT-20
WG3423637-5 LCS								
Calcium (Ca)			101.3		%		80-120	14-OCT-20
Sodium (Na)			95.6		%		80-120	14-OCT-20



Quality Control Report

Workorder: L2512641

Report Date: 18-OCT-20

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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcom

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	Soil							
Batch	R5254136							
WG3423637-5	LCS							
Magnesium (Mg)			97.4		%		80-120	14-OCT-20
WG3423637-1	MB							
Calcium (Ca)			<0.50		mg/L		0.5	14-OCT-20
Sodium (Na)			<0.50		mg/L		0.5	14-OCT-20
Magnesium (Mg)			<0.50		mg/L		0.5	14-OCT-20
Batch	R5254225							
WG3423639-4	DUP	WG3423639-3						
Calcium (Ca)		7.67	7.60		mg/L	0.9	30	14-OCT-20
Sodium (Na)		709	710		mg/L	0.1	30	14-OCT-20
Magnesium (Mg)		0.60	0.59		mg/L	2.4	30	14-OCT-20
WG3423639-2	IRM	WT SAR4						
Calcium (Ca)			100.0		%		70-130	14-OCT-20
Sodium (Na)			92.7		%		70-130	14-OCT-20
Magnesium (Mg)			101.7		%		70-130	14-OCT-20
WG3423639-5	LCS							
Calcium (Ca)			104.3		%		80-120	14-OCT-20
Sodium (Na)			98.6		%		80-120	14-OCT-20
Magnesium (Mg)			100.4		%		80-120	14-OCT-20
WG3423639-1	MB							
Calcium (Ca)			<0.50		mg/L		0.5	14-OCT-20
Sodium (Na)			<0.50		mg/L		0.5	14-OCT-20
Magnesium (Mg)			<0.50		mg/L		0.5	14-OCT-20

Quality Control Report

Workorder: L2512641

Report Date: 18-OCT-20

Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

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Contact: Kent Malcom

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

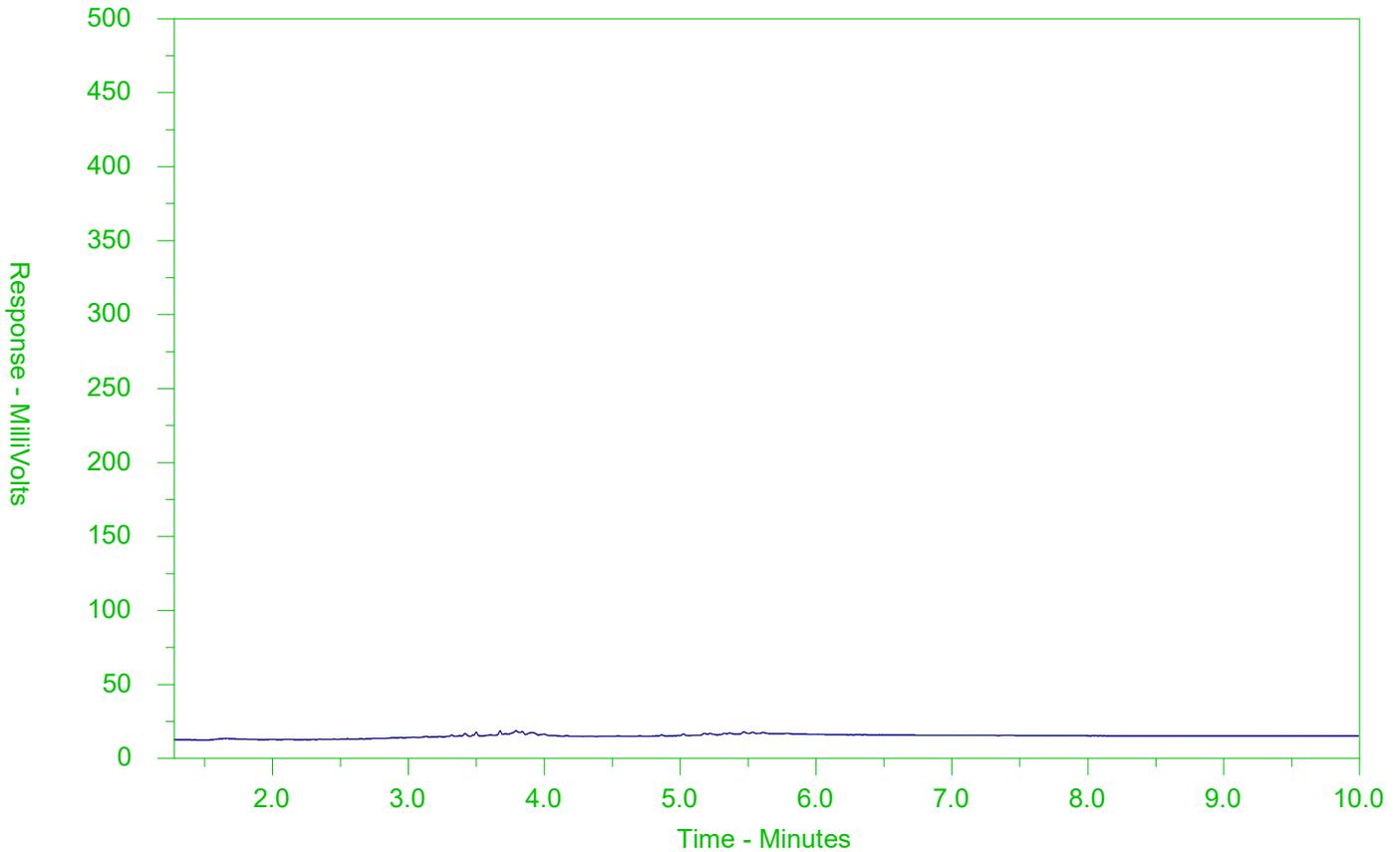
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2512641-2
 Client Sample ID: GS2



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

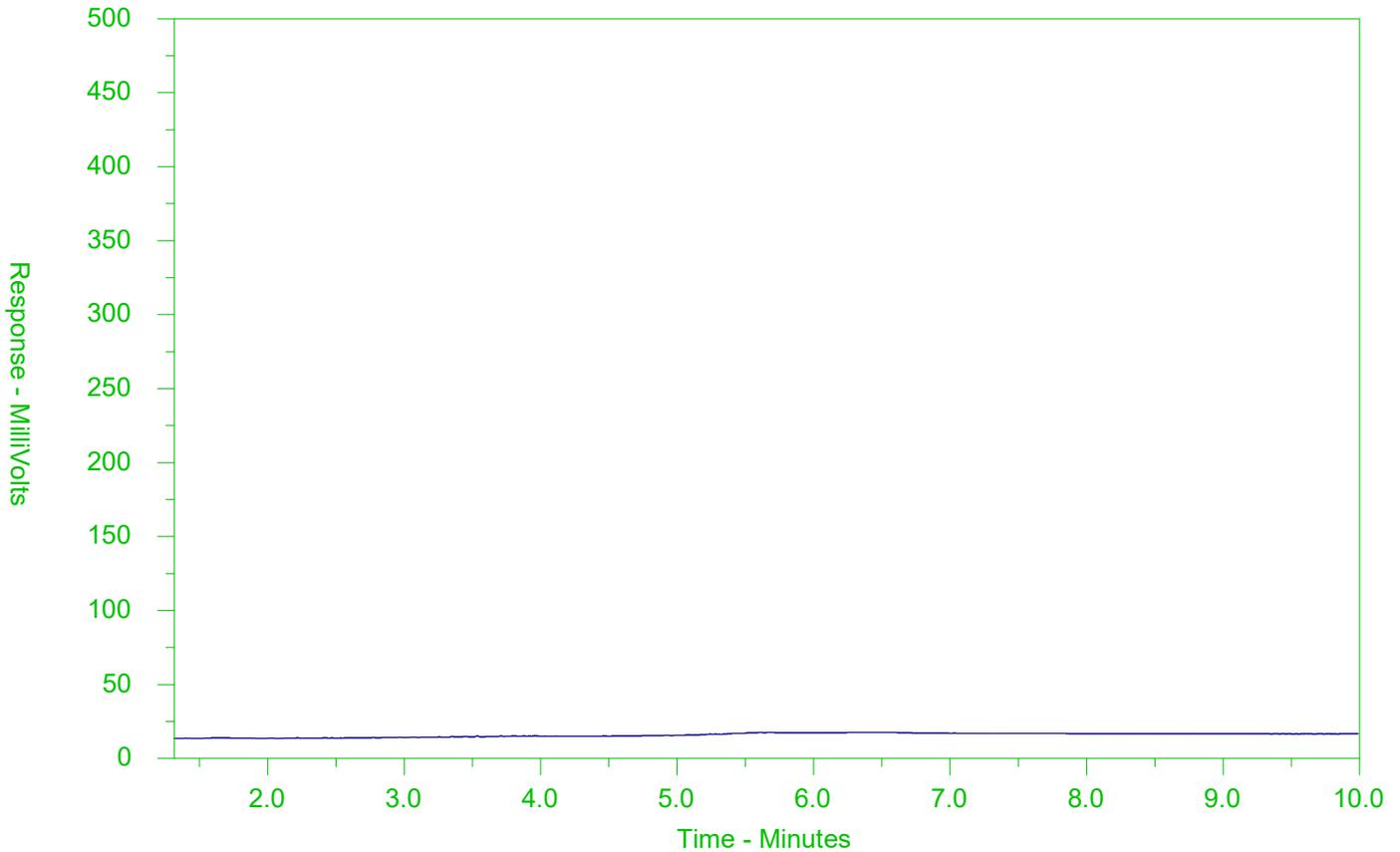
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2512641-3
 Client Sample ID: GS3



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

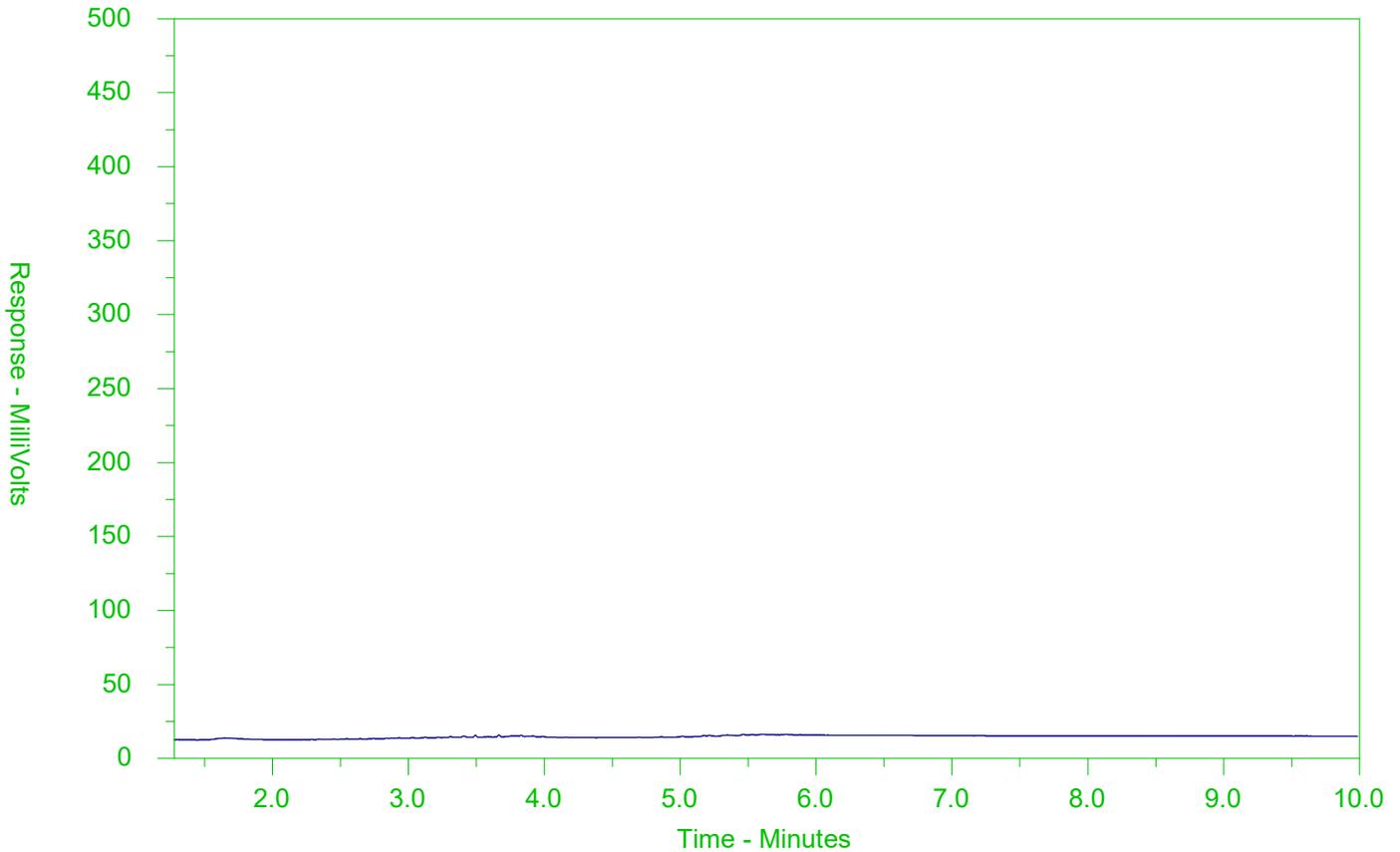
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2512641-4
 Client Sample ID: GS4



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

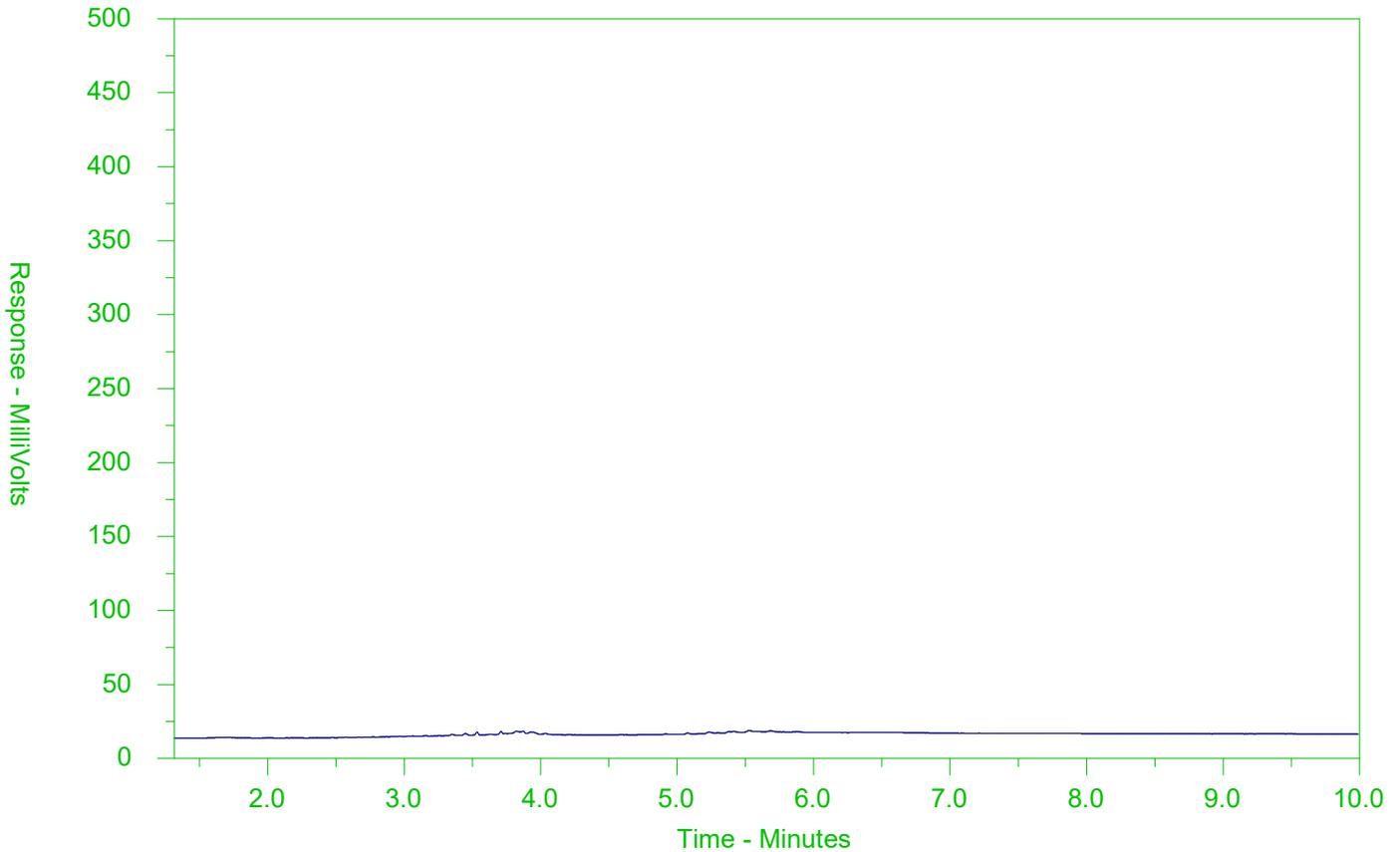
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2512641-5
 Client Sample ID: GS5



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

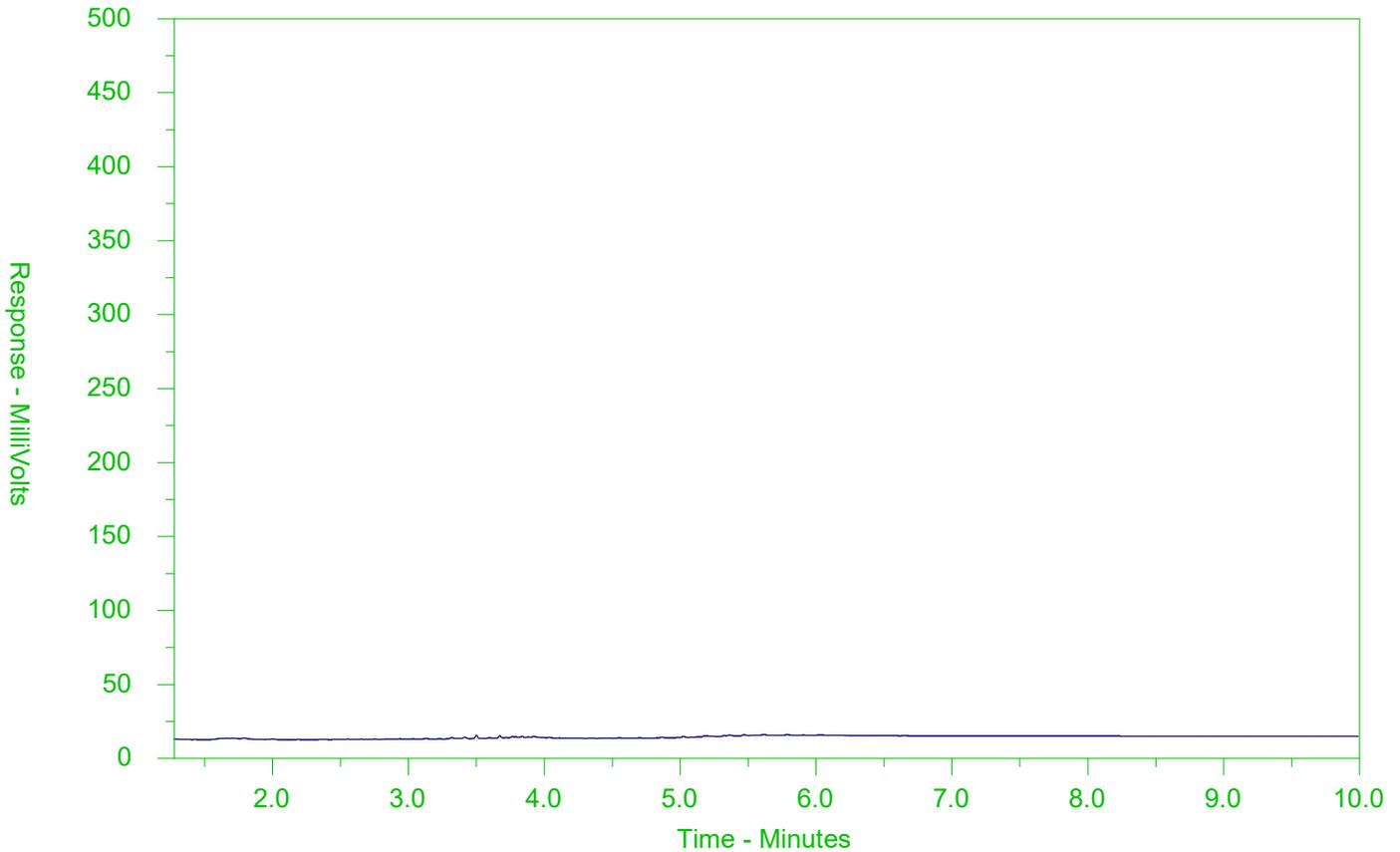
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2512641-6
 Client Sample ID: GS6



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

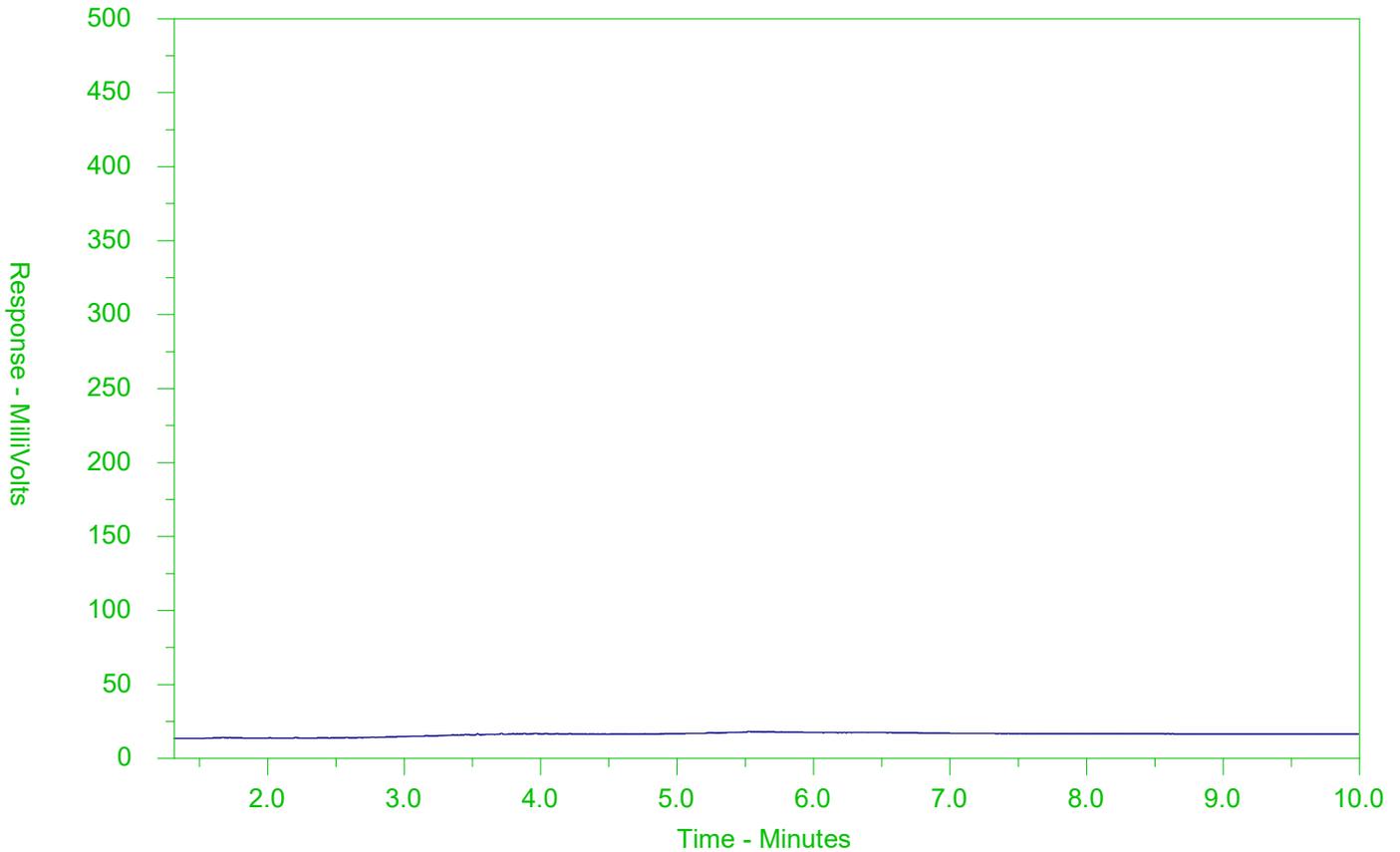
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2512641-7
 Client Sample ID: GS7



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

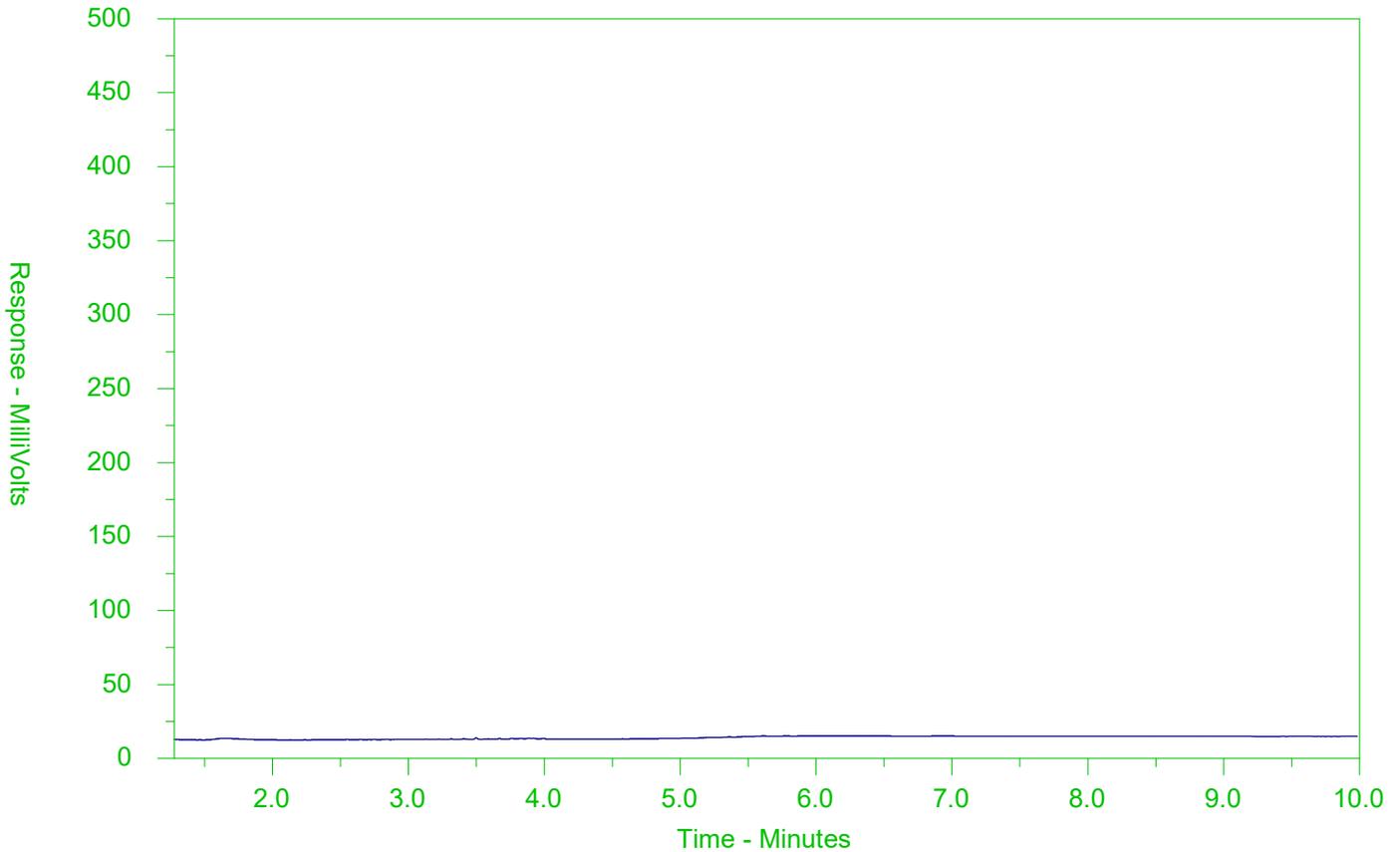
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2512641-8
 Client Sample ID: GS8



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

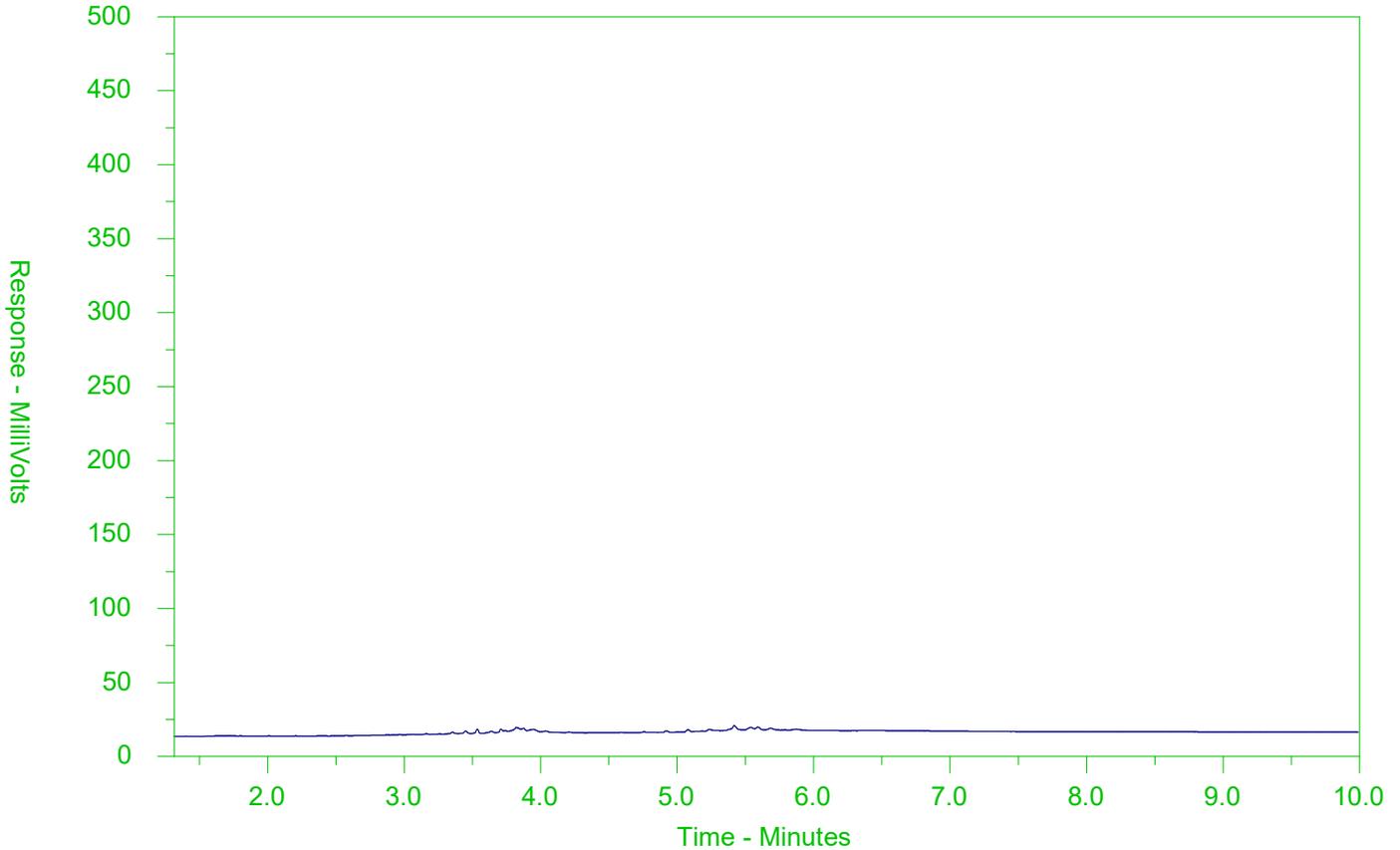
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2512641-9
 Client Sample ID: GS9



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

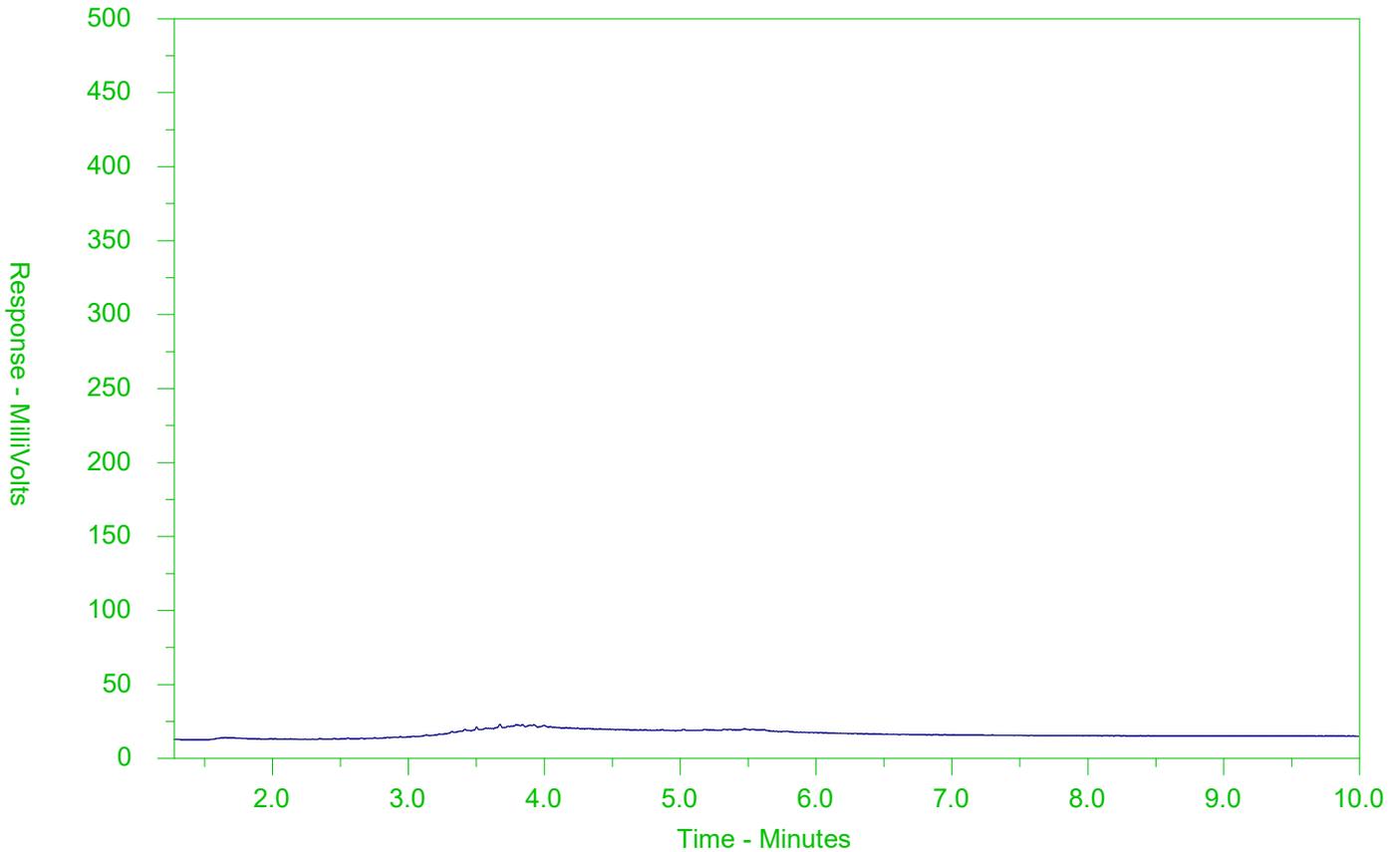
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2512641-10
 Client Sample ID: GS10



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

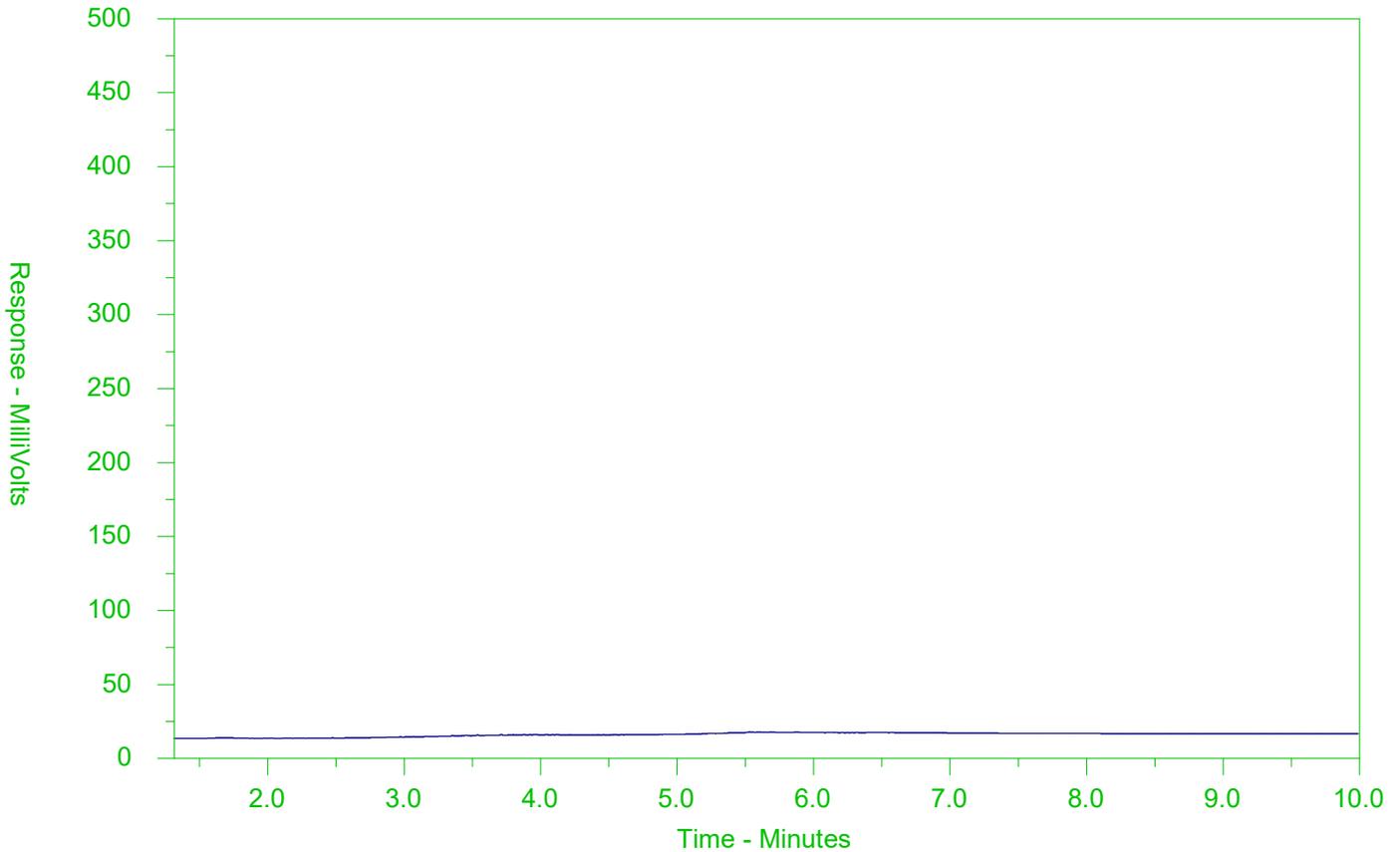
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2512641-11
 Client Sample ID: GS11



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

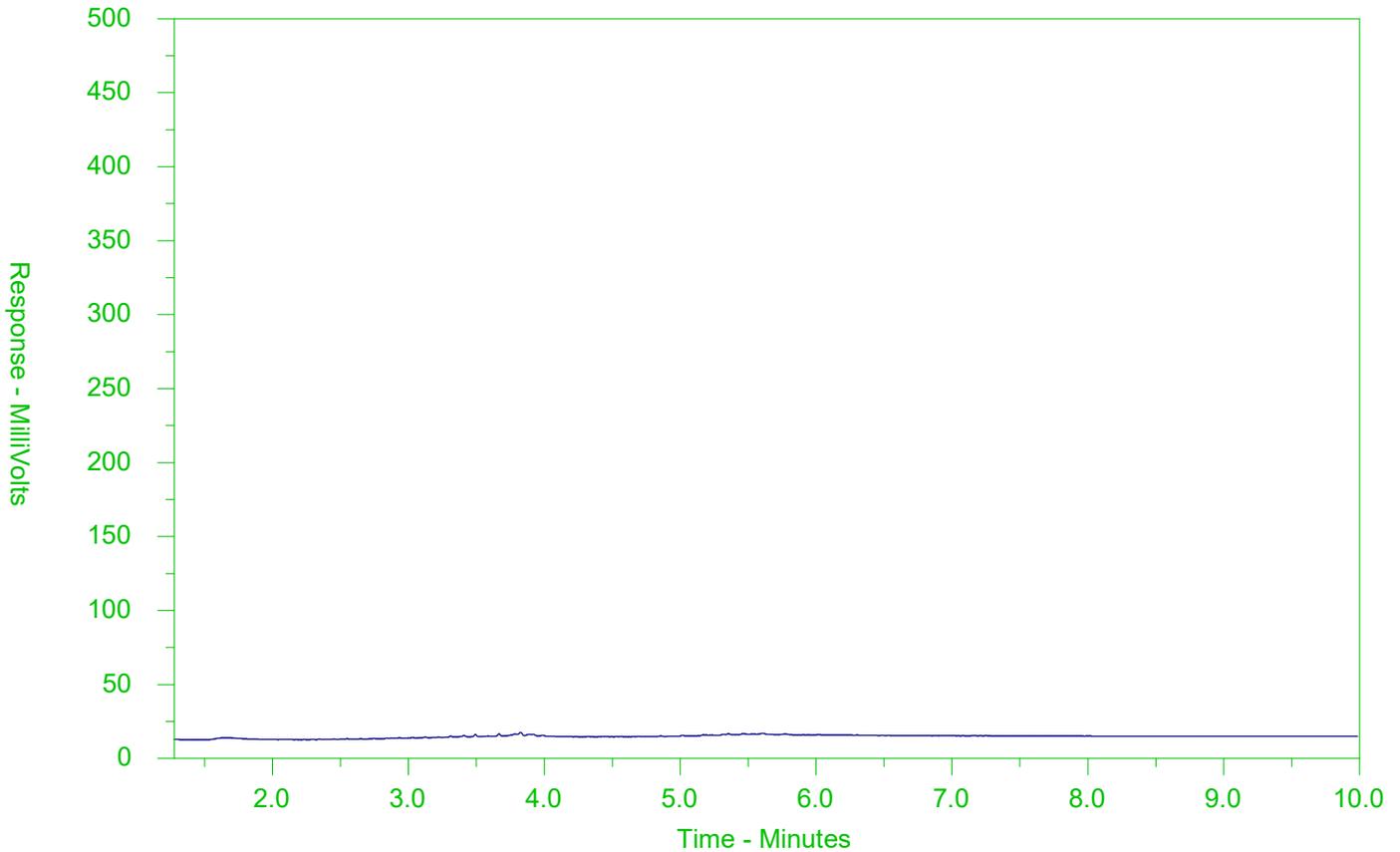
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2512641-12
 Client Sample ID: GS12



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com



L2512641-COFC

COC Number: 17 - 870029

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Report To
 Contact and company name below will appear on the final report
 Company: **WSP**
 Contact: **KENT MALCOLM**
 Phone: **905-333-0080**
 Company address below will appear on the final report
 Street: **561 BRYNE DR.**
 City/Province: **BARRIE ON**
 Postal Code: **L4N 9Y3**

Report Format / Distribution
 Select Report Format: PDF EXCEL EDD (DIGITAL)
 Quality Control (QC) Report with Report YES NO
 Compare Results to Criteria on Report - provide details below if box checked
 Select Distribution: EMAIL MAIL FAX
 Email 1 or Fax: **Kent.malcolm@wsp.com**
 Email 2: **jay.dolan@wsp.com**
 Email 3:

Invoice To
 Same as Report To YES NO
 Copy of Invoice with Report YES NO
 Company:
 Contact:
Project Information
 ALS Account # / Quote #: **ALS 082326**
 Job #: **181-07967-00**
 PO / A/E: **HERITAGE**
 LSD: **PD**

ALS Lab Work Order # (lab use only): **L2512641 PD**

ALS Contact: **KMT**

Oil and Gas Required Fields (client use)
 AFE/Cost Center:
 Major/Minor Code:
 Requisitioner:
 Location:
 Date: **03-10-20** Time: **AM** Sample Type: **SOIL**

Shipping Information
 Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
O. RES 153604

Drinking Water (DW) Samples* (client use)
 Are samples taken from a Regulated DW System? YES NO
 Are samples for human consumption/ use? YES NO

SHIPMENT RELEASE (client use)
 Released by: **[Signature]** Date: **OCT 5 20**
 Received by: **AJ Karampatakis** Date: **10/6/2020**

INITIAL SHIPMENT RECEPTION (lab use only)
 Received by:
 Date:
 Time:
 Initial Cooler Temperatures °C: **6.8**
 Final Cooler Temperatures °C:
 Frozen SIF Observations Yes No
 Ice Packs Ice Cubes Custody seal intact Yes No
 Cooling Initiated

ANALYSIS REQUEST
 Indicate Filtered (F), Preserved (P) or Filled and Preserved (FP) below
 NUMBER OF CONTAINERS: **5**
 SUSPECTED HAZARD (see Special Instructions): **SAMPLES ON HOLD**

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type
651				
652				
653				
654				
655				
656				
657				
658				
659				
6510				
6511				
6512				

Analysis Request
 For tests that can not be performed according to the service level selected, you will be contacted.
 Date and Time Required for all E&P TATs: dd-mm-yy hh:mm

SELECT SERVICE LEVEL BELOW - Contact your AM to confirm all E&P TATs (surcharges may apply)
 Regular (R) Standard TAT if received by 3 pm - business days - no surcharges apply
 1 Business day (E - 100%)
 Same Day, Weekend or Statutory holiday (E2 - 200% (Laboratory opening fees may apply))

EMERGENCY
 4 day (P4-20%)
 3 day (P3-25%)
 2 day (P2-50%)

Priority (Business Days)

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



WSP Canada Inc. (Barrie)
ATTN: Kent Malcolm
561 Bryne Drive
Unit C & D
Barrie ON L4N 9Y3

Date Received: 13-OCT-20
Report Date: 20-OCT-20 14:18 (MT)
Version: FINAL

Client Phone: 705-712-0174

Certificate of Analysis

Lab Work Order #: L2515508
Project P.O. #: HERITAGE
Job Reference: 181-07967-00
C of C Numbers: 17-870030, 17-870031, 17-870032
Legal Site Desc:

Emily Hansen
Account Manager

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ADDRESS: 5730 Coopers Avenue, Unit #26, Mississauga, ON L4Z 2E9 Canada | Phone: +1 905 507 6910 | Fax: +1 905 507 6927
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ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-1	GS13									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Physical Tests										
Conductivity		0.125		0.0040	mS/cm	20-OCT-20	0.57			
% Moisture		7.39		0.25	%	15-OCT-20				
pH		7.64		0.10	pH units	15-OCT-20				
Cyanides										
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										
SAR		0.56	SAR:M	0.10	SAR	20-OCT-20	2.4			
Calcium (Ca)		11.7		0.50	mg/L	20-OCT-20				
Magnesium (Mg)		<0.50		0.50	mg/L	20-OCT-20				
Sodium (Na)		6.95		0.50	mg/L	20-OCT-20				
Metals										
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3			
Arsenic (As)		1.1		1.0	ug/g	20-OCT-20	18			
Barium (Ba)		34.8		1.0	ug/g	20-OCT-20	220			
Beryllium (Be)		<0.50		0.50	ug/g	20-OCT-20	2.5			
Boron (B)		<5.0		5.0	ug/g	20-OCT-20	36			
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	20-OCT-20	36			
Cadmium (Cd)		<0.50		0.50	ug/g	20-OCT-20	1.2			
Chromium (Cr)		12.5		1.0	ug/g	20-OCT-20	70			
Cobalt (Co)		3.8		1.0	ug/g	20-OCT-20	21			
Copper (Cu)		5.6		1.0	ug/g	20-OCT-20	92			
Lead (Pb)		3.1		1.0	ug/g	20-OCT-20	120			
Mercury (Hg)		0.0104		0.0050	ug/g	20-OCT-20	0.27			
Molybdenum (Mo)		<1.0		1.0	ug/g	20-OCT-20	2			
Nickel (Ni)		6.3		1.0	ug/g	20-OCT-20	82			
Selenium (Se)		<1.0		1.0	ug/g	20-OCT-20	1.5			
Silver (Ag)		<0.20		0.20	ug/g	20-OCT-20	0.5			
Thallium (Tl)		<0.50		0.50	ug/g	20-OCT-20	1			
Uranium (U)		<1.0		1.0	ug/g	20-OCT-20	2.5			
Vanadium (V)		29.1		1.0	ug/g	20-OCT-20	86			
Zinc (Zn)		16.6		5.0	ug/g	20-OCT-20	290			
Speciated Metals										
Chromium, Hexavalent		<0.20		0.20	ug/g	19-OCT-20	0.66			
Volatile Organic Compounds										
Benzene		<0.0068		0.0068	ug/g	15-OCT-20	0.02			
Ethylbenzene		<0.018		0.018	ug/g	15-OCT-20	0.05			
Toluene		<0.080		0.080	ug/g	15-OCT-20	0.2			
o-Xylene		<0.020		0.020	ug/g	15-OCT-20				
m+p-Xylenes		<0.030		0.030	ug/g	15-OCT-20				
Xylenes (Total)		<0.050		0.050	ug/g	15-OCT-20	0.05			
Surrogate: 4-Bromofluorobenzene		121.8		50-140	%	15-OCT-20				
Surrogate: 1,4-Difluorobenzene		128.0		50-140	%	15-OCT-20				
Hydrocarbons										
F1 (C6-C10)		<5.0		5.0	ug/g	15-OCT-20	25			
F1-BTEX		<5.0		5.0	ug/g	16-OCT-20	25			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits				
Grouping	Analyte										
L2515508-1	GS13										
Sampled By: KMT on 09-OCT-20											
Matrix: SOIL											
Hydrocarbons											
F2 (C10-C16)		<10		10	ug/g	16-OCT-20	10				
F3 (C16-C34)		<50		50	ug/g	16-OCT-20	240				
F4 (C34-C50)		<50		50	ug/g	16-OCT-20	120				
Total Hydrocarbons (C6-C50)		<72		72	ug/g	16-OCT-20					
Chrom. to baseline at nC50		YES			No Unit	16-OCT-20					
Surrogate: 2-Bromobenzotrifluoride		80.2		60-140	%	16-OCT-20					
Surrogate: 3,4-Dichlorotoluene		111.0		60-140	%	15-OCT-20					
Organochlorine Pesticides											
Aldrin		<0.020		0.020	ug/g	20-OCT-20	0.05				
gamma-hexachlorocyclohexane		<0.010		0.010	ug/g	20-OCT-20	0.01				
a-chlordane		<0.020		0.020	ug/g	20-OCT-20					
Chlordane (Total)		<0.028		0.028	ug/g	20-OCT-20	0.05				
g-chlordane		<0.020		0.020	ug/g	20-OCT-20					
op-DDD		<0.020		0.020	ug/g	20-OCT-20					
pp-DDD		<0.020		0.020	ug/g	20-OCT-20					
Total DDD		<0.028		0.028	ug/g	20-OCT-20	0.05				
o,p-DDE		<0.020		0.020	ug/g	20-OCT-20					
pp-DDE		<0.020		0.020	ug/g	20-OCT-20					
Total DDE		<0.028		0.028	ug/g	20-OCT-20	0.05				
op-DDT		<0.020		0.020	ug/g	20-OCT-20					
pp-DDT		<0.020		0.020	ug/g	20-OCT-20					
Total DDT		<0.028		0.028	ug/g	20-OCT-20	1.4				
Dieldrin		<0.020		0.020	ug/g	20-OCT-20	0.05				
Endosulfan I		<0.020		0.020	ug/g	20-OCT-20					
Endosulfan II		<0.020		0.020	ug/g	20-OCT-20					
Endosulfan (Total)		<0.028		0.028	ug/g	20-OCT-20	0.04				
Endrin		<0.020		0.020	ug/g	20-OCT-20	0.04				
Heptachlor		<0.020		0.020	ug/g	20-OCT-20	0.05				
Heptachlor Epoxide		<0.020		0.020	ug/g	20-OCT-20	0.05				
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01				
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01				
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01				
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05				
Surrogate: 2-Fluorobiphenyl		71.0		50-140	%	20-OCT-20					
Surrogate: d14-Terphenyl		58.6		50-140	%	20-OCT-20					
L2515508-2	GS14										
Sampled By: KMT on 09-OCT-20											
Matrix: SOIL											
Physical Tests											
Conductivity		0.107		0.0040	mS/cm	20-OCT-20	0.57				
% Moisture		7.41		0.25	%	15-OCT-20					
pH		7.82		0.10	pH units	15-OCT-20					
Cyanides											
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051				
Saturated Paste Extractables											

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte						#1			
L2515508-2	GS14									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Saturated Paste Extractables										
	SAR	0.37	SAR:M	0.10	SAR	20-OCT-20	2.4			
	Calcium (Ca)	10.4		0.50	mg/L	20-OCT-20				
	Magnesium (Mg)	<0.50		0.50	mg/L	20-OCT-20				
	Sodium (Na)	4.31		0.50	mg/L	20-OCT-20				
Metals										
	Antimony (Sb)	<1.0		1.0	ug/g	20-OCT-20	1.3			
	Arsenic (As)	<1.0		1.0	ug/g	20-OCT-20	18			
	Barium (Ba)	24.7		1.0	ug/g	20-OCT-20	220			
	Beryllium (Be)	<0.50		0.50	ug/g	20-OCT-20	2.5			
	Boron (B)	<5.0		5.0	ug/g	20-OCT-20	36			
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	20-OCT-20	36			
	Cadmium (Cd)	<0.50		0.50	ug/g	20-OCT-20	1.2			
	Chromium (Cr)	9.3		1.0	ug/g	20-OCT-20	70			
	Cobalt (Co)	3.2		1.0	ug/g	20-OCT-20	21			
	Copper (Cu)	5.1		1.0	ug/g	20-OCT-20	92			
	Lead (Pb)	2.0		1.0	ug/g	20-OCT-20	120			
	Mercury (Hg)	<0.0050		0.0050	ug/g	20-OCT-20	0.27			
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20	2			
	Nickel (Ni)	5.4		1.0	ug/g	20-OCT-20	82			
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20	1.5			
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20	0.5			
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20	1			
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20	2.5			
	Vanadium (V)	23.9		1.0	ug/g	20-OCT-20	86			
	Zinc (Zn)	12.9		5.0	ug/g	20-OCT-20	290			
Speciated Metals										
	Chromium, Hexavalent	<0.20		0.20	ug/g	19-OCT-20	0.66			
Volatile Organic Compounds										
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02			
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05			
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2			
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20				
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20				
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05			
	Surrogate: 4-Bromofluorobenzene	113.8		50-140	%	15-OCT-20				
	Surrogate: 1,4-Difluorobenzene	118.8		50-140	%	15-OCT-20				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25			
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25			
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10			
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240			
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120			
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20				
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20				
	Surrogate: 2-Bromobenzotrifluoride	76.9		60-140	%	16-OCT-20				
	Surrogate: 3,4-Dichlorotoluene	104.9		60-140	%	15-OCT-20				

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* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-2	GS14									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Organochlorine Pesticides										
Aldrin		<0.020		0.020	ug/g	19-OCT-20	0.05			
gamma-hexachlorocyclohexane		<0.010		0.010	ug/g	19-OCT-20	0.01			
a-chlordane		<0.020		0.020	ug/g	19-OCT-20				
Chlordane (Total)		<0.028		0.028	ug/g	19-OCT-20	0.05			
g-chlordane		<0.020		0.020	ug/g	19-OCT-20				
op-DDD		<0.020		0.020	ug/g	19-OCT-20				
pp-DDD		<0.020		0.020	ug/g	19-OCT-20				
Total DDD		<0.028		0.028	ug/g	19-OCT-20	0.05			
o,p-DDE		<0.020		0.020	ug/g	19-OCT-20				
pp-DDE		<0.020		0.020	ug/g	19-OCT-20				
Total DDE		<0.028		0.028	ug/g	19-OCT-20	0.05			
op-DDT		<0.020		0.020	ug/g	19-OCT-20				
pp-DDT		<0.020		0.020	ug/g	19-OCT-20				
Total DDT		<0.028		0.028	ug/g	19-OCT-20	1.4			
Dieldrin		<0.020		0.020	ug/g	19-OCT-20	0.05			
Endosulfan I		<0.020		0.020	ug/g	19-OCT-20				
Endosulfan II		<0.020		0.020	ug/g	19-OCT-20				
Endosulfan (Total)		<0.028		0.028	ug/g	19-OCT-20	0.04			
Endrin		<0.020		0.020	ug/g	19-OCT-20	0.04			
Heptachlor		<0.020		0.020	ug/g	19-OCT-20	0.05			
Heptachlor Epoxide		<0.020		0.020	ug/g	19-OCT-20	0.05			
Hexachlorobenzene		<0.010		0.010	ug/g	19-OCT-20	0.01			
Hexachlorobutadiene		<0.010		0.010	ug/g	19-OCT-20	0.01			
Hexachloroethane		<0.010		0.010	ug/g	19-OCT-20	0.01			
Methoxychlor		<0.020		0.020	ug/g	19-OCT-20	0.05			
Surrogate: 2-Fluorobiphenyl		76.0		50-140	%	19-OCT-20				
Surrogate: d14-Terphenyl		70.1		50-140	%	19-OCT-20				
L2515508-3	GS15									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Physical Tests										
Conductivity		0.149		0.0040	mS/cm	20-OCT-20	0.57			
% Moisture		8.12		0.25	%	15-OCT-20				
pH		7.76		0.10	pH units	15-OCT-20				
Cyanides										
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										
SAR		0.48		0.10	SAR	20-OCT-20	2.4			
Calcium (Ca)		15.9		0.50	mg/L	20-OCT-20				
Magnesium (Mg)		0.55		0.50	mg/L	20-OCT-20				
Sodium (Na)		7.17		0.50	mg/L	20-OCT-20				
Metals										
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3			
Arsenic (As)		<1.0		1.0	ug/g	20-OCT-20	18			
Barium (Ba)		28.8		1.0	ug/g	20-OCT-20	220			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte						#1			
L2515508-3	GS15									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Metals										
	Beryllium (Be)	<0.50		0.50	ug/g	20-OCT-20	2.5			
	Boron (B)	<5.0		5.0	ug/g	20-OCT-20	36			
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	20-OCT-20	36			
	Cadmium (Cd)	<0.50		0.50	ug/g	20-OCT-20	1.2			
	Chromium (Cr)	10.0		1.0	ug/g	20-OCT-20	70			
	Cobalt (Co)	2.9		1.0	ug/g	20-OCT-20	21			
	Copper (Cu)	5.1		1.0	ug/g	20-OCT-20	92			
	Lead (Pb)	2.5		1.0	ug/g	20-OCT-20	120			
	Mercury (Hg)	0.0071		0.0050	ug/g	20-OCT-20	0.27			
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20	2			
	Nickel (Ni)	5.1		1.0	ug/g	20-OCT-20	82			
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20	1.5			
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20	0.5			
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20	1			
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20	2.5			
	Vanadium (V)	22.3		1.0	ug/g	20-OCT-20	86			
	Zinc (Zn)	14.3		5.0	ug/g	20-OCT-20	290			
Speciated Metals										
	Chromium, Hexavalent	<0.20		0.20	ug/g	19-OCT-20	0.66			
Volatile Organic Compounds										
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02			
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05			
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2			
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20				
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20				
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05			
	Surrogate: 4-Bromofluorobenzene	117.8		50-140	%	15-OCT-20				
	Surrogate: 1,4-Difluorobenzene	124.8		50-140	%	15-OCT-20				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25			
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25			
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10			
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240			
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120			
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20				
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20				
	Surrogate: 2-Bromobenzotrifluoride	80.2		60-140	%	16-OCT-20				
	Surrogate: 3,4-Dichlorotoluene	99.5		60-140	%	15-OCT-20				
Organochlorine Pesticides										
	Aldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20	0.05			
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	op-DDD	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-3	GS15									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Organochlorine Pesticides										
Total DDD		<0.028		0.028	ug/g	20-OCT-20	0.05			
o,p-DDE		<0.020		0.020	ug/g	20-OCT-20				
pp-DDE		<0.020		0.020	ug/g	20-OCT-20				
Total DDE		<0.028		0.028	ug/g	20-OCT-20	0.05			
op-DDT		<0.020		0.020	ug/g	20-OCT-20				
pp-DDT		<0.020		0.020	ug/g	20-OCT-20				
Total DDT		<0.028		0.028	ug/g	20-OCT-20	1.4			
Dieldrin		<0.020		0.020	ug/g	20-OCT-20	0.05			
Endosulfan I		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan II		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan (Total)		<0.028		0.028	ug/g	20-OCT-20	0.04			
Endrin		<0.020		0.020	ug/g	20-OCT-20	0.04			
Heptachlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Heptachlor Epoxide		<0.020		0.020	ug/g	20-OCT-20	0.05			
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01			
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Surrogate: 2-Fluorobiphenyl		76.5		50-140	%	20-OCT-20				
Surrogate: d14-Terphenyl		64.1		50-140	%	20-OCT-20				
L2515508-4	GS16									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Physical Tests										
Conductivity		0.167		0.0040	mS/cm	20-OCT-20	0.57			
% Moisture		9.40		0.25	%	16-OCT-20				
pH		7.67		0.10	pH units	15-OCT-20				
Cyanides										
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										
SAR		0.51		0.10	SAR	20-OCT-20	2.4			
Calcium (Ca)		18.9		0.50	mg/L	20-OCT-20				
Magnesium (Mg)		0.54		0.50	mg/L	20-OCT-20				
Sodium (Na)		8.19		0.50	mg/L	20-OCT-20				
Metals										
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3			
Arsenic (As)		1.2		1.0	ug/g	20-OCT-20	18			
Barium (Ba)		43.9		1.0	ug/g	20-OCT-20	220			
Beryllium (Be)		<0.50		0.50	ug/g	20-OCT-20	2.5			
Boron (B)		<5.0		5.0	ug/g	20-OCT-20	36			
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	20-OCT-20	36			
Cadmium (Cd)		<0.50		0.50	ug/g	20-OCT-20	1.2			
Chromium (Cr)		13.8		1.0	ug/g	20-OCT-20	70			
Cobalt (Co)		4.0		1.0	ug/g	20-OCT-20	21			
Copper (Cu)		6.5		1.0	ug/g	20-OCT-20	92			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2515508-4	GS16								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									#1
Metals									
	Lead (Pb)	3.5		1.0	ug/g	20-OCT-20			120
	Mercury (Hg)	0.0112		0.0050	ug/g	20-OCT-20			0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20			2
	Nickel (Ni)	7.3		1.0	ug/g	20-OCT-20			82
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20			1.5
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20			0.5
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20			1
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20			2.5
	Vanadium (V)	29.4		1.0	ug/g	20-OCT-20			86
	Zinc (Zn)	19.3		5.0	ug/g	20-OCT-20			290
Speciated Metals									
	Chromium, Hexavalent	0.28		0.20	ug/g	19-OCT-20			0.66
Volatile Organic Compounds									
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20			0.02
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20			0.05
	Toluene	<0.080		0.080	ug/g	15-OCT-20			0.2
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20			
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20			
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20			0.05
	Surrogate: 4-Bromofluorobenzene	114.3		50-140	%	15-OCT-20			
	Surrogate: 1,4-Difluorobenzene	121.6		50-140	%	15-OCT-20			
Hydrocarbons									
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20			25
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20			25
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20			10
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20			240
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20			120
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20			
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20			
	Surrogate: 2-Bromobenzotrifluoride	74.9		60-140	%	16-OCT-20			
	Surrogate: 3,4-Dichlorotoluene	103.1		60-140	%	15-OCT-20			
Organochlorine Pesticides									
	Aldrin	<0.020		0.020	ug/g	20-OCT-20			0.05
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20			0.01
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20			
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20			0.05
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20			
	op-DDD	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20			
	Total DDD	<0.028		0.028	ug/g	20-OCT-20			0.05
	o,p-DDE	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDE	<0.020		0.020	ug/g	20-OCT-20			
	Total DDE	<0.028		0.028	ug/g	20-OCT-20			0.05
	op-DDT	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDT	<0.020		0.020	ug/g	20-OCT-20			
	Total DDT	<0.028		0.028	ug/g	20-OCT-20			1.4

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2515508-4	GS16						#1			
Sampled By:	KMT on 09-OCT-20									
Matrix:	SOIL									
Organochlorine Pesticides										
	Dieldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Endosulfan I	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan II	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan (Total)	<0.028		0.028	ug/g	20-OCT-20	0.04			
	Endrin	<0.020		0.020	ug/g	20-OCT-20	0.04			
	Heptachlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Heptachlor Epoxide	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Hexachlorobenzene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachlorobutadiene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachloroethane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Methoxychlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Surrogate: 2-Fluorobiphenyl	80.0		50-140	%	20-OCT-20				
	Surrogate: d14-Terphenyl	76.2		50-140	%	20-OCT-20				
L2515508-5	GS17						#1			
Sampled By:	KMT on 09-OCT-20									
Matrix:	SOIL									
Physical Tests										
	Conductivity	0.170		0.0040	mS/cm	20-OCT-20	0.57			
	% Moisture	9.06		0.25	%	16-OCT-20				
	pH	7.74		0.10	pH units	15-OCT-20				
Cyanides										
	Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										
	SAR	0.57		0.10	SAR	20-OCT-20	2.4			
	Calcium (Ca)	18.3		0.50	mg/L	20-OCT-20				
	Magnesium (Mg)	0.65		0.50	mg/L	20-OCT-20				
	Sodium (Na)	9.06		0.50	mg/L	20-OCT-20				
Metals										
	Antimony (Sb)	<1.0		1.0	ug/g	20-OCT-20	1.3			
	Arsenic (As)	1.2		1.0	ug/g	20-OCT-20	18			
	Barium (Ba)	41.5		1.0	ug/g	20-OCT-20	220			
	Beryllium (Be)	<0.50		0.50	ug/g	20-OCT-20	2.5			
	Boron (B)	5.1		5.0	ug/g	20-OCT-20	36			
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	20-OCT-20	36			
	Cadmium (Cd)	<0.50		0.50	ug/g	20-OCT-20	1.2			
	Chromium (Cr)	13.2		1.0	ug/g	20-OCT-20	70			
	Cobalt (Co)	3.9		1.0	ug/g	20-OCT-20	21			
	Copper (Cu)	6.6		1.0	ug/g	20-OCT-20	92			
	Lead (Pb)	3.6		1.0	ug/g	20-OCT-20	120			
	Mercury (Hg)	0.0097		0.0050	ug/g	20-OCT-20	0.27			
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20	2			
	Nickel (Ni)	7.0		1.0	ug/g	20-OCT-20	82			
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20	1.5			
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20	0.5			
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20	1			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte						#1			
L2515508-5	GS17									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Metals										
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20	2.5			
	Vanadium (V)	28.4		1.0	ug/g	20-OCT-20	86			
	Zinc (Zn)	20.0		5.0	ug/g	20-OCT-20	290			
Speciated Metals										
	Chromium, Hexavalent	0.30		0.20	ug/g	19-OCT-20	0.66			
Volatile Organic Compounds										
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02			
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05			
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2			
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20				
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20				
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05			
	Surrogate: 4-Bromofluorobenzene	111.0		50-140	%	15-OCT-20				
	Surrogate: 1,4-Difluorobenzene	118.9		50-140	%	15-OCT-20				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25			
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25			
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10			
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240			
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120			
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20				
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20				
	Surrogate: 2-Bromobenzotrifluoride	75.9		60-140	%	16-OCT-20				
	Surrogate: 3,4-Dichlorotoluene	100.6		60-140	%	15-OCT-20				
Organochlorine Pesticides										
	Aldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20	0.05			
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	op-DDD	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20				
	Total DDD	<0.028		0.028	ug/g	20-OCT-20	0.05			
	o,p-DDE	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDE	<0.020		0.020	ug/g	20-OCT-20				
	Total DDE	<0.028		0.028	ug/g	20-OCT-20	0.05			
	op-DDT	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDT	<0.020		0.020	ug/g	20-OCT-20				
	Total DDT	<0.028		0.028	ug/g	20-OCT-20	1.4			
	Dieldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Endosulfan I	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan II	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan (Total)	<0.028		0.028	ug/g	20-OCT-20	0.04			
	Endrin	<0.020		0.020	ug/g	20-OCT-20	0.04			
	Heptachlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Heptachlor Epoxide	<0.020		0.020	ug/g	20-OCT-20	0.05			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2515508-5	GS17								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									
Organochlorine Pesticides									
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01		
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01		
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01		
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05		
Surrogate: 2-Fluorobiphenyl		75.7		50-140	%	20-OCT-20			
Surrogate: d14-Terphenyl		64.7		50-140	%	20-OCT-20			
L2515508-6	GS18								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									
Physical Tests									
Conductivity		0.165		0.0040	mS/cm	20-OCT-20	0.57		
% Moisture		8.32		0.25	%	16-OCT-20			
pH		7.78		0.10	pH units	15-OCT-20			
Cyanides									
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051		
Saturated Paste Extractables									
SAR		0.57		0.10	SAR	20-OCT-20	2.4		
Calcium (Ca)		17.0		0.50	mg/L	20-OCT-20			
Magnesium (Mg)		0.72		0.50	mg/L	20-OCT-20			
Sodium (Na)		8.80		0.50	mg/L	20-OCT-20			
Metals									
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3		
Arsenic (As)		1.0		1.0	ug/g	20-OCT-20	18		
Barium (Ba)		34.1		1.0	ug/g	20-OCT-20	220		
Beryllium (Be)		<0.50		0.50	ug/g	20-OCT-20	2.5		
Boron (B)		<5.0		5.0	ug/g	20-OCT-20	36		
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	20-OCT-20	36		
Cadmium (Cd)		<0.50		0.50	ug/g	20-OCT-20	1.2		
Chromium (Cr)		10.8		1.0	ug/g	20-OCT-20	70		
Cobalt (Co)		3.4		1.0	ug/g	20-OCT-20	21		
Copper (Cu)		5.9		1.0	ug/g	20-OCT-20	92		
Lead (Pb)		2.8		1.0	ug/g	20-OCT-20	120		
Mercury (Hg)		0.0078		0.0050	ug/g	20-OCT-20	0.27		
Molybdenum (Mo)		<1.0		1.0	ug/g	20-OCT-20	2		
Nickel (Ni)		5.9		1.0	ug/g	20-OCT-20	82		
Selenium (Se)		<1.0		1.0	ug/g	20-OCT-20	1.5		
Silver (Ag)		<0.20		0.20	ug/g	20-OCT-20	0.5		
Thallium (Tl)		<0.50		0.50	ug/g	20-OCT-20	1		
Uranium (U)		<1.0		1.0	ug/g	20-OCT-20	2.5		
Vanadium (V)		25.2		1.0	ug/g	20-OCT-20	86		
Zinc (Zn)		16.2		5.0	ug/g	20-OCT-20	290		
Speciated Metals									
Chromium, Hexavalent		<0.20		0.20	ug/g	19-OCT-20	0.66		
Volatile Organic Compounds									

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-6	GS18									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										#1
Volatile Organic Compounds										
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02			
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05			
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2			
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20				
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20				
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05			
	Surrogate: 4-Bromofluorobenzene	127.3		50-140	%	15-OCT-20				
	Surrogate: 1,4-Difluorobenzene	135.5		50-140	%	15-OCT-20				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25			
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25			
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10			
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240			
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120			
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20				
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20				
	Surrogate: 2-Bromobenzotrifluoride	87.8		60-140	%	16-OCT-20				
	Surrogate: 3,4-Dichlorotoluene	114.0		60-140	%	15-OCT-20				
Organochlorine Pesticides										
	Aldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20	0.05			
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	op-DDD	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20				
	Total DDD	<0.028		0.028	ug/g	20-OCT-20	0.05			
	o,p-DDE	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDE	<0.020		0.020	ug/g	20-OCT-20				
	Total DDE	<0.028		0.028	ug/g	20-OCT-20	0.05			
	op-DDT	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDT	<0.020		0.020	ug/g	20-OCT-20				
	Total DDT	<0.028		0.028	ug/g	20-OCT-20	1.4			
	Dieldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Endosulfan I	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan II	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan (Total)	<0.028		0.028	ug/g	20-OCT-20	0.04			
	Endrin	<0.020		0.020	ug/g	20-OCT-20	0.04			
	Heptachlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Heptachlor Epoxide	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Hexachlorobenzene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachlorobutadiene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachloroethane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Methoxychlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Surrogate: 2-Fluorobiphenyl	77.1		50-140	%	20-OCT-20				
	Surrogate: d14-Terphenyl	68.1		50-140	%	20-OCT-20				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte						#1			
L2515508-7	GS19									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Physical Tests										
Conductivity		0.254		0.0040	mS/cm	20-OCT-20	0.57			
% Moisture		11.7		0.25	%	16-OCT-20				
pH		7.69		0.10	pH units	15-OCT-20				
Cyanides										
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										
SAR		1.06		0.10	SAR	20-OCT-20	2.4			
Calcium (Ca)		26.1		0.50	mg/L	20-OCT-20				
Magnesium (Mg)		0.83		0.50	mg/L	20-OCT-20				
Sodium (Na)		20.1		0.50	mg/L	20-OCT-20				
Metals										
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3			
Arsenic (As)		1.3		1.0	ug/g	20-OCT-20	18			
Barium (Ba)		46.1		1.0	ug/g	20-OCT-20	220			
Beryllium (Be)		<0.50		0.50	ug/g	20-OCT-20	2.5			
Boron (B)		<5.0		5.0	ug/g	20-OCT-20	36			
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	20-OCT-20	36			
Cadmium (Cd)		<0.50		0.50	ug/g	20-OCT-20	1.2			
Chromium (Cr)		14.6		1.0	ug/g	20-OCT-20	70			
Cobalt (Co)		4.3		1.0	ug/g	20-OCT-20	21			
Copper (Cu)		7.7		1.0	ug/g	20-OCT-20	92			
Lead (Pb)		3.8		1.0	ug/g	20-OCT-20	120			
Mercury (Hg)		0.0118		0.0050	ug/g	20-OCT-20	0.27			
Molybdenum (Mo)		<1.0		1.0	ug/g	20-OCT-20	2			
Nickel (Ni)		7.8		1.0	ug/g	20-OCT-20	82			
Selenium (Se)		<1.0		1.0	ug/g	20-OCT-20	1.5			
Silver (Ag)		<0.20		0.20	ug/g	20-OCT-20	0.5			
Thallium (Tl)		<0.50		0.50	ug/g	20-OCT-20	1			
Uranium (U)		<1.0		1.0	ug/g	20-OCT-20	2.5			
Vanadium (V)		29.4		1.0	ug/g	20-OCT-20	86			
Zinc (Zn)		21.4		5.0	ug/g	20-OCT-20	290			
Speciated Metals										
Chromium, Hexavalent		0.26		0.20	ug/g	19-OCT-20	0.66			
Volatile Organic Compounds										
Benzene		<0.0068		0.0068	ug/g	15-OCT-20	0.02			
Ethylbenzene		<0.018		0.018	ug/g	15-OCT-20	0.05			
Toluene		<0.080		0.080	ug/g	15-OCT-20	0.2			
o-Xylene		<0.020		0.020	ug/g	15-OCT-20				
m+p-Xylenes		<0.030		0.030	ug/g	15-OCT-20				
Xylenes (Total)		<0.050		0.050	ug/g	15-OCT-20	0.05			
Surrogate: 4-Bromofluorobenzene		114.8		50-140	%	15-OCT-20				
Surrogate: 1,4-Difluorobenzene		120.8		50-140	%	15-OCT-20				
Hydrocarbons										
F1 (C6-C10)		<5.0		5.0	ug/g	15-OCT-20	25			
F1-BTEX		<5.0		5.0	ug/g	16-OCT-20	25			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-7	GS19									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Hydrocarbons										
F2 (C10-C16)		<10		10	ug/g	16-OCT-20	10			
F3 (C16-C34)		<50		50	ug/g	16-OCT-20	240			
F4 (C34-C50)		<50		50	ug/g	16-OCT-20	120			
Total Hydrocarbons (C6-C50)		<72		72	ug/g	16-OCT-20				
Chrom. to baseline at nC50		YES			No Unit	16-OCT-20				
Surrogate: 2-Bromobenzotrifluoride		83.7		60-140	%	16-OCT-20				
Surrogate: 3,4-Dichlorotoluene		101.1		60-140	%	15-OCT-20				
Organochlorine Pesticides										
Aldrin		<0.020		0.020	ug/g	20-OCT-20	0.05			
gamma-hexachlorocyclohexane		<0.010		0.010	ug/g	20-OCT-20	0.01			
a-chlordane		<0.020		0.020	ug/g	20-OCT-20				
Chlordane (Total)		<0.028		0.028	ug/g	20-OCT-20	0.05			
g-chlordane		<0.020		0.020	ug/g	20-OCT-20				
op-DDD		<0.020		0.020	ug/g	20-OCT-20				
pp-DDD		<0.020		0.020	ug/g	20-OCT-20				
Total DDD		<0.028		0.028	ug/g	20-OCT-20	0.05			
o,p-DDE		<0.020		0.020	ug/g	20-OCT-20				
pp-DDE		<0.020		0.020	ug/g	20-OCT-20				
Total DDE		<0.028		0.028	ug/g	20-OCT-20	0.05			
op-DDT		<0.020		0.020	ug/g	20-OCT-20				
pp-DDT		<0.020		0.020	ug/g	20-OCT-20				
Total DDT		<0.028		0.028	ug/g	20-OCT-20	1.4			
Dieldrin		<0.020		0.020	ug/g	20-OCT-20	0.05			
Endosulfan I		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan II		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan (Total)		<0.028		0.028	ug/g	20-OCT-20	0.04			
Endrin		<0.020		0.020	ug/g	20-OCT-20	0.04			
Heptachlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Heptachlor Epoxide		<0.020		0.020	ug/g	20-OCT-20	0.05			
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01			
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Surrogate: 2-Fluorobiphenyl		78.2		50-140	%	20-OCT-20				
Surrogate: d14-Terphenyl		67.0		50-140	%	20-OCT-20				
L2515508-8	GS20									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Physical Tests										
Conductivity		0.162		0.0040	mS/cm	20-OCT-20	0.57			
% Moisture		8.92		0.25	%	16-OCT-20				
pH		7.78		0.10	pH units	15-OCT-20				
Cyanides										
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte						#1			
L2515508-8	GS20									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Saturated Paste Extractables										
	SAR	0.58	SAR:M	0.10	SAR	20-OCT-20	2.4			
	Calcium (Ca)	16.8		0.50	mg/L	20-OCT-20				
	Magnesium (Mg)	<0.50		0.50	mg/L	20-OCT-20				
	Sodium (Na)	8.63		0.50	mg/L	20-OCT-20				
Metals										
	Antimony (Sb)	<1.0		1.0	ug/g	20-OCT-20	1.3			
	Arsenic (As)	1.2		1.0	ug/g	20-OCT-20	18			
	Barium (Ba)	41.5		1.0	ug/g	20-OCT-20	220			
	Beryllium (Be)	<0.50		0.50	ug/g	20-OCT-20	2.5			
	Boron (B)	<5.0		5.0	ug/g	20-OCT-20	36			
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	20-OCT-20	36			
	Cadmium (Cd)	<0.50		0.50	ug/g	20-OCT-20	1.2			
	Chromium (Cr)	11.7		1.0	ug/g	20-OCT-20	70			
	Cobalt (Co)	3.8		1.0	ug/g	20-OCT-20	21			
	Copper (Cu)	6.7		1.0	ug/g	20-OCT-20	92			
	Lead (Pb)	3.0		1.0	ug/g	20-OCT-20	120			
	Mercury (Hg)	0.0084		0.0050	ug/g	20-OCT-20	0.27			
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20	2			
	Nickel (Ni)	6.6		1.0	ug/g	20-OCT-20	82			
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20	1.5			
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20	0.5			
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20	1			
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20	2.5			
	Vanadium (V)	28.0		1.0	ug/g	20-OCT-20	86			
	Zinc (Zn)	19.3		5.0	ug/g	20-OCT-20	290			
Speciated Metals										
	Chromium, Hexavalent	<0.20		0.20	ug/g	19-OCT-20	0.66			
Volatile Organic Compounds										
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02			
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05			
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2			
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20				
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20				
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05			
	Surrogate: 4-Bromofluorobenzene	104.3		50-140	%	15-OCT-20				
	Surrogate: 1,4-Difluorobenzene	110.4		50-140	%	15-OCT-20				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25			
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25			
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10			
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240			
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120			
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20				
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20				
	Surrogate: 2-Bromobenzotrifluoride	80.2		60-140	%	16-OCT-20				
	Surrogate: 3,4-Dichlorotoluene	99.1		60-140	%	15-OCT-20				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-8	GS20									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Organochlorine Pesticides										
Aldrin		<0.020		0.020	ug/g	20-OCT-20	0.05			
gamma-hexachlorocyclohexane		<0.010		0.010	ug/g	20-OCT-20	0.01			
a-chlordane		<0.020		0.020	ug/g	20-OCT-20				
Chlordane (Total)		<0.028		0.028	ug/g	20-OCT-20	0.05			
g-chlordane		<0.020		0.020	ug/g	20-OCT-20				
op-DDD		<0.020		0.020	ug/g	20-OCT-20				
pp-DDD		<0.020		0.020	ug/g	20-OCT-20				
Total DDD		<0.028		0.028	ug/g	20-OCT-20	0.05			
o,p-DDE		<0.020		0.020	ug/g	20-OCT-20				
pp-DDE		<0.020		0.020	ug/g	20-OCT-20				
Total DDE		<0.028		0.028	ug/g	20-OCT-20	0.05			
op-DDT		<0.020		0.020	ug/g	20-OCT-20				
pp-DDT		<0.020		0.020	ug/g	20-OCT-20				
Total DDT		<0.028		0.028	ug/g	20-OCT-20	1.4			
Dieldrin		<0.020		0.020	ug/g	20-OCT-20	0.05			
Endosulfan I		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan II		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan (Total)		<0.028		0.028	ug/g	20-OCT-20	0.04			
Endrin		<0.020		0.020	ug/g	20-OCT-20	0.04			
Heptachlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Heptachlor Epoxide		<0.020		0.020	ug/g	20-OCT-20	0.05			
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01			
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Surrogate: 2-Fluorobiphenyl		76.6		50-140	%	20-OCT-20				
Surrogate: d14-Terphenyl		76.5		50-140	%	20-OCT-20				
L2515508-9	GS21									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Physical Tests										
Conductivity		0.155		0.0040	mS/cm	20-OCT-20	0.57			
% Moisture		9.21		0.25	%	16-OCT-20				
pH		7.77		0.10	pH units	15-OCT-20				
Cyanides										
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										
SAR		0.39		0.10	SAR	20-OCT-20	2.4			
Calcium (Ca)		16.6		0.50	mg/L	20-OCT-20				
Magnesium (Mg)		0.51		0.50	mg/L	20-OCT-20				
Sodium (Na)		5.85		0.50	mg/L	20-OCT-20				
Metals										
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3			
Arsenic (As)		1.1		1.0	ug/g	20-OCT-20	18			
Barium (Ba)		40.2		1.0	ug/g	20-OCT-20	220			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte						#1			
L2515508-9	GS21									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Metals										
	Beryllium (Be)	<0.50		0.50	ug/g	20-OCT-20	2.5			
	Boron (B)	<5.0		5.0	ug/g	20-OCT-20	36			
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	20-OCT-20	36			
	Cadmium (Cd)	<0.50		0.50	ug/g	20-OCT-20	1.2			
	Chromium (Cr)	13.1		1.0	ug/g	20-OCT-20	70			
	Cobalt (Co)	3.8		1.0	ug/g	20-OCT-20	21			
	Copper (Cu)	6.6		1.0	ug/g	20-OCT-20	92			
	Lead (Pb)	3.1		1.0	ug/g	20-OCT-20	120			
	Mercury (Hg)	0.0085		0.0050	ug/g	20-OCT-20	0.27			
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20	2			
	Nickel (Ni)	6.9		1.0	ug/g	20-OCT-20	82			
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20	1.5			
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20	0.5			
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20	1			
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20	2.5			
	Vanadium (V)	30.3		1.0	ug/g	20-OCT-20	86			
	Zinc (Zn)	17.8		5.0	ug/g	20-OCT-20	290			
Speciated Metals										
	Chromium, Hexavalent	0.22		0.20	ug/g	19-OCT-20	0.66			
Volatile Organic Compounds										
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02			
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05			
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2			
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20				
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20				
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05			
	Surrogate: 4-Bromofluorobenzene	111.5		50-140	%	15-OCT-20				
	Surrogate: 1,4-Difluorobenzene	117.2		50-140	%	15-OCT-20				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25			
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25			
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10			
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240			
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120			
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20				
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20				
	Surrogate: 2-Bromobenzotrifluoride	88.0		60-140	%	16-OCT-20				
	Surrogate: 3,4-Dichlorotoluene	97.6		60-140	%	15-OCT-20				
Organochlorine Pesticides										
	Aldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20	0.05			
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	op-DDD	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-9	GS21									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Organochlorine Pesticides										
Total DDD		<0.028		0.028	ug/g	20-OCT-20	0.05			
o,p-DDE		<0.020		0.020	ug/g	20-OCT-20				
pp-DDE		<0.020		0.020	ug/g	20-OCT-20				
Total DDE		<0.028		0.028	ug/g	20-OCT-20	0.05			
op-DDT		<0.020		0.020	ug/g	20-OCT-20				
pp-DDT		<0.020		0.020	ug/g	20-OCT-20				
Total DDT		<0.028		0.028	ug/g	20-OCT-20	1.4			
Dieldrin		<0.020		0.020	ug/g	20-OCT-20	0.05			
Endosulfan I		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan II		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan (Total)		<0.028		0.028	ug/g	20-OCT-20	0.04			
Endrin		<0.020		0.020	ug/g	20-OCT-20	0.04			
Heptachlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Heptachlor Epoxide		<0.020		0.020	ug/g	20-OCT-20	0.05			
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01			
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Surrogate: 2-Fluorobiphenyl		80.2		50-140	%	20-OCT-20				
Surrogate: d14-Terphenyl		66.6		50-140	%	20-OCT-20				
L2515508-10	GS22									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Physical Tests										
Conductivity		0.136		0.0040	mS/cm	20-OCT-20	0.57			
% Moisture		8.96		0.25	%	16-OCT-20				
pH		7.75		0.10	pH units	15-OCT-20				
Cyanides										
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										
SAR		0.36	SAR:M	0.10	SAR	20-OCT-20	2.4			
Calcium (Ca)		15.2		0.50	mg/L	20-OCT-20				
Magnesium (Mg)		<0.50		0.50	mg/L	20-OCT-20				
Sodium (Na)		5.11		0.50	mg/L	20-OCT-20				
Metals										
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3			
Arsenic (As)		1.1		1.0	ug/g	20-OCT-20	18			
Barium (Ba)		39.1		1.0	ug/g	20-OCT-20	220			
Beryllium (Be)		<0.50		0.50	ug/g	20-OCT-20	2.5			
Boron (B)		<5.0		5.0	ug/g	20-OCT-20	36			
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	20-OCT-20	36			
Cadmium (Cd)		<0.50		0.50	ug/g	20-OCT-20	1.2			
Chromium (Cr)		12.2		1.0	ug/g	20-OCT-20	70			
Cobalt (Co)		3.9		1.0	ug/g	20-OCT-20	21			
Copper (Cu)		6.7		1.0	ug/g	20-OCT-20	92			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2515508-10	GS22								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									#1
Metals									
	Lead (Pb)	3.0		1.0	ug/g	20-OCT-20			120
	Mercury (Hg)	0.0090		0.0050	ug/g	20-OCT-20			0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20			2
	Nickel (Ni)	6.8		1.0	ug/g	20-OCT-20			82
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20			1.5
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20			0.5
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20			1
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20			2.5
	Vanadium (V)	27.0		1.0	ug/g	20-OCT-20			86
	Zinc (Zn)	18.1		5.0	ug/g	20-OCT-20			290
Speciated Metals									
	Chromium, Hexavalent	0.26		0.20	ug/g	19-OCT-20			0.66
Volatile Organic Compounds									
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20			0.02
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20			0.05
	Toluene	<0.080		0.080	ug/g	15-OCT-20			0.2
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20			
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20			
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20			0.05
	Surrogate: 4-Bromofluorobenzene	110.1		50-140	%	15-OCT-20			
	Surrogate: 1,4-Difluorobenzene	115.8		50-140	%	15-OCT-20			
Hydrocarbons									
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20			25
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20			25
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20			10
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20			240
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20			120
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20			
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20			
	Surrogate: 2-Bromobenzotrifluoride	81.3		60-140	%	16-OCT-20			
	Surrogate: 3,4-Dichlorotoluene	107.5		60-140	%	15-OCT-20			
Organochlorine Pesticides									
	Aldrin	<0.020		0.020	ug/g	20-OCT-20			0.05
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20			0.01
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20			
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20			0.05
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20			
	op-DDD	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20			
	Total DDD	<0.028		0.028	ug/g	20-OCT-20			0.05
	o,p-DDE	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDE	<0.020		0.020	ug/g	20-OCT-20			
	Total DDE	<0.028		0.028	ug/g	20-OCT-20			0.05
	op-DDT	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDT	<0.020		0.020	ug/g	20-OCT-20			
	Total DDT	<0.028		0.028	ug/g	20-OCT-20			1.4

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

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T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2515508-10	GS22						#1			
Sampled By:	KMT on 09-OCT-20									
Matrix:	SOIL									
Organochlorine Pesticides										
	Dieldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Endosulfan I	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan II	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan (Total)	<0.028		0.028	ug/g	20-OCT-20	0.04			
	Endrin	<0.020		0.020	ug/g	20-OCT-20	0.04			
	Heptachlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Heptachlor Epoxide	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Hexachlorobenzene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachlorobutadiene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachloroethane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Methoxychlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Surrogate: 2-Fluorobiphenyl	77.5		50-140	%	20-OCT-20				
	Surrogate: d14-Terphenyl	74.0		50-140	%	20-OCT-20				
L2515508-11	GS23						#1			
Sampled By:	KMT on 09-OCT-20									
Matrix:	SOIL									
Physical Tests										
	Conductivity	0.160		0.0040	mS/cm	20-OCT-20	0.57			
	% Moisture	10.2		0.25	%	16-OCT-20				
	pH	7.75		0.10	pH units	15-OCT-20				
Cyanides										
	Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										
	SAR	0.44	SAR:M	0.10	SAR	20-OCT-20	2.4			
	Calcium (Ca)	18.0		0.50	mg/L	20-OCT-20				
	Magnesium (Mg)	<0.50		0.50	mg/L	20-OCT-20				
	Sodium (Na)	6.83		0.50	mg/L	20-OCT-20				
Metals										
	Antimony (Sb)	<1.0		1.0	ug/g	20-OCT-20	1.3			
	Arsenic (As)	1.6		1.0	ug/g	20-OCT-20	18			
	Barium (Ba)	62.6		1.0	ug/g	20-OCT-20	220			
	Beryllium (Be)	<0.50		0.50	ug/g	20-OCT-20	2.5			
	Boron (B)	6.5		5.0	ug/g	20-OCT-20	36			
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	20-OCT-20	36			
	Cadmium (Cd)	<0.50		0.50	ug/g	20-OCT-20	1.2			
	Chromium (Cr)	17.6		1.0	ug/g	20-OCT-20	70			
	Cobalt (Co)	5.2		1.0	ug/g	20-OCT-20	21			
	Copper (Cu)	10.1		1.0	ug/g	20-OCT-20	92			
	Lead (Pb)	4.4		1.0	ug/g	20-OCT-20	120			
	Mercury (Hg)	0.0145		0.0050	ug/g	20-OCT-20	0.27			
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20	2			
	Nickel (Ni)	10.4		1.0	ug/g	20-OCT-20	82			
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20	1.5			
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20	0.5			
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20	1			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Table with columns: Sample Details Grouping, Analyte, Result, Qualifier, D.L., Units, Analyzed, Guideline Limits. Rows include Metals (Uranium, Vanadium, Zinc), Speciated Metals (Chromium), Volatile Organic Compounds (Benzene, Ethylbenzene, Toluene, Xylenes), Hydrocarbons (F1-F4, Total Hydrocarbons), and Organochlorine Pesticides (Aldrin, Chlordane, DDD, DDE, DDT, Endosulfan, Heptachlor).

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2515508-11	GS23								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									
Organochlorine Pesticides									
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01		
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01		
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01		
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05		
Surrogate: 2-Fluorobiphenyl		76.4		50-140	%	20-OCT-20			
Surrogate: d14-Terphenyl		63.6		50-140	%	20-OCT-20			
L2515508-12	GS24								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									
Physical Tests									
Conductivity		0.118		0.0040	mS/cm	20-OCT-20	0.57		
% Moisture		10.2		0.25	%	16-OCT-20			
pH		7.73		0.10	pH units	15-OCT-20			
Cyanides									
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051		
Saturated Paste Extractables									
SAR		0.21	SAR:M	0.10	SAR	20-OCT-20	2.4		
Calcium (Ca)		13.6		0.50	mg/L	20-OCT-20			
Magnesium (Mg)		<0.50		0.50	mg/L	20-OCT-20			
Sodium (Na)		2.79		0.50	mg/L	20-OCT-20			
Metals									
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3		
Arsenic (As)		1.0		1.0	ug/g	20-OCT-20	18		
Barium (Ba)		37.8		1.0	ug/g	20-OCT-20	220		
Beryllium (Be)		<0.50		0.50	ug/g	20-OCT-20	2.5		
Boron (B)		<5.0		5.0	ug/g	20-OCT-20	36		
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	20-OCT-20	36		
Cadmium (Cd)		<0.50		0.50	ug/g	20-OCT-20	1.2		
Chromium (Cr)		11.2		1.0	ug/g	20-OCT-20	70		
Cobalt (Co)		3.6		1.0	ug/g	20-OCT-20	21		
Copper (Cu)		6.4		1.0	ug/g	20-OCT-20	92		
Lead (Pb)		2.6		1.0	ug/g	20-OCT-20	120		
Mercury (Hg)		0.0068		0.0050	ug/g	20-OCT-20	0.27		
Molybdenum (Mo)		<1.0		1.0	ug/g	20-OCT-20	2		
Nickel (Ni)		6.5		1.0	ug/g	20-OCT-20	82		
Selenium (Se)		<1.0		1.0	ug/g	20-OCT-20	1.5		
Silver (Ag)		<0.20		0.20	ug/g	20-OCT-20	0.5		
Thallium (Tl)		<0.50		0.50	ug/g	20-OCT-20	1		
Uranium (U)		<1.0		1.0	ug/g	20-OCT-20	2.5		
Vanadium (V)		24.5		1.0	ug/g	20-OCT-20	86		
Zinc (Zn)		17.0		5.0	ug/g	20-OCT-20	290		
Speciated Metals									
Chromium, Hexavalent		<0.20		0.20	ug/g	19-OCT-20	0.66		
Volatile Organic Compounds									

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte						#1			
L2515508-12	GS24									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Volatile Organic Compounds										
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02			
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05			
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2			
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20				
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20				
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05			
	Surrogate: 4-Bromofluorobenzene	107.3		50-140	%	15-OCT-20				
	Surrogate: 1,4-Difluorobenzene	114.5		50-140	%	15-OCT-20				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25			
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25			
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10			
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240			
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120			
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20				
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20				
	Surrogate: 2-Bromobenzotrifluoride	80.2		60-140	%	16-OCT-20				
	Surrogate: 3,4-Dichlorotoluene	98.1		60-140	%	15-OCT-20				
Organochlorine Pesticides										
	Aldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20	0.05			
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	op-DDD	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20				
	Total DDD	<0.028		0.028	ug/g	20-OCT-20	0.05			
	o,p-DDE	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDE	<0.020		0.020	ug/g	20-OCT-20				
	Total DDE	<0.028		0.028	ug/g	20-OCT-20	0.05			
	op-DDT	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDT	<0.020		0.020	ug/g	20-OCT-20				
	Total DDT	<0.028		0.028	ug/g	20-OCT-20	1.4			
	Dieldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Endosulfan I	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan II	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan (Total)	<0.028		0.028	ug/g	20-OCT-20	0.04			
	Endrin	<0.020		0.020	ug/g	20-OCT-20	0.04			
	Heptachlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Heptachlor Epoxide	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Hexachlorobenzene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachlorobutadiene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachloroethane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Methoxychlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Surrogate: 2-Fluorobiphenyl	71.9		50-140	%	20-OCT-20				
	Surrogate: d14-Terphenyl	66.8		50-140	%	20-OCT-20				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits							
Grouping	Analyte													
L2515508-13	GS25													
Sampled By: KMT on 09-OCT-20														
Matrix: SOIL														
Physical Tests														
Conductivity		0.117		0.0040	mS/cm	20-OCT-20	0.57							
% Moisture		9.08		0.25	%	16-OCT-20								
pH		7.77		0.10	pH units	15-OCT-20								
Cyanides														
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051							
Saturated Paste Extractables														
SAR		0.24	SAR:M	0.10	SAR	20-OCT-20	2.4							
Calcium (Ca)		13.3		0.50	mg/L	20-OCT-20								
Magnesium (Mg)		<0.50		0.50	mg/L	20-OCT-20								
Sodium (Na)		3.13		0.50	mg/L	20-OCT-20								
Metals														
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3							
Arsenic (As)		1.1		1.0	ug/g	20-OCT-20	18							
Barium (Ba)		39.3		1.0	ug/g	20-OCT-20	220							
Beryllium (Be)		<0.50		0.50	ug/g	20-OCT-20	2.5							
Boron (B)		<5.0		5.0	ug/g	20-OCT-20	36							
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	20-OCT-20	36							
Cadmium (Cd)		<0.50		0.50	ug/g	20-OCT-20	1.2							
Chromium (Cr)		13.5		1.0	ug/g	20-OCT-20	70							
Cobalt (Co)		4.1		1.0	ug/g	20-OCT-20	21							
Copper (Cu)		6.7		1.0	ug/g	20-OCT-20	92							
Lead (Pb)		3.2		1.0	ug/g	20-OCT-20	120							
Mercury (Hg)		0.0111		0.0050	ug/g	20-OCT-20	0.27							
Molybdenum (Mo)		<1.0		1.0	ug/g	20-OCT-20	2							
Nickel (Ni)		7.5		1.0	ug/g	20-OCT-20	82							
Selenium (Se)		<1.0		1.0	ug/g	20-OCT-20	1.5							
Silver (Ag)		<0.20		0.20	ug/g	20-OCT-20	0.5							
Thallium (Tl)		<0.50		0.50	ug/g	20-OCT-20	1							
Uranium (U)		<1.0		1.0	ug/g	20-OCT-20	2.5							
Vanadium (V)		30.9		1.0	ug/g	20-OCT-20	86							
Zinc (Zn)		18.1		5.0	ug/g	20-OCT-20	290							
Speciated Metals														
Chromium, Hexavalent		<0.20		0.20	ug/g	19-OCT-20	0.66							
Volatile Organic Compounds														
Benzene		<0.0068		0.0068	ug/g	15-OCT-20	0.02							
Ethylbenzene		<0.018		0.018	ug/g	15-OCT-20	0.05							
Toluene		<0.080		0.080	ug/g	15-OCT-20	0.2							
o-Xylene		<0.020		0.020	ug/g	15-OCT-20								
m+p-Xylenes		<0.030		0.030	ug/g	15-OCT-20								
Xylenes (Total)		<0.050		0.050	ug/g	15-OCT-20	0.05							
Surrogate: 4-Bromofluorobenzene		115.6		50-140	%	15-OCT-20								
Surrogate: 1,4-Difluorobenzene		123.8		50-140	%	15-OCT-20								
Hydrocarbons														
F1 (C6-C10)		<5.0		5.0	ug/g	15-OCT-20	25							
F1-BTEX		<5.0		5.0	ug/g	16-OCT-20	25							

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits						
L2515508-13	GS25						#1						
Sampled By:	KMT on 09-OCT-20												
Matrix:	SOIL												
Hydrocarbons													
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10						
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240						
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120						
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20							
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20							
	Surrogate: 2-Bromobenzotrifluoride	87.8		60-140	%	16-OCT-20							
	Surrogate: 3,4-Dichlorotoluene	98.3		60-140	%	15-OCT-20							
Organochlorine Pesticides													
	Aldrin	<0.020		0.020	ug/g	20-OCT-20	0.05						
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20	0.01						
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20							
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20	0.05						
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20							
	op-DDD	<0.020		0.020	ug/g	20-OCT-20							
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20							
	Total DDD	<0.028		0.028	ug/g	20-OCT-20	0.05						
	o,p-DDE	<0.020		0.020	ug/g	20-OCT-20							
	pp-DDE	<0.020		0.020	ug/g	20-OCT-20							
	Total DDE	<0.028		0.028	ug/g	20-OCT-20	0.05						
	op-DDT	<0.020		0.020	ug/g	20-OCT-20							
	pp-DDT	<0.020		0.020	ug/g	20-OCT-20							
	Total DDT	<0.028		0.028	ug/g	20-OCT-20	1.4						
	Dieldrin	<0.020		0.020	ug/g	20-OCT-20	0.05						
	Endosulfan I	<0.020		0.020	ug/g	20-OCT-20							
	Endosulfan II	<0.020		0.020	ug/g	20-OCT-20							
	Endosulfan (Total)	<0.028		0.028	ug/g	20-OCT-20	0.04						
	Endrin	<0.020		0.020	ug/g	20-OCT-20	0.04						
	Heptachlor	<0.020		0.020	ug/g	20-OCT-20	0.05						
	Heptachlor Epoxide	<0.020		0.020	ug/g	20-OCT-20	0.05						
	Hexachlorobenzene	<0.010		0.010	ug/g	20-OCT-20	0.01						
	Hexachlorobutadiene	<0.010		0.010	ug/g	20-OCT-20	0.01						
	Hexachloroethane	<0.010		0.010	ug/g	20-OCT-20	0.01						
	Methoxychlor	<0.020		0.020	ug/g	20-OCT-20	0.05						
	Surrogate: 2-Fluorobiphenyl	72.4		50-140	%	20-OCT-20							
	Surrogate: d14-Terphenyl	68.5		50-140	%	20-OCT-20							
L2515508-14	GS26						#1						
Sampled By:	KMT on 09-OCT-20												
Matrix:	SOIL												
Physical Tests													
	Conductivity	0.130		0.0040	mS/cm	20-OCT-20	0.57						
	% Moisture	8.22		0.25	%	16-OCT-20							
	pH	7.87		0.10	pH units	15-OCT-20							
Cyanides													
	Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	16-OCT-20	0.051						
Saturated Paste Extractables													

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte						#1			
L2515508-14	GS26									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Saturated Paste Extractables										
	SAR	0.69	SAR:M	0.10	SAR	20-OCT-20	2.4			
	Calcium (Ca)	11.3		0.50	mg/L	20-OCT-20				
	Magnesium (Mg)	<0.50		0.50	mg/L	20-OCT-20				
	Sodium (Na)	8.39		0.50	mg/L	20-OCT-20				
Metals										
	Antimony (Sb)	<1.0		1.0	ug/g	20-OCT-20	1.3			
	Arsenic (As)	<1.0		1.0	ug/g	20-OCT-20	18			
	Barium (Ba)	31.6		1.0	ug/g	20-OCT-20	220			
	Beryllium (Be)	<0.50		0.50	ug/g	20-OCT-20	2.5			
	Boron (B)	<5.0		5.0	ug/g	20-OCT-20	36			
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	20-OCT-20	36			
	Cadmium (Cd)	<0.50		0.50	ug/g	20-OCT-20	1.2			
	Chromium (Cr)	10.4		1.0	ug/g	20-OCT-20	70			
	Cobalt (Co)	3.5		1.0	ug/g	20-OCT-20	21			
	Copper (Cu)	6.5		1.0	ug/g	20-OCT-20	92			
	Lead (Pb)	2.1		1.0	ug/g	20-OCT-20	120			
	Mercury (Hg)	0.0051		0.0050	ug/g	20-OCT-20	0.27			
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20	2			
	Nickel (Ni)	5.5		1.0	ug/g	20-OCT-20	82			
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20	1.5			
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20	0.5			
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20	1			
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20	2.5			
	Vanadium (V)	25.9		1.0	ug/g	20-OCT-20	86			
	Zinc (Zn)	15.7		5.0	ug/g	20-OCT-20	290			
Speciated Metals										
	Chromium, Hexavalent	<0.20		0.20	ug/g	19-OCT-20	0.66			
Volatile Organic Compounds										
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02			
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05			
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2			
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20				
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20				
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05			
	Surrogate: 4-Bromofluorobenzene	104.8		50-140	%	15-OCT-20				
	Surrogate: 1,4-Difluorobenzene	112.0		50-140	%	15-OCT-20				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25			
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25			
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10			
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240			
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120			
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20				
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20				
	Surrogate: 2-Bromobenzotrifluoride	84.5		60-140	%	16-OCT-20				
	Surrogate: 3,4-Dichlorotoluene	104.5		60-140	%	15-OCT-20				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2515508-14	GS26								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									
Organochlorine Pesticides									
Aldrin		<0.020		0.020	ug/g	20-OCT-20	0.05		
gamma-hexachlorocyclohexane		<0.010		0.010	ug/g	20-OCT-20	0.01		
a-chlordane		<0.020		0.020	ug/g	20-OCT-20			
Chlordane (Total)		<0.028		0.028	ug/g	20-OCT-20	0.05		
g-chlordane		<0.020		0.020	ug/g	20-OCT-20			
op-DDD		<0.020		0.020	ug/g	20-OCT-20			
pp-DDD		<0.020		0.020	ug/g	20-OCT-20			
Total DDD		<0.028		0.028	ug/g	20-OCT-20	0.05		
o,p-DDE		<0.020		0.020	ug/g	20-OCT-20			
pp-DDE		<0.020		0.020	ug/g	20-OCT-20			
Total DDE		<0.028		0.028	ug/g	20-OCT-20	0.05		
op-DDT		<0.020		0.020	ug/g	20-OCT-20			
pp-DDT		<0.020		0.020	ug/g	20-OCT-20			
Total DDT		<0.028		0.028	ug/g	20-OCT-20	1.4		
Dieldrin		<0.020		0.020	ug/g	20-OCT-20	0.05		
Endosulfan I		<0.020		0.020	ug/g	20-OCT-20			
Endosulfan II		<0.020		0.020	ug/g	20-OCT-20			
Endosulfan (Total)		<0.028		0.028	ug/g	20-OCT-20	0.04		
Endrin		<0.020		0.020	ug/g	20-OCT-20	0.04		
Heptachlor		<0.020		0.020	ug/g	20-OCT-20	0.05		
Heptachlor Epoxide		<0.020		0.020	ug/g	20-OCT-20	0.05		
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01		
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01		
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01		
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05		
Surrogate: 2-Fluorobiphenyl		76.9		50-140	%	20-OCT-20			
Surrogate: d14-Terphenyl		78.7		50-140	%	20-OCT-20			
L2515508-15	GS27								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									
Physical Tests									
Conductivity		0.117		0.0040	mS/cm	20-OCT-20	0.57		
% Moisture		10.8		0.25	%	16-OCT-20			
pH		7.76		0.10	pH units	15-OCT-20			
Cyanides									
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051		
Saturated Paste Extractables									
SAR		0.43	SAR:M	0.10	SAR	20-OCT-20	2.4		
Calcium (Ca)		11.3		0.50	mg/L	20-OCT-20			
Magnesium (Mg)		<0.50		0.50	mg/L	20-OCT-20			
Sodium (Na)		5.21		0.50	mg/L	20-OCT-20			
Metals									
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3		
Arsenic (As)		1.0		1.0	ug/g	20-OCT-20	18		
Barium (Ba)		43.9		1.0	ug/g	20-OCT-20	220		

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2515508-15	GS27								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									#1
Metals									
	Beryllium (Be)	<0.50		0.50	ug/g	20-OCT-20	2.5		
	Boron (B)	<5.0		5.0	ug/g	20-OCT-20	36		
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	20-OCT-20	36		
	Cadmium (Cd)	<0.50		0.50	ug/g	20-OCT-20	1.2		
	Chromium (Cr)	11.6		1.0	ug/g	20-OCT-20	70		
	Cobalt (Co)	3.8		1.0	ug/g	20-OCT-20	21		
	Copper (Cu)	6.7		1.0	ug/g	20-OCT-20	92		
	Lead (Pb)	2.9		1.0	ug/g	20-OCT-20	120		
	Mercury (Hg)	0.0076		0.0050	ug/g	20-OCT-20	0.27		
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20	2		
	Nickel (Ni)	6.7		1.0	ug/g	20-OCT-20	82		
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20	1.5		
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20	0.5		
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20	1		
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20	2.5		
	Vanadium (V)	26.6		1.0	ug/g	20-OCT-20	86		
	Zinc (Zn)	17.3		5.0	ug/g	20-OCT-20	290		
Speciated Metals									
	Chromium, Hexavalent	<0.20		0.20	ug/g	19-OCT-20	0.66		
Volatile Organic Compounds									
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02		
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05		
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2		
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20			
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20			
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05		
	Surrogate: 4-Bromofluorobenzene	114.6		50-140	%	15-OCT-20			
	Surrogate: 1,4-Difluorobenzene	120.8		50-140	%	15-OCT-20			
Hydrocarbons									
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25		
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25		
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10		
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240		
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120		
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20			
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20			
	Surrogate: 2-Bromobenzotrifluoride	75.1		60-140	%	16-OCT-20			
	Surrogate: 3,4-Dichlorotoluene	98.2		60-140	%	15-OCT-20			
Organochlorine Pesticides									
	Aldrin	<0.020		0.020	ug/g	20-OCT-20	0.05		
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20	0.01		
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20			
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20	0.05		
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20			
	op-DDD	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits				
Grouping	Analyte										
L2515508-15	GS27										
Sampled By: KMT on 09-OCT-20											
Matrix: SOIL											
Organochlorine Pesticides											
Total DDD		<0.028		0.028	ug/g	20-OCT-20	0.05				
o,p-DDE		<0.020		0.020	ug/g	20-OCT-20					
pp-DDE		<0.020		0.020	ug/g	20-OCT-20					
Total DDE		<0.028		0.028	ug/g	20-OCT-20	0.05				
op-DDT		<0.020		0.020	ug/g	20-OCT-20					
pp-DDT		<0.020		0.020	ug/g	20-OCT-20					
Total DDT		<0.028		0.028	ug/g	20-OCT-20	1.4				
Dieldrin		<0.020		0.020	ug/g	20-OCT-20	0.05				
Endosulfan I		<0.020		0.020	ug/g	20-OCT-20					
Endosulfan II		<0.020		0.020	ug/g	20-OCT-20					
Endosulfan (Total)		<0.028		0.028	ug/g	20-OCT-20	0.04				
Endrin		<0.020		0.020	ug/g	20-OCT-20	0.04				
Heptachlor		<0.020		0.020	ug/g	20-OCT-20	0.05				
Heptachlor Epoxide		<0.020		0.020	ug/g	20-OCT-20	0.05				
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01				
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01				
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01				
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05				
Surrogate: 2-Fluorobiphenyl		74.8		50-140	%	20-OCT-20					
Surrogate: d14-Terphenyl		68.1		50-140	%	20-OCT-20					
L2515508-16	GS28										
Sampled By: KMT on 09-OCT-20											
Matrix: SOIL											
Physical Tests											
Conductivity		0.115		0.0040	mS/cm	20-OCT-20	0.57				
% Moisture		11.5		0.25	%	16-OCT-20					
pH		7.71		0.10	pH units	15-OCT-20					
Cyanides											
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051				
Saturated Paste Extractables											
SAR		0.43	SAR:M	0.10	SAR	20-OCT-20	2.4				
Calcium (Ca)		10.9		0.50	mg/L	20-OCT-20					
Magnesium (Mg)		<0.50		0.50	mg/L	20-OCT-20					
Sodium (Na)		5.17		0.50	mg/L	20-OCT-20					
Metals											
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3				
Arsenic (As)		1.1		1.0	ug/g	20-OCT-20	18				
Barium (Ba)		50.9		1.0	ug/g	20-OCT-20	220				
Beryllium (Be)		<0.50		0.50	ug/g	20-OCT-20	2.5				
Boron (B)		<5.0		5.0	ug/g	20-OCT-20	36				
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	20-OCT-20	36				
Cadmium (Cd)		<0.50		0.50	ug/g	20-OCT-20	1.2				
Chromium (Cr)		12.8		1.0	ug/g	20-OCT-20	70				
Cobalt (Co)		4.4		1.0	ug/g	20-OCT-20	21				
Copper (Cu)		7.8		1.0	ug/g	20-OCT-20	92				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2515508-16	GS28								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									#1
Metals									
	Lead (Pb)	3.1		1.0	ug/g	20-OCT-20			120
	Mercury (Hg)	0.0080		0.0050	ug/g	20-OCT-20			0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20			2
	Nickel (Ni)	7.2		1.0	ug/g	20-OCT-20			82
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20			1.5
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20			0.5
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20			1
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20			2.5
	Vanadium (V)	30.0		1.0	ug/g	20-OCT-20			86
	Zinc (Zn)	19.4		5.0	ug/g	20-OCT-20			290
Speciated Metals									
	Chromium, Hexavalent	0.29		0.20	ug/g	19-OCT-20			0.66
Volatile Organic Compounds									
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20			0.02
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20			0.05
	Toluene	<0.080		0.080	ug/g	15-OCT-20			0.2
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20			
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20			
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20			0.05
	Surrogate: 4-Bromofluorobenzene	106.0		50-140	%	15-OCT-20			
	Surrogate: 1,4-Difluorobenzene	111.8		50-140	%	15-OCT-20			
Hydrocarbons									
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20			25
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20			25
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20			10
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20			240
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20			120
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20			
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20			
	Surrogate: 2-Bromobenzotrifluoride	84.6		60-140	%	16-OCT-20			
	Surrogate: 3,4-Dichlorotoluene	99.4		60-140	%	15-OCT-20			
Organochlorine Pesticides									
	Aldrin	<0.020		0.020	ug/g	20-OCT-20			0.05
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20			0.01
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20			
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20			0.05
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20			
	op-DDD	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20			
	Total DDD	<0.028		0.028	ug/g	20-OCT-20			0.05
	o,p-DDE	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDE	<0.020		0.020	ug/g	20-OCT-20			
	Total DDE	<0.028		0.028	ug/g	20-OCT-20			0.05
	op-DDT	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDT	<0.020		0.020	ug/g	20-OCT-20			
	Total DDT	<0.028		0.028	ug/g	20-OCT-20			1.4

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-16	GS28									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Organochlorine Pesticides										
	Dieldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Endosulfan I	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan II	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan (Total)	<0.028		0.028	ug/g	20-OCT-20	0.04			
	Endrin	<0.020		0.020	ug/g	20-OCT-20	0.04			
	Heptachlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Heptachlor Epoxide	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Hexachlorobenzene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachlorobutadiene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachloroethane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Methoxychlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Surrogate: 2-Fluorobiphenyl	74.8		50-140	%	20-OCT-20				
	Surrogate: d14-Terphenyl	66.6		50-140	%	20-OCT-20				
L2515508-17	GS29									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Physical Tests										
	Conductivity	0.104		0.0040	mS/cm	20-OCT-20	0.57			
	% Moisture	9.39		0.25	%	16-OCT-20				
	pH	7.85		0.10	pH units	15-OCT-20				
Cyanides										
	Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										
	SAR	0.20	SAR:M	0.10	SAR	20-OCT-20	2.4			
	Calcium (Ca)	10.6		0.50	mg/L	20-OCT-20				
	Magnesium (Mg)	<0.50		0.50	mg/L	20-OCT-20				
	Sodium (Na)	2.36		0.50	mg/L	20-OCT-20				
Metals										
	Antimony (Sb)	<1.0		1.0	ug/g	20-OCT-20	1.3			
	Arsenic (As)	1.0		1.0	ug/g	20-OCT-20	18			
	Barium (Ba)	39.0		1.0	ug/g	20-OCT-20	220			
	Beryllium (Be)	<0.50		0.50	ug/g	20-OCT-20	2.5			
	Boron (B)	<5.0		5.0	ug/g	20-OCT-20	36			
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	20-OCT-20	36			
	Cadmium (Cd)	<0.50		0.50	ug/g	20-OCT-20	1.2			
	Chromium (Cr)	12.1		1.0	ug/g	20-OCT-20	70			
	Cobalt (Co)	4.1		1.0	ug/g	20-OCT-20	21			
	Copper (Cu)	7.1		1.0	ug/g	20-OCT-20	92			
	Lead (Pb)	2.4		1.0	ug/g	20-OCT-20	120			
	Mercury (Hg)	<0.0050		0.0050	ug/g	20-OCT-20	0.27			
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20	2			
	Nickel (Ni)	6.7		1.0	ug/g	20-OCT-20	82			
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20	1.5			
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20	0.5			
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20	1			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits				
Grouping	Analyte										
L2515508-17 GS29							#1				
Sampled By: KMT on 09-OCT-20											
Matrix: SOIL											
Metals											
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20	2.5				
	Vanadium (V)	28.8		1.0	ug/g	20-OCT-20	86				
	Zinc (Zn)	17.7		5.0	ug/g	20-OCT-20	290				
Speciated Metals											
	Chromium, Hexavalent	<0.20		0.20	ug/g	19-OCT-20	0.66				
Volatile Organic Compounds											
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02				
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05				
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2				
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20					
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20					
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05				
	Surrogate: 4-Bromofluorobenzene	117.2		50-140	%	15-OCT-20					
	Surrogate: 1,4-Difluorobenzene	126.0		50-140	%	15-OCT-20					
Hydrocarbons											
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25				
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25				
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10				
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240				
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120				
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20					
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20					
	Surrogate: 2-Bromobenzotrifluoride	77.8		60-140	%	16-OCT-20					
	Surrogate: 3,4-Dichlorotoluene	97.4		60-140	%	15-OCT-20					
Organochlorine Pesticides											
	Aldrin	<0.020		0.020	ug/g	20-OCT-20	0.05				
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20	0.01				
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20					
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20	0.05				
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20					
	op-DDD	<0.020		0.020	ug/g	20-OCT-20					
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20					
	Total DDD	<0.028		0.028	ug/g	20-OCT-20	0.05				
	o,p-DDE	<0.020		0.020	ug/g	20-OCT-20					
	pp-DDE	<0.020		0.020	ug/g	20-OCT-20					
	Total DDE	<0.028		0.028	ug/g	20-OCT-20	0.05				
	op-DDT	<0.020		0.020	ug/g	20-OCT-20					
	pp-DDT	<0.020		0.020	ug/g	20-OCT-20					
	Total DDT	<0.028		0.028	ug/g	20-OCT-20	1.4				
	Dieldrin	<0.020		0.020	ug/g	20-OCT-20	0.05				
	Endosulfan I	<0.020		0.020	ug/g	20-OCT-20					
	Endosulfan II	<0.020		0.020	ug/g	20-OCT-20					
	Endosulfan (Total)	<0.028		0.028	ug/g	20-OCT-20	0.04				
	Endrin	<0.020		0.020	ug/g	20-OCT-20	0.04				
	Heptachlor	<0.020		0.020	ug/g	20-OCT-20	0.05				
	Heptachlor Epoxide	<0.020		0.020	ug/g	20-OCT-20	0.05				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
L2515508-17	GS29						#1		
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									
Organochlorine Pesticides									
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20			
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20			
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20			
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20			
Surrogate: 2-Fluorobiphenyl		86.5		50-140	%	20-OCT-20			
Surrogate: d14-Terphenyl		95.9		50-140	%	20-OCT-20			
L2515508-18	GS30						#1		
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									
Physical Tests									
Conductivity		0.101		0.0040	mS/cm	20-OCT-20			
% Moisture		9.03		0.25	%	16-OCT-20			
pH		7.89		0.10	pH units	15-OCT-20			
Cyanides									
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20			
Saturated Paste Extractables									
SAR		0.22	SAR:M	0.10	SAR	20-OCT-20			
Calcium (Ca)		10.1		0.50	mg/L	20-OCT-20			
Magnesium (Mg)		<0.50		0.50	mg/L	20-OCT-20			
Sodium (Na)		2.55		0.50	mg/L	20-OCT-20			
Metals									
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20			
Arsenic (As)		<1.0		1.0	ug/g	20-OCT-20			
Barium (Ba)		39.4		1.0	ug/g	20-OCT-20			
Beryllium (Be)		<0.50		0.50	ug/g	20-OCT-20			
Boron (B)		5.1		5.0	ug/g	20-OCT-20			
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	20-OCT-20			
Cadmium (Cd)		<0.50		0.50	ug/g	20-OCT-20			
Chromium (Cr)		11.5		1.0	ug/g	20-OCT-20			
Cobalt (Co)		3.9		1.0	ug/g	20-OCT-20			
Copper (Cu)		6.8		1.0	ug/g	20-OCT-20			
Lead (Pb)		2.3		1.0	ug/g	20-OCT-20			
Mercury (Hg)		<0.0050		0.0050	ug/g	20-OCT-20			
Molybdenum (Mo)		<1.0		1.0	ug/g	20-OCT-20			
Nickel (Ni)		6.3		1.0	ug/g	20-OCT-20			
Selenium (Se)		<1.0		1.0	ug/g	20-OCT-20			
Silver (Ag)		<0.20		0.20	ug/g	20-OCT-20			
Thallium (Tl)		<0.50		0.50	ug/g	20-OCT-20			
Uranium (U)		<1.0		1.0	ug/g	20-OCT-20			
Vanadium (V)		29.3		1.0	ug/g	20-OCT-20			
Zinc (Zn)		15.9		5.0	ug/g	20-OCT-20			
Speciated Metals									
Chromium, Hexavalent		<0.20		0.20	ug/g	19-OCT-20			
Volatile Organic Compounds									

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-18	GS30									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										#1
Volatile Organic Compounds										
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02			
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05			
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2			
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20				
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20				
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05			
	Surrogate: 4-Bromofluorobenzene	107.6		50-140	%	15-OCT-20				
	Surrogate: 1,4-Difluorobenzene	117.0		50-140	%	15-OCT-20				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25			
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25			
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10			
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240			
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120			
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20				
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20				
	Surrogate: 2-Bromobenzotrifluoride	76.1		60-140	%	16-OCT-20				
	Surrogate: 3,4-Dichlorotoluene	90.4		60-140	%	15-OCT-20				
Organochlorine Pesticides										
	Aldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20	0.05			
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	op-DDD	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20				
	Total DDD	<0.028		0.028	ug/g	20-OCT-20	0.05			
	o,p-DDE	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDE	<0.020		0.020	ug/g	20-OCT-20				
	Total DDE	<0.028		0.028	ug/g	20-OCT-20	0.05			
	op-DDT	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDT	<0.020		0.020	ug/g	20-OCT-20				
	Total DDT	<0.028		0.028	ug/g	20-OCT-20	1.4			
	Dieldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Endosulfan I	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan II	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan (Total)	<0.028		0.028	ug/g	20-OCT-20	0.04			
	Endrin	<0.020		0.020	ug/g	20-OCT-20	0.04			
	Heptachlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Heptachlor Epoxide	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Hexachlorobenzene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachlorobutadiene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachloroethane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Methoxychlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Surrogate: 2-Fluorobiphenyl	77.1		50-140	%	20-OCT-20				
	Surrogate: d14-Terphenyl	70.4		50-140	%	20-OCT-20				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

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T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-19	GS31									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										#1
Physical Tests										
	Conductivity	0.107		0.0040	mS/cm	20-OCT-20	0.57			
	% Moisture	9.96		0.25	%	16-OCT-20				
	pH	7.74		0.10	pH units	15-OCT-20				
Cyanides										
	Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										
	SAR	0.24	SAR:M	0.10	SAR	20-OCT-20	2.4			
	Calcium (Ca)	11.8		0.50	mg/L	20-OCT-20				
	Magnesium (Mg)	<0.50		0.50	mg/L	20-OCT-20				
	Sodium (Na)	2.95		0.50	mg/L	20-OCT-20				
Metals										
	Antimony (Sb)	<1.0		1.0	ug/g	20-OCT-20	1.3			
	Arsenic (As)	1.0		1.0	ug/g	20-OCT-20	18			
	Barium (Ba)	37.3		1.0	ug/g	20-OCT-20	220			
	Beryllium (Be)	<0.50		0.50	ug/g	20-OCT-20	2.5			
	Boron (B)	<5.0		5.0	ug/g	20-OCT-20	36			
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	20-OCT-20	36			
	Cadmium (Cd)	<0.50		0.50	ug/g	20-OCT-20	1.2			
	Chromium (Cr)	11.7		1.0	ug/g	20-OCT-20	70			
	Cobalt (Co)	3.9		1.0	ug/g	20-OCT-20	21			
	Copper (Cu)	5.7		1.0	ug/g	20-OCT-20	92			
	Lead (Pb)	2.5		1.0	ug/g	20-OCT-20	120			
	Mercury (Hg)	0.0099		0.0050	ug/g	20-OCT-20	0.27			
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20	2			
	Nickel (Ni)	6.4		1.0	ug/g	20-OCT-20	82			
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20	1.5			
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20	0.5			
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20	1			
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20	2.5			
	Vanadium (V)	27.8		1.0	ug/g	20-OCT-20	86			
	Zinc (Zn)	16.5		5.0	ug/g	20-OCT-20	290			
Speciated Metals										
	Chromium, Hexavalent	<0.20		0.20	ug/g	19-OCT-20	0.66			
Volatile Organic Compounds										
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02			
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05			
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2			
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20				
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20				
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05			
	Surrogate: 4-Bromofluorobenzene	117.5		50-140	%	15-OCT-20				
	Surrogate: 1,4-Difluorobenzene	127.4		50-140	%	15-OCT-20				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25			
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-19	GS31									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Hydrocarbons										
F2 (C10-C16)		<10		10	ug/g	16-OCT-20	10			
F3 (C16-C34)		<50		50	ug/g	16-OCT-20	240			
F4 (C34-C50)		<50		50	ug/g	16-OCT-20	120			
Total Hydrocarbons (C6-C50)		<72		72	ug/g	16-OCT-20				
Chrom. to baseline at nC50		YES			No Unit	16-OCT-20				
Surrogate: 2-Bromobenzotrifluoride		79.3		60-140	%	16-OCT-20				
Surrogate: 3,4-Dichlorotoluene		97.3		60-140	%	15-OCT-20				
Organochlorine Pesticides										
Aldrin		<0.020		0.020	ug/g	20-OCT-20	0.05			
gamma-hexachlorocyclohexane		<0.010		0.010	ug/g	20-OCT-20	0.01			
a-chlordane		<0.020		0.020	ug/g	20-OCT-20				
Chlordane (Total)		<0.028		0.028	ug/g	20-OCT-20	0.05			
g-chlordane		<0.020		0.020	ug/g	20-OCT-20				
op-DDD		<0.020		0.020	ug/g	20-OCT-20				
pp-DDD		<0.020		0.020	ug/g	20-OCT-20				
Total DDD		<0.028		0.028	ug/g	20-OCT-20	0.05			
o,p-DDE		<0.020		0.020	ug/g	20-OCT-20				
pp-DDE		<0.020		0.020	ug/g	20-OCT-20				
Total DDE		<0.028		0.028	ug/g	20-OCT-20	0.05			
op-DDT		<0.020		0.020	ug/g	20-OCT-20				
pp-DDT		<0.020		0.020	ug/g	20-OCT-20				
Total DDT		<0.028		0.028	ug/g	20-OCT-20	1.4			
Dieldrin		<0.020		0.020	ug/g	20-OCT-20	0.05			
Endosulfan I		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan II		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan (Total)		<0.028		0.028	ug/g	20-OCT-20	0.04			
Endrin		<0.020		0.020	ug/g	20-OCT-20	0.04			
Heptachlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Heptachlor Epoxide		<0.020		0.020	ug/g	20-OCT-20	0.05			
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01			
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Surrogate: 2-Fluorobiphenyl		77.4		50-140	%	20-OCT-20				
Surrogate: d14-Terphenyl		75.3		50-140	%	20-OCT-20				
L2515508-20	GS32									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Physical Tests										
Conductivity		0.112		0.0040	mS/cm	20-OCT-20	0.57			
% Moisture		8.64		0.25	%	16-OCT-20				
pH		7.68		0.10	pH units	15-OCT-20				
Cyanides										
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte						#1			
L2515508-20	GS32									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Saturated Paste Extractables										
	SAR	0.41	SAR:M	0.10	SAR	20-OCT-20	2.4			
	Calcium (Ca)	11.0		0.50	mg/L	20-OCT-20				
	Magnesium (Mg)	<0.50		0.50	mg/L	20-OCT-20				
	Sodium (Na)	4.96		0.50	mg/L	20-OCT-20				
Metals										
	Antimony (Sb)	<1.0		1.0	ug/g	20-OCT-20	1.3			
	Arsenic (As)	1.0		1.0	ug/g	20-OCT-20	18			
	Barium (Ba)	31.9		1.0	ug/g	20-OCT-20	220			
	Beryllium (Be)	<0.50		0.50	ug/g	20-OCT-20	2.5			
	Boron (B)	<5.0		5.0	ug/g	20-OCT-20	36			
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	20-OCT-20	36			
	Cadmium (Cd)	<0.50		0.50	ug/g	20-OCT-20	1.2			
	Chromium (Cr)	11.3		1.0	ug/g	20-OCT-20	70			
	Cobalt (Co)	3.4		1.0	ug/g	20-OCT-20	21			
	Copper (Cu)	5.5		1.0	ug/g	20-OCT-20	92			
	Lead (Pb)	2.5		1.0	ug/g	20-OCT-20	120			
	Mercury (Hg)	0.0085		0.0050	ug/g	20-OCT-20	0.27			
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20	2			
	Nickel (Ni)	5.7		1.0	ug/g	20-OCT-20	82			
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20	1.5			
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20	0.5			
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20	1			
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20	2.5			
	Vanadium (V)	28.3		1.0	ug/g	20-OCT-20	86			
	Zinc (Zn)	16.2		5.0	ug/g	20-OCT-20	290			
Speciated Metals										
	Chromium, Hexavalent	<0.20		0.20	ug/g	19-OCT-20	0.66			
Volatile Organic Compounds										
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02			
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05			
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2			
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20				
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20				
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05			
	Surrogate: 4-Bromofluorobenzene	113.1		50-140	%	15-OCT-20				
	Surrogate: 1,4-Difluorobenzene	118.1		50-140	%	15-OCT-20				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25			
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25			
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10			
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240			
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120			
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20				
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20				
	Surrogate: 2-Bromobenzotrifluoride	77.0		60-140	%	16-OCT-20				
	Surrogate: 3,4-Dichlorotoluene	104.4		60-140	%	15-OCT-20				

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T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2515508-20	GS32								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									
Organochlorine Pesticides									
Aldrin		<0.020		0.020	ug/g	20-OCT-20	0.05		
gamma-hexachlorocyclohexane		<0.010		0.010	ug/g	20-OCT-20	0.01		
a-chlordane		<0.020		0.020	ug/g	20-OCT-20			
Chlordane (Total)		<0.028		0.028	ug/g	20-OCT-20	0.05		
g-chlordane		<0.020		0.020	ug/g	20-OCT-20			
op-DDD		<0.020		0.020	ug/g	20-OCT-20			
pp-DDD		<0.020		0.020	ug/g	20-OCT-20			
Total DDD		<0.028		0.028	ug/g	20-OCT-20	0.05		
o,p-DDE		<0.020		0.020	ug/g	20-OCT-20			
pp-DDE		<0.020		0.020	ug/g	20-OCT-20			
Total DDE		<0.028		0.028	ug/g	20-OCT-20	0.05		
op-DDT		<0.020		0.020	ug/g	20-OCT-20			
pp-DDT		<0.020		0.020	ug/g	20-OCT-20			
Total DDT		<0.028		0.028	ug/g	20-OCT-20	1.4		
Dieldrin		<0.020		0.020	ug/g	20-OCT-20	0.05		
Endosulfan I		<0.020		0.020	ug/g	20-OCT-20			
Endosulfan II		<0.020		0.020	ug/g	20-OCT-20			
Endosulfan (Total)		<0.028		0.028	ug/g	20-OCT-20	0.04		
Endrin		<0.020		0.020	ug/g	20-OCT-20	0.04		
Heptachlor		<0.020		0.020	ug/g	20-OCT-20	0.05		
Heptachlor Epoxide		<0.020		0.020	ug/g	20-OCT-20	0.05		
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01		
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01		
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01		
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05		
Surrogate: 2-Fluorobiphenyl		74.7		50-140	%	20-OCT-20			
Surrogate: d14-Terphenyl		84.2		50-140	%	20-OCT-20			
L2515508-21	GS33								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									
Physical Tests									
Conductivity		0.107		0.0040	mS/cm	20-OCT-20	0.57		
% Moisture		8.82		0.25	%	16-OCT-20			
pH		7.72		0.10	pH units	16-OCT-20			
Cyanides									
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051		
Saturated Paste Extractables									
SAR		0.26	SAR:M	0.10	SAR	20-OCT-20	2.4		
Calcium (Ca)		10.9		0.50	mg/L	20-OCT-20			
Magnesium (Mg)		<0.50		0.50	mg/L	20-OCT-20			
Sodium (Na)		3.13		0.50	mg/L	20-OCT-20			
Metals									
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3		
Arsenic (As)		<1.0		1.0	ug/g	20-OCT-20	18		
Barium (Ba)		26.0		1.0	ug/g	20-OCT-20	220		

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2515508-21	GS33								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									#1
Metals									
	Beryllium (Be)	<0.50		0.50	ug/g	20-OCT-20			2.5
	Boron (B)	<5.0		5.0	ug/g	20-OCT-20			36
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	20-OCT-20			36
	Cadmium (Cd)	<0.50		0.50	ug/g	20-OCT-20			1.2
	Chromium (Cr)	10.0		1.0	ug/g	20-OCT-20			70
	Cobalt (Co)	3.0		1.0	ug/g	20-OCT-20			21
	Copper (Cu)	4.8		1.0	ug/g	20-OCT-20			92
	Lead (Pb)	2.1		1.0	ug/g	20-OCT-20			120
	Mercury (Hg)	0.0076		0.0050	ug/g	20-OCT-20			0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20			2
	Nickel (Ni)	5.0		1.0	ug/g	20-OCT-20			82
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20			1.5
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20			0.5
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20			1
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20			2.5
	Vanadium (V)	25.6		1.0	ug/g	20-OCT-20			86
	Zinc (Zn)	13.6		5.0	ug/g	20-OCT-20			290
Speciated Metals									
	Chromium, Hexavalent	0.36		0.20	ug/g	19-OCT-20			0.66
Volatile Organic Compounds									
	Benzene	<0.0068		0.0068	ug/g	14-OCT-20			0.02
	Ethylbenzene	<0.018		0.018	ug/g	14-OCT-20			0.05
	Toluene	<0.080		0.080	ug/g	14-OCT-20			0.2
	o-Xylene	<0.020		0.020	ug/g	14-OCT-20			
	m+p-Xylenes	<0.030		0.030	ug/g	14-OCT-20			
	Xylenes (Total)	<0.050		0.050	ug/g	16-OCT-20			0.05
	Surrogate: 4-Bromofluorobenzene	112.7		50-140	%	14-OCT-20			
	Surrogate: 1,4-Difluorobenzene	127.4		50-140	%	14-OCT-20			
Hydrocarbons									
	F1 (C6-C10)	<5.0		5.0	ug/g	14-OCT-20			25
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20			25
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20			10
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20			240
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20			120
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20			
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20			
	Surrogate: 2-Bromobenzotrifluoride	86.9		60-140	%	16-OCT-20			
	Surrogate: 3,4-Dichlorotoluene	96.6		60-140	%	14-OCT-20			
Organochlorine Pesticides									
	Aldrin	<0.020		0.020	ug/g	20-OCT-20			0.05
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20			0.01
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20			
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20			0.05
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20			
	op-DDD	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-21	GS33									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Organochlorine Pesticides										
Total DDD		<0.028		0.028	ug/g	20-OCT-20	0.05			
o,p-DDE		<0.020		0.020	ug/g	20-OCT-20				
pp-DDE		<0.020		0.020	ug/g	20-OCT-20				
Total DDE		<0.028		0.028	ug/g	20-OCT-20	0.05			
op-DDT		<0.020		0.020	ug/g	20-OCT-20				
pp-DDT		<0.020		0.020	ug/g	20-OCT-20				
Total DDT		<0.028		0.028	ug/g	20-OCT-20	1.4			
Dieldrin		<0.020		0.020	ug/g	20-OCT-20	0.05			
Endosulfan I		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan II		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan (Total)		<0.028		0.028	ug/g	20-OCT-20	0.04			
Endrin		<0.020		0.020	ug/g	20-OCT-20	0.04			
Heptachlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Heptachlor Epoxide		<0.020		0.020	ug/g	20-OCT-20	0.05			
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01			
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Surrogate: 2-Fluorobiphenyl		69.3		50-140	%	20-OCT-20				
Surrogate: d14-Terphenyl		72.5		50-140	%	20-OCT-20				
L2515508-22	GS34									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Physical Tests										
Conductivity		0.138		0.0040	mS/cm	20-OCT-20	0.57			
% Moisture		8.31		0.25	%	16-OCT-20				
pH		7.88		0.10	pH units	19-OCT-20				
Cyanides										
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										
SAR		<0.10		0.10	SAR	20-OCT-20	2.4			
Calcium (Ca)		18.5		0.50	mg/L	20-OCT-20				
Magnesium (Mg)		0.54		0.50	mg/L	20-OCT-20				
Sodium (Na)		1.38		0.50	mg/L	20-OCT-20				
Metals										
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3			
Arsenic (As)		<1.0		1.0	ug/g	20-OCT-20	18			
Barium (Ba)		20.4		1.0	ug/g	20-OCT-20	220			
Beryllium (Be)		<0.50		0.50	ug/g	20-OCT-20	2.5			
Boron (B)		<5.0		5.0	ug/g	20-OCT-20	36			
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	20-OCT-20	36			
Cadmium (Cd)		<0.50		0.50	ug/g	20-OCT-20	1.2			
Chromium (Cr)		8.8		1.0	ug/g	20-OCT-20	70			
Cobalt (Co)		2.7		1.0	ug/g	20-OCT-20	21			
Copper (Cu)		4.8		1.0	ug/g	20-OCT-20	92			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2515508-22	GS34								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									#1
Metals									
	Lead (Pb)	1.7		1.0	ug/g	20-OCT-20			120
	Mercury (Hg)	<0.0050		0.0050	ug/g	20-OCT-20			0.27
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20			2
	Nickel (Ni)	4.4		1.0	ug/g	20-OCT-20			82
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20			1.5
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20			0.5
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20			1
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20			2.5
	Vanadium (V)	24.5		1.0	ug/g	20-OCT-20			86
	Zinc (Zn)	11.3		5.0	ug/g	20-OCT-20			290
Speciated Metals									
	Chromium, Hexavalent	<0.20		0.20	ug/g	19-OCT-20			0.66
Volatile Organic Compounds									
	Benzene	<0.0068		0.0068	ug/g	14-OCT-20			0.02
	Ethylbenzene	<0.018		0.018	ug/g	14-OCT-20			0.05
	Toluene	<0.080		0.080	ug/g	14-OCT-20			0.2
	o-Xylene	<0.020		0.020	ug/g	14-OCT-20			
	m+p-Xylenes	<0.030		0.030	ug/g	14-OCT-20			
	Xylenes (Total)	<0.050		0.050	ug/g	16-OCT-20			0.05
	Surrogate: 4-Bromofluorobenzene	108.1		50-140	%	14-OCT-20			
	Surrogate: 1,4-Difluorobenzene	124.3		50-140	%	14-OCT-20			
Hydrocarbons									
	F1 (C6-C10)	<5.0		5.0	ug/g	14-OCT-20			25
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20			25
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20			10
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20			240
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20			120
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20			
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20			
	Surrogate: 2-Bromobenzotrifluoride	88.8		60-140	%	16-OCT-20			
	Surrogate: 3,4-Dichlorotoluene	100.0		60-140	%	14-OCT-20			
Organochlorine Pesticides									
	Aldrin	<0.020		0.020	ug/g	20-OCT-20			0.05
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20			0.01
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20			
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20			0.05
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20			
	op-DDD	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20			
	Total DDD	<0.028		0.028	ug/g	20-OCT-20			0.05
	o,p-DDE	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDE	<0.020		0.020	ug/g	20-OCT-20			
	Total DDE	<0.028		0.028	ug/g	20-OCT-20			0.05
	op-DDT	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDT	<0.020		0.020	ug/g	20-OCT-20			
	Total DDT	<0.028		0.028	ug/g	20-OCT-20			1.4

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2515508-22	GS34						#1			
Sampled By:	KMT on 09-OCT-20									
Matrix:	SOIL									
Organochlorine Pesticides										
	Dieldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Endosulfan I	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan II	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan (Total)	<0.028		0.028	ug/g	20-OCT-20	0.04			
	Endrin	<0.020		0.020	ug/g	20-OCT-20	0.04			
	Heptachlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Heptachlor Epoxide	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Hexachlorobenzene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachlorobutadiene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachloroethane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Methoxychlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Surrogate: 2-Fluorobiphenyl	73.1		50-140	%	20-OCT-20				
	Surrogate: d14-Terphenyl	72.5		50-140	%	20-OCT-20				
L2515508-23	GS35						#1			
Sampled By:	KMT on 09-OCT-20									
Matrix:	SOIL									
Physical Tests										
	Conductivity	0.106		0.0040	mS/cm	20-OCT-20	0.57			
	% Moisture	7.61		0.25	%	16-OCT-20				
	pH	7.75		0.10	pH units	19-OCT-20				
Cyanides										
	Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										
	SAR	0.29	SAR:M	0.10	SAR	20-OCT-20	2.4			
	Calcium (Ca)	10.8		0.50	mg/L	20-OCT-20				
	Magnesium (Mg)	<0.50		0.50	mg/L	20-OCT-20				
	Sodium (Na)	3.50		0.50	mg/L	20-OCT-20				
Metals										
	Antimony (Sb)	<1.0		1.0	ug/g	20-OCT-20	1.3			
	Arsenic (As)	<1.0		1.0	ug/g	20-OCT-20	18			
	Barium (Ba)	19.7		1.0	ug/g	20-OCT-20	220			
	Beryllium (Be)	<0.50		0.50	ug/g	20-OCT-20	2.5			
	Boron (B)	<5.0		5.0	ug/g	20-OCT-20	36			
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	20-OCT-20	36			
	Cadmium (Cd)	<0.50		0.50	ug/g	20-OCT-20	1.2			
	Chromium (Cr)	9.3		1.0	ug/g	20-OCT-20	70			
	Cobalt (Co)	2.7		1.0	ug/g	20-OCT-20	21			
	Copper (Cu)	4.7		1.0	ug/g	20-OCT-20	92			
	Lead (Pb)	1.8		1.0	ug/g	20-OCT-20	120			
	Mercury (Hg)	<0.0050		0.0050	ug/g	20-OCT-20	0.27			
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20	2			
	Nickel (Ni)	4.4		1.0	ug/g	20-OCT-20	82			
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20	1.5			
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20	0.5			
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20	1			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-23	GS35									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										#1
Metals										
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20				2.5
	Vanadium (V)	24.0		1.0	ug/g	20-OCT-20				86
	Zinc (Zn)	11.9		5.0	ug/g	20-OCT-20				290
Speciated Metals										
	Chromium, Hexavalent	0.24		0.20	ug/g	19-OCT-20				0.66
Volatile Organic Compounds										
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20				0.02
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20				0.05
	Toluene	<0.080		0.080	ug/g	15-OCT-20				0.2
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20				
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20				
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20				0.05
	Surrogate: 4-Bromofluorobenzene	130.5		50-140	%	15-OCT-20				
	Surrogate: 1,4-Difluorobenzene	134.5		50-140	%	15-OCT-20				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20				25
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20				25
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20				10
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20				240
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20				120
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20				
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20				
	Surrogate: 2-Bromobenzotrifluoride	87.0		60-140	%	16-OCT-20				
	Surrogate: 3,4-Dichlorotoluene	116.5		60-140	%	15-OCT-20				
Organochlorine Pesticides										
	Aldrin	<0.020		0.020	ug/g	20-OCT-20				0.05
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20				0.01
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20				0.05
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	op-DDD	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20				
	Total DDD	<0.028		0.028	ug/g	20-OCT-20				0.05
	o,p-DDE	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDE	<0.020		0.020	ug/g	20-OCT-20				
	Total DDE	<0.028		0.028	ug/g	20-OCT-20				0.05
	op-DDT	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDT	<0.020		0.020	ug/g	20-OCT-20				
	Total DDT	<0.028		0.028	ug/g	20-OCT-20				1.4
	Dieldrin	<0.020		0.020	ug/g	20-OCT-20				0.05
	Endosulfan I	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan II	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan (Total)	<0.028		0.028	ug/g	20-OCT-20				0.04
	Endrin	<0.020		0.020	ug/g	20-OCT-20				0.04
	Heptachlor	<0.020		0.020	ug/g	20-OCT-20				0.05
	Heptachlor Epoxide	<0.020		0.020	ug/g	20-OCT-20				0.05

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2515508-23	GS35								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									
Organochlorine Pesticides									
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01		
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01		
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01		
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05		
Surrogate: 2-Fluorobiphenyl		75.4		50-140	%	20-OCT-20			
Surrogate: d14-Terphenyl		76.3		50-140	%	20-OCT-20			
L2515508-24	GS36								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									
Physical Tests									
Conductivity		0.104		0.0040	mS/cm	20-OCT-20	0.57		
% Moisture		6.11		0.25	%	16-OCT-20			
pH		7.89		0.10	pH units	19-OCT-20			
Cyanides									
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051		
Saturated Paste Extractables									
SAR		0.13	SAR:M	0.10	SAR	20-OCT-20	2.4		
Calcium (Ca)		11.2		0.50	mg/L	20-OCT-20			
Magnesium (Mg)		<0.50		0.50	mg/L	20-OCT-20			
Sodium (Na)		1.62		0.50	mg/L	20-OCT-20			
Metals									
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3		
Arsenic (As)		<1.0		1.0	ug/g	20-OCT-20	18		
Barium (Ba)		14.2		1.0	ug/g	20-OCT-20	220		
Beryllium (Be)		<0.50		0.50	ug/g	20-OCT-20	2.5		
Boron (B)		<5.0		5.0	ug/g	20-OCT-20	36		
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	20-OCT-20	36		
Cadmium (Cd)		<0.50		0.50	ug/g	20-OCT-20	1.2		
Chromium (Cr)		7.2		1.0	ug/g	20-OCT-20	70		
Cobalt (Co)		2.2		1.0	ug/g	20-OCT-20	21		
Copper (Cu)		3.8		1.0	ug/g	20-OCT-20	92		
Lead (Pb)		1.3		1.0	ug/g	20-OCT-20	120		
Mercury (Hg)		<0.0050		0.0050	ug/g	20-OCT-20	0.27		
Molybdenum (Mo)		<1.0		1.0	ug/g	20-OCT-20	2		
Nickel (Ni)		3.4		1.0	ug/g	20-OCT-20	82		
Selenium (Se)		<1.0		1.0	ug/g	20-OCT-20	1.5		
Silver (Ag)		<0.20		0.20	ug/g	20-OCT-20	0.5		
Thallium (Tl)		<0.50		0.50	ug/g	20-OCT-20	1		
Uranium (U)		<1.0		1.0	ug/g	20-OCT-20	2.5		
Vanadium (V)		21.2		1.0	ug/g	20-OCT-20	86		
Zinc (Zn)		9.6		5.0	ug/g	20-OCT-20	290		
Speciated Metals									
Chromium, Hexavalent		<0.20		0.20	ug/g	19-OCT-20	0.66		
Volatile Organic Compounds									

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte						#1			
L2515508-24	GS36									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Volatile Organic Compounds										
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02			
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05			
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2			
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20				
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20				
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05			
	Surrogate: 4-Bromofluorobenzene	125.2		50-140	%	15-OCT-20				
	Surrogate: 1,4-Difluorobenzene	132.9		50-140	%	15-OCT-20				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25			
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25			
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10			
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240			
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120			
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20				
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20				
	Surrogate: 2-Bromobenzotrifluoride	86.3		60-140	%	16-OCT-20				
	Surrogate: 3,4-Dichlorotoluene	107.5		60-140	%	15-OCT-20				
Organochlorine Pesticides										
	Aldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20	0.05			
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	op-DDD	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20				
	Total DDD	<0.028		0.028	ug/g	20-OCT-20	0.05			
	o,p-DDE	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDE	<0.020		0.020	ug/g	20-OCT-20				
	Total DDE	<0.028		0.028	ug/g	20-OCT-20	0.05			
	op-DDT	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDT	<0.020		0.020	ug/g	20-OCT-20				
	Total DDT	<0.028		0.028	ug/g	20-OCT-20	1.4			
	Dieldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Endosulfan I	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan II	<0.020		0.020	ug/g	20-OCT-20				
	Endosulfan (Total)	<0.028		0.028	ug/g	20-OCT-20	0.04			
	Endrin	<0.020		0.020	ug/g	20-OCT-20	0.04			
	Heptachlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Heptachlor Epoxide	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Hexachlorobenzene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachlorobutadiene	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Hexachloroethane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	Methoxychlor	<0.020		0.020	ug/g	20-OCT-20	0.05			
	Surrogate: 2-Fluorobiphenyl	70.9		50-140	%	20-OCT-20				
	Surrogate: d14-Terphenyl	84.3		50-140	%	20-OCT-20				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits				
Grouping	Analyte										
L2515508-25	GS37										
Sampled By: KMT on 09-OCT-20											
Matrix: SOIL											
Physical Tests							#1				
Conductivity		0.0963		0.0040	mS/cm	20-OCT-20	0.57				
% Moisture		6.72		0.25	%	16-OCT-20					
pH		7.90		0.10	pH units	19-OCT-20					
Cyanides											
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051				
Saturated Paste Extractables											
SAR		0.16	SAR:M	0.10	SAR	20-OCT-20	2.4				
Calcium (Ca)		9.79		0.50	mg/L	20-OCT-20					
Magnesium (Mg)		<0.50		0.50	mg/L	20-OCT-20					
Sodium (Na)		1.85		0.50	mg/L	20-OCT-20					
Metals											
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3				
Arsenic (As)		<1.0		1.0	ug/g	20-OCT-20	18				
Barium (Ba)		14.6		1.0	ug/g	20-OCT-20	220				
Beryllium (Be)		<0.50		0.50	ug/g	20-OCT-20	2.5				
Boron (B)		<5.0		5.0	ug/g	20-OCT-20	36				
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	20-OCT-20	36				
Cadmium (Cd)		<0.50		0.50	ug/g	20-OCT-20	1.2				
Chromium (Cr)		7.6		1.0	ug/g	20-OCT-20	70				
Cobalt (Co)		2.4		1.0	ug/g	20-OCT-20	21				
Copper (Cu)		4.1		1.0	ug/g	20-OCT-20	92				
Lead (Pb)		1.3		1.0	ug/g	20-OCT-20	120				
Mercury (Hg)		<0.0050		0.0050	ug/g	20-OCT-20	0.27				
Molybdenum (Mo)		<1.0		1.0	ug/g	20-OCT-20	2				
Nickel (Ni)		3.6		1.0	ug/g	20-OCT-20	82				
Selenium (Se)		<1.0		1.0	ug/g	20-OCT-20	1.5				
Silver (Ag)		<0.20		0.20	ug/g	20-OCT-20	0.5				
Thallium (Tl)		<0.50		0.50	ug/g	20-OCT-20	1				
Uranium (U)		<1.0		1.0	ug/g	20-OCT-20	2.5				
Vanadium (V)		22.6		1.0	ug/g	20-OCT-20	86				
Zinc (Zn)		8.8		5.0	ug/g	20-OCT-20	290				
Speciated Metals											
Chromium, Hexavalent		<0.20		0.20	ug/g	19-OCT-20	0.66				
Volatile Organic Compounds											
Benzene		<0.0068		0.0068	ug/g	15-OCT-20	0.02				
Ethylbenzene		<0.018		0.018	ug/g	15-OCT-20	0.05				
Toluene		<0.080		0.080	ug/g	15-OCT-20	0.2				
o-Xylene		<0.020		0.020	ug/g	15-OCT-20					
m+p-Xylenes		<0.030		0.030	ug/g	15-OCT-20					
Xylenes (Total)		<0.050		0.050	ug/g	15-OCT-20	0.05				
Surrogate: 4-Bromofluorobenzene		130.0		50-140	%	15-OCT-20					
Surrogate: 1,4-Difluorobenzene		139.0		50-140	%	15-OCT-20					
Hydrocarbons											
F1 (C6-C10)		<5.0		5.0	ug/g	15-OCT-20	25				
F1-BTEX		<5.0		5.0	ug/g	16-OCT-20	25				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-25	GS37									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Hydrocarbons										
F2 (C10-C16)		<10		10	ug/g	16-OCT-20	10			
F3 (C16-C34)		<50		50	ug/g	16-OCT-20	240			
F4 (C34-C50)		<50		50	ug/g	16-OCT-20	120			
Total Hydrocarbons (C6-C50)		<72		72	ug/g	16-OCT-20				
Chrom. to baseline at nC50		YES			No Unit	16-OCT-20				
Surrogate: 2-Bromobenzotrifluoride		89.9		60-140	%	16-OCT-20				
Surrogate: 3,4-Dichlorotoluene		98.0		60-140	%	15-OCT-20				
Organochlorine Pesticides										
Aldrin		<0.020		0.020	ug/g	20-OCT-20	0.05			
gamma-hexachlorocyclohexane		<0.010		0.010	ug/g	20-OCT-20	0.01			
a-chlordane		<0.020		0.020	ug/g	20-OCT-20				
Chlordane (Total)		<0.028		0.028	ug/g	20-OCT-20	0.05			
g-chlordane		<0.020		0.020	ug/g	20-OCT-20				
op-DDD		<0.020		0.020	ug/g	20-OCT-20				
pp-DDD		<0.020		0.020	ug/g	20-OCT-20				
Total DDD		<0.028		0.028	ug/g	20-OCT-20	0.05			
o,p-DDE		<0.020		0.020	ug/g	20-OCT-20				
pp-DDE		<0.020		0.020	ug/g	20-OCT-20				
Total DDE		<0.028		0.028	ug/g	20-OCT-20	0.05			
op-DDT		<0.020		0.020	ug/g	20-OCT-20				
pp-DDT		<0.020		0.020	ug/g	20-OCT-20				
Total DDT		<0.028		0.028	ug/g	20-OCT-20	1.4			
Dieldrin		<0.020		0.020	ug/g	20-OCT-20	0.05			
Endosulfan I		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan II		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan (Total)		<0.028		0.028	ug/g	20-OCT-20	0.04			
Endrin		<0.020		0.020	ug/g	20-OCT-20	0.04			
Heptachlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Heptachlor Epoxide		<0.020		0.020	ug/g	20-OCT-20	0.05			
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01			
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Surrogate: 2-Fluorobiphenyl		71.7		50-140	%	20-OCT-20				
Surrogate: d14-Terphenyl		80.5		50-140	%	20-OCT-20				
L2515508-26	GS38									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Physical Tests										
Conductivity		0.0757		0.0040	mS/cm	20-OCT-20	0.57			
% Moisture		5.46		0.25	%	16-OCT-20				
pH		7.90		0.10	pH units	19-OCT-20				
Cyanides										
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte						#1			
L2515508-26	GS38									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Saturated Paste Extractables										
SAR		<0.10	SAR:M	0.10	SAR	20-OCT-20	2.4			
Calcium (Ca)		6.71		0.50	mg/L	20-OCT-20				
Magnesium (Mg)		<0.50		0.50	mg/L	20-OCT-20				
Sodium (Na)		0.87		0.50	mg/L	20-OCT-20				
Metals										
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3			
Arsenic (As)		<1.0		1.0	ug/g	20-OCT-20	18			
Barium (Ba)		12.6		1.0	ug/g	20-OCT-20	220			
Beryllium (Be)		<0.50		0.50	ug/g	20-OCT-20	2.5			
Boron (B)		<5.0		5.0	ug/g	20-OCT-20	36			
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	20-OCT-20	36			
Cadmium (Cd)		<0.50		0.50	ug/g	20-OCT-20	1.2			
Chromium (Cr)		7.0		1.0	ug/g	20-OCT-20	70			
Cobalt (Co)		2.2		1.0	ug/g	20-OCT-20	21			
Copper (Cu)		3.8		1.0	ug/g	20-OCT-20	92			
Lead (Pb)		1.3		1.0	ug/g	20-OCT-20	120			
Mercury (Hg)		<0.0050		0.0050	ug/g	20-OCT-20	0.27			
Molybdenum (Mo)		<1.0		1.0	ug/g	20-OCT-20	2			
Nickel (Ni)		3.2		1.0	ug/g	20-OCT-20	82			
Selenium (Se)		<1.0		1.0	ug/g	20-OCT-20	1.5			
Silver (Ag)		<0.20		0.20	ug/g	20-OCT-20	0.5			
Thallium (Tl)		<0.50		0.50	ug/g	20-OCT-20	1			
Uranium (U)		<1.0		1.0	ug/g	20-OCT-20	2.5			
Vanadium (V)		22.6		1.0	ug/g	20-OCT-20	86			
Zinc (Zn)		8.1		5.0	ug/g	20-OCT-20	290			
Speciated Metals										
Chromium, Hexavalent		<0.20		0.20	ug/g	19-OCT-20	0.66			
Volatile Organic Compounds										
Benzene		<0.0068		0.0068	ug/g	15-OCT-20	0.02			
Ethylbenzene		<0.018		0.018	ug/g	15-OCT-20	0.05			
Toluene		<0.080		0.080	ug/g	15-OCT-20	0.2			
o-Xylene		<0.020		0.020	ug/g	15-OCT-20				
m+p-Xylenes		<0.030		0.030	ug/g	15-OCT-20				
Xylenes (Total)		<0.050		0.050	ug/g	15-OCT-20	0.05			
Surrogate: 4-Bromofluorobenzene		118.9		50-140	%	15-OCT-20				
Surrogate: 1,4-Difluorobenzene		125.6		50-140	%	15-OCT-20				
Hydrocarbons										
F1 (C6-C10)		<5.0		5.0	ug/g	15-OCT-20	25			
F1-BTEX		<5.0		5.0	ug/g	16-OCT-20	25			
F2 (C10-C16)		<10		10	ug/g	16-OCT-20	10			
F3 (C16-C34)		<50		50	ug/g	16-OCT-20	240			
F4 (C34-C50)		<50		50	ug/g	16-OCT-20	120			
Total Hydrocarbons (C6-C50)		<72		72	ug/g	16-OCT-20				
Chrom. to baseline at nC50		YES			No Unit	16-OCT-20				
Surrogate: 2-Bromobenzotrifluoride		86.4		60-140	%	16-OCT-20				
Surrogate: 3,4-Dichlorotoluene		97.2		60-140	%	15-OCT-20				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-26	GS38									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Organochlorine Pesticides										
Aldrin		<0.020		0.020	ug/g	20-OCT-20	0.05			
gamma-hexachlorocyclohexane		<0.010		0.010	ug/g	20-OCT-20	0.01			
a-chlordane		<0.020		0.020	ug/g	20-OCT-20				
Chlordane (Total)		<0.028		0.028	ug/g	20-OCT-20	0.05			
g-chlordane		<0.020		0.020	ug/g	20-OCT-20				
op-DDD		<0.020		0.020	ug/g	20-OCT-20				
pp-DDD		<0.020		0.020	ug/g	20-OCT-20				
Total DDD		<0.028		0.028	ug/g	20-OCT-20	0.05			
o,p-DDE		<0.020		0.020	ug/g	20-OCT-20				
pp-DDE		<0.020		0.020	ug/g	20-OCT-20				
Total DDE		<0.028		0.028	ug/g	20-OCT-20	0.05			
op-DDT		<0.020		0.020	ug/g	20-OCT-20				
pp-DDT		<0.020		0.020	ug/g	20-OCT-20				
Total DDT		<0.028		0.028	ug/g	20-OCT-20	1.4			
Dieldrin		<0.020		0.020	ug/g	20-OCT-20	0.05			
Endosulfan I		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan II		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan (Total)		<0.028		0.028	ug/g	20-OCT-20	0.04			
Endrin		<0.020		0.020	ug/g	20-OCT-20	0.04			
Heptachlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Heptachlor Epoxide		<0.020		0.020	ug/g	20-OCT-20	0.05			
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01			
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Surrogate: 2-Fluorobiphenyl		77.6		50-140	%	20-OCT-20				
Surrogate: d14-Terphenyl		65.9		50-140	%	20-OCT-20				
L2515508-27	GS39									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Physical Tests										
Conductivity		0.0628		0.0040	mS/cm	20-OCT-20	0.57			
% Moisture		5.92		0.25	%	16-OCT-20				
pH		7.96		0.10	pH units	19-OCT-20				
Cyanides										
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										
SAR		0.11	SAR:M	0.10	SAR	20-OCT-20	2.4			
Calcium (Ca)		4.58		0.50	mg/L	20-OCT-20				
Magnesium (Mg)		<0.50		0.50	mg/L	20-OCT-20				
Sodium (Na)		0.84		0.50	mg/L	20-OCT-20				
Metals										
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3			
Arsenic (As)		<1.0		1.0	ug/g	20-OCT-20	18			
Barium (Ba)		8.8		1.0	ug/g	20-OCT-20	220			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Comm Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details Grouping	Analyte	Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
L2515508-27	GS39									
Sampled By:	KMT on 09-OCT-20									
Matrix:	SOIL						#1			
Metals										
	Beryllium (Be)	<0.50		0.50	ug/g	20-OCT-20	2.5			
	Boron (B)	<5.0		5.0	ug/g	20-OCT-20	36			
	Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	20-OCT-20	36			
	Cadmium (Cd)	<0.50		0.50	ug/g	20-OCT-20	1.2			
	Chromium (Cr)	4.4		1.0	ug/g	20-OCT-20	70			
	Cobalt (Co)	1.7		1.0	ug/g	20-OCT-20	21			
	Copper (Cu)	3.4		1.0	ug/g	20-OCT-20	92			
	Lead (Pb)	<1.0		1.0	ug/g	20-OCT-20	120			
	Mercury (Hg)	<0.0050		0.0050	ug/g	20-OCT-20	0.27			
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20	2			
	Nickel (Ni)	2.6		1.0	ug/g	20-OCT-20	82			
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20	1.5			
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20	0.5			
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20	1			
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20	2.5			
	Vanadium (V)	14.4		1.0	ug/g	20-OCT-20	86			
	Zinc (Zn)	6.9		5.0	ug/g	20-OCT-20	290			
Speciated Metals										
	Chromium, Hexavalent	<0.20		0.20	ug/g	19-OCT-20	0.66			
Volatile Organic Compounds										
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02			
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05			
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2			
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20				
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20				
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05			
	Surrogate: 4-Bromofluorobenzene	128.2		50-140	%	15-OCT-20				
	Surrogate: 1,4-Difluorobenzene	137.0		50-140	%	15-OCT-20				
Hydrocarbons										
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25			
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25			
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10			
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240			
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120			
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20				
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20				
	Surrogate: 2-Bromobenzotrifluoride	89.0		60-140	%	16-OCT-20				
	Surrogate: 3,4-Dichlorotoluene	105.3		60-140	%	15-OCT-20				
Organochlorine Pesticides										
	Aldrin	<0.020		0.020	ug/g	20-OCT-20	0.05			
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20	0.01			
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20	0.05			
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20				
	op-DDD	<0.020		0.020	ug/g	20-OCT-20				
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20				

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits			
Grouping	Analyte									
L2515508-27	GS39									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Organochlorine Pesticides										
Total DDD		<0.028		0.028	ug/g	20-OCT-20	0.05			
o,p-DDE		<0.020		0.020	ug/g	20-OCT-20				
pp-DDE		<0.020		0.020	ug/g	20-OCT-20				
Total DDE		<0.028		0.028	ug/g	20-OCT-20	0.05			
op-DDT		<0.020		0.020	ug/g	20-OCT-20				
pp-DDT		<0.020		0.020	ug/g	20-OCT-20				
Total DDT		<0.028		0.028	ug/g	20-OCT-20	1.4			
Dieldrin		<0.020		0.020	ug/g	20-OCT-20	0.05			
Endosulfan I		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan II		<0.020		0.020	ug/g	20-OCT-20				
Endosulfan (Total)		<0.028		0.028	ug/g	20-OCT-20	0.04			
Endrin		<0.020		0.020	ug/g	20-OCT-20	0.04			
Heptachlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Heptachlor Epoxide		<0.020		0.020	ug/g	20-OCT-20	0.05			
Hexachlorobenzene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachlorobutadiene		<0.010		0.010	ug/g	20-OCT-20	0.01			
Hexachloroethane		<0.010		0.010	ug/g	20-OCT-20	0.01			
Methoxychlor		<0.020		0.020	ug/g	20-OCT-20	0.05			
Surrogate: 2-Fluorobiphenyl		73.7		50-140	%	20-OCT-20				
Surrogate: d14-Terphenyl		72.7		50-140	%	20-OCT-20				
L2515508-28	GS40									
Sampled By: KMT on 09-OCT-20										
Matrix: SOIL										
Physical Tests										
Conductivity		0.104		0.0040	mS/cm	20-OCT-20	0.57			
% Moisture		7.84		0.25	%	16-OCT-20				
pH		7.75		0.10	pH units	15-OCT-20				
Cyanides										
Cyanide, Weak Acid Diss		<0.050		0.050	ug/g	16-OCT-20	0.051			
Saturated Paste Extractables										
SAR		<0.10	SAR:M	0.10	SAR	20-OCT-20	2.4			
Calcium (Ca)		11.4		0.50	mg/L	20-OCT-20				
Magnesium (Mg)		<0.50		0.50	mg/L	20-OCT-20				
Sodium (Na)		1.17		0.50	mg/L	20-OCT-20				
Metals										
Antimony (Sb)		<1.0		1.0	ug/g	20-OCT-20	1.3			
Arsenic (As)		<1.0		1.0	ug/g	20-OCT-20	18			
Barium (Ba)		11.8		1.0	ug/g	20-OCT-20	220			
Beryllium (Be)		<0.50		0.50	ug/g	20-OCT-20	2.5			
Boron (B)		<5.0		5.0	ug/g	20-OCT-20	36			
Boron (B), Hot Water Ext.		<0.10		0.10	ug/g	20-OCT-20	36			
Cadmium (Cd)		<0.50		0.50	ug/g	20-OCT-20	1.2			
Chromium (Cr)		5.0		1.0	ug/g	20-OCT-20	70			
Cobalt (Co)		1.8		1.0	ug/g	20-OCT-20	21			
Copper (Cu)		3.5		1.0	ug/g	20-OCT-20	92			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte								
L2515508-28	GS40								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									
							#1		
Metals									
	Lead (Pb)	1.1		1.0	ug/g	20-OCT-20	120		
	Mercury (Hg)	<0.0050		0.0050	ug/g	20-OCT-20	0.27		
	Molybdenum (Mo)	<1.0		1.0	ug/g	20-OCT-20	2		
	Nickel (Ni)	3.0		1.0	ug/g	20-OCT-20	82		
	Selenium (Se)	<1.0		1.0	ug/g	20-OCT-20	1.5		
	Silver (Ag)	<0.20		0.20	ug/g	20-OCT-20	0.5		
	Thallium (Tl)	<0.50		0.50	ug/g	20-OCT-20	1		
	Uranium (U)	<1.0		1.0	ug/g	20-OCT-20	2.5		
	Vanadium (V)	14.5		1.0	ug/g	20-OCT-20	86		
	Zinc (Zn)	7.6		5.0	ug/g	20-OCT-20	290		
Speciated Metals									
	Chromium, Hexavalent	<0.20		0.20	ug/g	19-OCT-20	0.66		
Volatile Organic Compounds									
	Benzene	<0.0068		0.0068	ug/g	15-OCT-20	0.02		
	Ethylbenzene	<0.018		0.018	ug/g	15-OCT-20	0.05		
	Toluene	<0.080		0.080	ug/g	15-OCT-20	0.2		
	o-Xylene	<0.020		0.020	ug/g	15-OCT-20			
	m+p-Xylenes	<0.030		0.030	ug/g	15-OCT-20			
	Xylenes (Total)	<0.050		0.050	ug/g	15-OCT-20	0.05		
	Surrogate: 4-Bromofluorobenzene	124.1		50-140	%	15-OCT-20			
	Surrogate: 1,4-Difluorobenzene	130.6		50-140	%	15-OCT-20			
Hydrocarbons									
	F1 (C6-C10)	<5.0		5.0	ug/g	15-OCT-20	25		
	F1-BTEX	<5.0		5.0	ug/g	16-OCT-20	25		
	F2 (C10-C16)	<10		10	ug/g	16-OCT-20	10		
	F3 (C16-C34)	<50		50	ug/g	16-OCT-20	240		
	F4 (C34-C50)	<50		50	ug/g	16-OCT-20	120		
	Total Hydrocarbons (C6-C50)	<72		72	ug/g	16-OCT-20			
	Chrom. to baseline at nC50	YES			No Unit	16-OCT-20			
	Surrogate: 2-Bromobenzotrifluoride	86.7		60-140	%	16-OCT-20			
	Surrogate: 3,4-Dichlorotoluene	93.6		60-140	%	15-OCT-20			
Organochlorine Pesticides									
	Aldrin	<0.020		0.020	ug/g	20-OCT-20	0.05		
	gamma-hexachlorocyclohexane	<0.010		0.010	ug/g	20-OCT-20	0.01		
	a-chlordane	<0.020		0.020	ug/g	20-OCT-20			
	Chlordane (Total)	<0.028		0.028	ug/g	20-OCT-20	0.05		
	g-chlordane	<0.020		0.020	ug/g	20-OCT-20			
	op-DDD	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDD	<0.020		0.020	ug/g	20-OCT-20			
	Total DDD	<0.028		0.028	ug/g	20-OCT-20	0.05		
	o,p-DDE	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDE	<0.020		0.020	ug/g	20-OCT-20			
	Total DDE	<0.028		0.028	ug/g	20-OCT-20	0.05		
	op-DDT	<0.020		0.020	ug/g	20-OCT-20			
	pp-DDT	<0.020		0.020	ug/g	20-OCT-20			
	Total DDT	<0.028		0.028	ug/g	20-OCT-20	1.4		

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL GUIDELINE REPORT

181-07967-00

Sample Details		Result	Qualifier	D.L.	Units	Analyzed	Guideline Limits		
Grouping	Analyte						#1		
L2515508-28	GS40								
Sampled By: KMT on 09-OCT-20									
Matrix: SOIL									
Organochlorine Pesticides									
	Dieldrin	<0.020		0.020	ug/g	20-OCT-20	0.05		
	Endosulfan I	<0.020		0.020	ug/g	20-OCT-20			
	Endosulfan II	<0.020		0.020	ug/g	20-OCT-20			
	Endosulfan (Total)	<0.028		0.028	ug/g	20-OCT-20	0.04		
	Endrin	<0.020		0.020	ug/g	20-OCT-20	0.04		
	Heptachlor	<0.020		0.020	ug/g	20-OCT-20	0.05		
	Heptachlor Epoxide	<0.020		0.020	ug/g	20-OCT-20	0.05		
	Hexachlorobenzene	<0.010		0.010	ug/g	20-OCT-20	0.01		
	Hexachlorobutadiene	<0.010		0.010	ug/g	20-OCT-20	0.01		
	Hexachloroethane	<0.010		0.010	ug/g	20-OCT-20	0.01		
	Methoxychlor	<0.020		0.020	ug/g	20-OCT-20	0.05		
	Surrogate: 2-Fluorobiphenyl	69.5		50-140	%	20-OCT-20			
	Surrogate: d14-Terphenyl	69.5		50-140	%	20-OCT-20			

** Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

* Analytical result for this parameter exceeds Guideline Limit listed on this report. Guideline Limits applied:

T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

#1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Reference Information

Sample Parameter Qualifier key listed:

Qualifier	Description
SAR:M	Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference***
B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

BTX-511-HS-WT	Soil	BTEX-O.Reg 153/04 (July 2011)	SW846 8260
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BTX is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION
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Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD
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The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199
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This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION
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Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138
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A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION
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Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Reference Information

F1-F4-511-CALC-WT Soil F1-F4 Hydrocarbon Calculated CCME CWS-PHC, Pub #1310, Dec 2001-S
Parameters

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT Soil F1-O.Reg 153/04 (July 2011) E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT Soil F2-F4-O.Reg 153/04 (July 2011) CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:

1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

HG-200.2-CVAA-WT Soil Mercury in Soil by CVAAS EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

MET-200.2-CCMS-WT Soil Metals in Soil by CRC ICPMS EPA 200.2/6020B (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H₂S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

MOISTURE-WT Soil % Moisture CCME PHC in Soil - Tier 1 (mod)

PEST-OC-511-WT Soil OC Pesticides-O.Reg 153/04
(July 2011) SW846 8270 (511)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT Soil pH MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT Soil SAR-O.Reg 153/04 (July 2011) SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

XYLENES-SUM-CALC- Soil Sum of Xylene Isomer CALCULATION
WT Concentrations

Total xylenes represents the sum of o-xylene and m&p-xylene.

*** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody numbers:

17-870030 17-870031 17-870032

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
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WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		
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Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.



Quality Control Report

Workorder: L2515508

Report Date: 20-OCT-20

Page 1 of 20

Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT		Soil						
Batch R5259120								
WG3427791-4	DUP	L2515508-7						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	20-OCT-20
WG3427791-2	IRM	WT SAR4						
Boron (B), Hot Water Ext.			94.6		%		70-130	20-OCT-20
WG3427791-3	LCS							
Boron (B), Hot Water Ext.			105.0		%		70-130	20-OCT-20
WG3427791-1	MB							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	20-OCT-20
Batch R5259138								
WG3427792-4	DUP	L2516034-5						
Boron (B), Hot Water Ext.		0.48	0.47		ug/g	2.1	30	20-OCT-20
WG3427792-2	IRM	WT SAR4						
Boron (B), Hot Water Ext.			100.5		%		70-130	20-OCT-20
WG3427792-3	LCS							
Boron (B), Hot Water Ext.			105.0		%		70-130	20-OCT-20
WG3427792-1	MB							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	20-OCT-20
BTX-511-HS-WT		Soil						
Batch R5253852								
WG3423573-4	DUP	WG3423573-3						
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	14-OCT-20
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	14-OCT-20
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	14-OCT-20
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	14-OCT-20
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	14-OCT-20
WG3423573-2	LCS							
Benzene			101.0		%		70-130	14-OCT-20
Ethylbenzene			101.0		%		70-130	14-OCT-20
m+p-Xylenes			106.9		%		70-130	14-OCT-20
o-Xylene			100.8		%		70-130	14-OCT-20
Toluene			102.2		%		70-130	14-OCT-20
WG3423573-1	MB							
Benzene			<0.0068		ug/g		0.0068	14-OCT-20
Ethylbenzene			<0.018		ug/g		0.018	14-OCT-20
m+p-Xylenes			<0.030		ug/g		0.03	14-OCT-20
o-Xylene			<0.020		ug/g		0.02	14-OCT-20



Quality Control Report

Workorder: L2515508

Report Date: 20-OCT-20

Page 2 of 20

Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX-511-HS-WT		Soil						
Batch R5253852								
WG3423573-1 MB								
Toluene			<0.080		ug/g		0.08	14-OCT-20
Surrogate: 1,4-Difluorobenzene			131.8		%		50-140	14-OCT-20
Surrogate: 4-Bromofluorobenzene			123.5		%		50-140	14-OCT-20
WG3423573-5 MS		WG3423573-3						
Benzene			102.4		%		60-140	14-OCT-20
Ethylbenzene			102.0		%		60-140	14-OCT-20
m+p-Xylenes			107.8		%		60-140	14-OCT-20
o-Xylene			102.4		%		60-140	14-OCT-20
Toluene			103.4		%		60-140	14-OCT-20
Batch R5254571								
WG3423397-4 DUP		WG3423397-3						
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	15-OCT-20
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	15-OCT-20
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	15-OCT-20
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-OCT-20
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	15-OCT-20
WG3423397-2 LCS								
Benzene			113.2		%		70-130	15-OCT-20
Ethylbenzene			105.9		%		70-130	15-OCT-20
m+p-Xylenes			99.1		%		70-130	15-OCT-20
o-Xylene			106.3		%		70-130	15-OCT-20
Toluene			107.3		%		70-130	15-OCT-20
WG3423397-1 MB								
Benzene			<0.0068		ug/g		0.0068	15-OCT-20
Ethylbenzene			<0.018		ug/g		0.018	15-OCT-20
m+p-Xylenes			<0.030		ug/g		0.03	15-OCT-20
o-Xylene			<0.020		ug/g		0.02	15-OCT-20
Toluene			<0.080		ug/g		0.08	15-OCT-20
Surrogate: 1,4-Difluorobenzene			129.3		%		50-140	15-OCT-20
Surrogate: 4-Bromofluorobenzene			124.0		%		50-140	15-OCT-20
WG3423397-5 MS		WG3423397-3						
Benzene			111.3		%		60-140	15-OCT-20
Ethylbenzene			104.8		%		60-140	15-OCT-20
m+p-Xylenes			100.4		%		60-140	15-OCT-20



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX-511-HS-WT		Soil						
Batch R5254571								
WG3423397-5 MS		WG3423397-3						
o-Xylene			105.3		%		60-140	15-OCT-20
Toluene			106.9		%		60-140	15-OCT-20
Batch R5255331								
WG3423746-4 DUP		WG3423746-3						
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	15-OCT-20
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	15-OCT-20
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	15-OCT-20
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	15-OCT-20
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	15-OCT-20
WG3423746-2 LCS								
Benzene			94.4		%		70-130	15-OCT-20
Ethylbenzene			96.1		%		70-130	15-OCT-20
m+p-Xylenes			96.8		%		70-130	15-OCT-20
o-Xylene			95.5		%		70-130	15-OCT-20
Toluene			97.0		%		70-130	15-OCT-20
WG3423746-1 MB								
Benzene			<0.0068		ug/g		0.0068	15-OCT-20
Ethylbenzene			<0.018		ug/g		0.018	15-OCT-20
m+p-Xylenes			<0.030		ug/g		0.03	15-OCT-20
o-Xylene			<0.020		ug/g		0.02	15-OCT-20
Toluene			<0.080		ug/g		0.08	15-OCT-20
Surrogate: 1,4-Difluorobenzene			128.7		%		50-140	15-OCT-20
Surrogate: 4-Bromofluorobenzene			119.6		%		50-140	15-OCT-20
WG3423746-5 MS		WG3423746-3						
Benzene			99.4		%		60-140	15-OCT-20
Ethylbenzene			100.0		%		60-140	15-OCT-20
m+p-Xylenes			101.2		%		60-140	15-OCT-20
o-Xylene			99.7		%		60-140	15-OCT-20
Toluene			101.8		%		60-140	15-OCT-20
CN-WAD-R511-WT		Soil						
Batch R5255634								
WG3422400-3 DUP		L2515508-28						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	16-OCT-20
WG3424663-3 DUP		L2515508-2						



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CN-WAD-R511-WT		Soil						
Batch R5255634								
WG3424663-3 DUP		L2515508-2						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	16-OCT-20
WG3422400-2 LCS			94.5		%		80-120	16-OCT-20
Cyanide, Weak Acid Diss								
WG3424663-2 LCS			91.9		%		80-120	16-OCT-20
Cyanide, Weak Acid Diss								
WG3422400-1 MB			<0.050		ug/g		0.05	16-OCT-20
Cyanide, Weak Acid Diss								
WG3424663-1 MB			<0.050		ug/g		0.05	16-OCT-20
Cyanide, Weak Acid Diss								
WG3422400-4 MS		L2515508-28	98.0		%		70-130	16-OCT-20
Cyanide, Weak Acid Diss								
WG3424663-4 MS		L2515508-2	100.0		%		70-130	16-OCT-20
Cyanide, Weak Acid Diss								
CR-CR6-IC-WT		Soil						
Batch R5256611								
WG3424662-4 CRM		WT-SQC012	73.7		%		70-130	19-OCT-20
Chromium, Hexavalent								
WG3424662-3 DUP		L2515508-2	<0.20	RPD-NA	ug/g	N/A	35	19-OCT-20
Chromium, Hexavalent								
WG3424662-2 LCS			101.5		%		80-120	19-OCT-20
Chromium, Hexavalent								
WG3424662-1 MB			<0.20		ug/g		0.2	19-OCT-20
Chromium, Hexavalent								
Batch R5256912								
WG3425373-4 CRM		WT-SQC012	97.2		%		70-130	19-OCT-20
Chromium, Hexavalent								
WG3425373-3 DUP		L2515508-22	<0.20	RPD-NA	ug/g	N/A	35	19-OCT-20
Chromium, Hexavalent								
WG3425373-2 LCS			97.3		%		80-120	19-OCT-20
Chromium, Hexavalent								
WG3425373-1 MB			<0.20		ug/g		0.2	19-OCT-20
Chromium, Hexavalent								
EC-WT		Soil						
Batch R5258357								
WG3427789-4 DUP		WG3427789-3	0.117		mS/cm	2.2	20	20-OCT-20
Conductivity			0.114					
WG3427789-2 IRM		WT SAR4						



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	Soil							
Batch	R5258357							
WG3427789-2	IRM	WT SAR4						
Conductivity			104.0		%		70-130	20-OCT-20
WG3427961-1	LCS							
Conductivity			98.9		%		90-110	20-OCT-20
WG3427789-1	MB							
Conductivity			<0.0040		mS/cm		0.004	20-OCT-20
Batch	R5259077							
WG3427796-4	DUP	WG3427796-3						
Conductivity		1.09	1.10		mS/cm	0.7	20	20-OCT-20
WG3427796-2	IRM	WT SAR4						
Conductivity			103.0		%		70-130	20-OCT-20
WG3427967-1	LCS							
Conductivity			99.6		%		90-110	20-OCT-20
WG3427796-1	MB							
Conductivity			<0.0040		mS/cm		0.004	20-OCT-20
F1-HS-511-WT	Soil							
Batch	R5253852							
WG3423573-4	DUP	WG3423573-3						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	14-OCT-20
WG3423573-2	LCS							
F1 (C6-C10)			98.2		%		80-120	14-OCT-20
WG3423573-1	MB							
F1 (C6-C10)			<5.0		ug/g		5	14-OCT-20
Surrogate: 3,4-Dichlorotoluene			104.6		%		60-140	14-OCT-20
WG3423573-6	MS	L2515508-22						
F1 (C6-C10)			107.3		%		60-140	14-OCT-20
Batch	R5254571							
WG3423397-4	DUP	WG3423397-3						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	15-OCT-20
WG3423397-2	LCS							
F1 (C6-C10)			99.7		%		80-120	15-OCT-20
WG3423397-1	MB							
F1 (C6-C10)			<5.0		ug/g		5	15-OCT-20
Surrogate: 3,4-Dichlorotoluene			110.0		%		60-140	15-OCT-20
WG3423397-6	MS	L2515508-2						
F1 (C6-C10)			92.7		%		60-140	15-OCT-20



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561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	Soil							
Batch	R5255331							
WG3423746-4	DUP	WG3423746-3						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	15-OCT-20
WG3423746-2	LCS							
F1 (C6-C10)			105.1		%		80-120	15-OCT-20
WG3423746-1	MB							
F1 (C6-C10)			<5.0		ug/g		5	15-OCT-20
Surrogate: 3,4-Dichlorotoluene			107.8		%		60-140	15-OCT-20
WG3423746-6	MS	L2515508-24						
F1 (C6-C10)			101.1		%		60-140	15-OCT-20
F2-F4-511-WT	Soil							
Batch	R5255734							
WG3424628-3	DUP	WG3424628-3						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	16-OCT-20
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	16-OCT-20
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	16-OCT-20
WG3424628-2	LCS							
F2 (C10-C16)			108.7		%		80-120	16-OCT-20
F3 (C16-C34)			114.4		%		80-120	16-OCT-20
F4 (C34-C50)			114.6		%		80-120	16-OCT-20
WG3424628-1	MB							
F2 (C10-C16)			<10		ug/g		10	16-OCT-20
F3 (C16-C34)			<50		ug/g		50	16-OCT-20
F4 (C34-C50)			<50		ug/g		50	16-OCT-20
Surrogate: 2-Bromobenzotrifluoride			80.6		%		60-140	16-OCT-20
WG3424628-4	MS	WG3424628-5						
F2 (C10-C16)			102.6		%		60-140	16-OCT-20
F3 (C16-C34)			105.1		%		60-140	16-OCT-20
F4 (C34-C50)			104.5		%		60-140	16-OCT-20
Batch	R5256002							
WG3425146-3	DUP	WG3425146-3						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	16-OCT-20
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	16-OCT-20
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	16-OCT-20
WG3425146-2	LCS							
F2 (C10-C16)			99.4		%		80-120	16-OCT-20
F3 (C16-C34)			95.6		%		80-120	16-OCT-20



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Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	Soil							
Batch	R5256002							
WG3425146-2	LCS							
F4 (C34-C50)			81.8		%		80-120	16-OCT-20
WG3425146-1	MB							
F2 (C10-C16)			<10		ug/g		10	16-OCT-20
F3 (C16-C34)			<50		ug/g		50	16-OCT-20
F4 (C34-C50)			<50		ug/g		50	16-OCT-20
Surrogate: 2-Bromobenzotrifluoride			86.8		%		60-140	16-OCT-20
WG3425146-4	MS	WG3425146-5						
F2 (C10-C16)			99.4		%		60-140	16-OCT-20
F3 (C16-C34)			99.7		%		60-140	16-OCT-20
F4 (C34-C50)			101.2		%		60-140	16-OCT-20
HG-200.2-CVAA-WT	Soil							
Batch	R5258587							
WG3427794-2	CRM	WT-SS-2						
Mercury (Hg)			107.1		%		70-130	20-OCT-20
WG3427794-6	DUP	WG3427794-5						
Mercury (Hg)		0.0111	0.0105		ug/g	5.4	40	20-OCT-20
WG3427794-3	LCS							
Mercury (Hg)			95.6		%		80-120	20-OCT-20
WG3427794-1	MB							
Mercury (Hg)			<0.0050		mg/kg		0.005	20-OCT-20
Batch	R5258677							
WG3427769-2	CRM	WT-SS-2						
Mercury (Hg)			97.2		%		70-130	20-OCT-20
WG3427769-6	DUP	WG3427769-5						
Mercury (Hg)		0.0102	0.0111		ug/g	8.2	40	20-OCT-20
WG3427769-3	LCS							
Mercury (Hg)			99.8		%		80-120	20-OCT-20
WG3427769-1	MB							
Mercury (Hg)			<0.0050		mg/kg		0.005	20-OCT-20
MET-200.2-CCMS-WT	Soil							
Batch	R5259297							
WG3427769-2	CRM	WT-SS-2						
Antimony (Sb)			95.7		%		70-130	20-OCT-20
Arsenic (As)			94.7		%		70-130	20-OCT-20
Barium (Ba)			96.2		%		70-130	20-OCT-20
Beryllium (Be)			93.7		%		70-130	20-OCT-20



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	Soil							
Batch	R5259297							
WG3427769-2	CRM	WT-SS-2						
Boron (B)			8.4		mg/kg		3.5-13.5	20-OCT-20
Cadmium (Cd)			93.7		%		70-130	20-OCT-20
Chromium (Cr)			99.1		%		70-130	20-OCT-20
Cobalt (Co)			102.1		%		70-130	20-OCT-20
Copper (Cu)			102.5		%		70-130	20-OCT-20
Lead (Pb)			102.3		%		70-130	20-OCT-20
Molybdenum (Mo)			97.7		%		70-130	20-OCT-20
Nickel (Ni)			98.9		%		70-130	20-OCT-20
Selenium (Se)			0.13		mg/kg		0-0.34	20-OCT-20
Silver (Ag)			78.7		%		70-130	20-OCT-20
Thallium (Tl)			0.067		mg/kg		0.029-0.129	20-OCT-20
Uranium (U)			82.7		%		70-130	20-OCT-20
Vanadium (V)			103.2		%		70-130	20-OCT-20
Zinc (Zn)			93.6		%		70-130	20-OCT-20
WG3427769-6	DUP	WG3427769-5						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	20-OCT-20
Arsenic (As)		2.45	2.43		ug/g	0.9	30	20-OCT-20
Barium (Ba)		97.8	98.1		ug/g	0.3	40	20-OCT-20
Beryllium (Be)		0.62	0.64		ug/g	2.6	30	20-OCT-20
Boron (B)		10.8	9.9		ug/g	8.0	30	20-OCT-20
Cadmium (Cd)		0.099	0.098		ug/g	1.3	30	20-OCT-20
Chromium (Cr)		32.3	32.1		ug/g	0.7	30	20-OCT-20
Cobalt (Co)		9.85	10.2		ug/g	3.1	30	20-OCT-20
Copper (Cu)		18.0	18.9		ug/g	4.9	30	20-OCT-20
Lead (Pb)		7.97	8.16		ug/g	2.4	40	20-OCT-20
Molybdenum (Mo)		0.63	0.54		ug/g	16	40	20-OCT-20
Nickel (Ni)		21.7	22.8		ug/g	5.3	30	20-OCT-20
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	20-OCT-20
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-OCT-20
Thallium (Tl)		0.133	0.138		ug/g	3.9	30	20-OCT-20
Uranium (U)		0.516	0.525		ug/g	1.8	30	20-OCT-20
Vanadium (V)		38.1	38.6		ug/g	1.3	30	20-OCT-20
Zinc (Zn)		51.1	52.1		ug/g	2.0	30	20-OCT-20



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	Soil							
Batch	R5259297							
WG3427769-4	LCS							
Antimony (Sb)			101.2		%		80-120	20-OCT-20
Arsenic (As)			98.0		%		80-120	20-OCT-20
Barium (Ba)			103.2		%		80-120	20-OCT-20
Beryllium (Be)			95.8		%		80-120	20-OCT-20
Boron (B)			94.0		%		80-120	20-OCT-20
Cadmium (Cd)			95.1		%		80-120	20-OCT-20
Chromium (Cr)			96.5		%		80-120	20-OCT-20
Cobalt (Co)			95.2		%		80-120	20-OCT-20
Copper (Cu)			95.1		%		80-120	20-OCT-20
Lead (Pb)			96.5		%		80-120	20-OCT-20
Molybdenum (Mo)			97.9		%		80-120	20-OCT-20
Nickel (Ni)			95.2		%		80-120	20-OCT-20
Selenium (Se)			97.3		%		80-120	20-OCT-20
Silver (Ag)			98.4		%		80-120	20-OCT-20
Thallium (Tl)			97.7		%		80-120	20-OCT-20
Uranium (U)			81.8		%		80-120	20-OCT-20
Vanadium (V)			98.9		%		80-120	20-OCT-20
Zinc (Zn)			89.8		%		80-120	20-OCT-20
WG3427769-1	MB							
Antimony (Sb)			<0.10		mg/kg		0.1	20-OCT-20
Arsenic (As)			<0.10		mg/kg		0.1	20-OCT-20
Barium (Ba)			<0.50		mg/kg		0.5	20-OCT-20
Beryllium (Be)			<0.10		mg/kg		0.1	20-OCT-20
Boron (B)			<5.0		mg/kg		5	20-OCT-20
Cadmium (Cd)			<0.020		mg/kg		0.02	20-OCT-20
Chromium (Cr)			<0.50		mg/kg		0.5	20-OCT-20
Cobalt (Co)			<0.10		mg/kg		0.1	20-OCT-20
Copper (Cu)			<0.50		mg/kg		0.5	20-OCT-20
Lead (Pb)			<0.50		mg/kg		0.5	20-OCT-20
Molybdenum (Mo)			<0.10		mg/kg		0.1	20-OCT-20
Nickel (Ni)			<0.50		mg/kg		0.5	20-OCT-20
Selenium (Se)			<0.20		mg/kg		0.2	20-OCT-20
Silver (Ag)			<0.10		mg/kg		0.1	20-OCT-20
Thallium (Tl)			<0.050		mg/kg		0.05	20-OCT-20



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	Soil							
Batch	R5259297							
WG3427769-1 MB								
Uranium (U)			<0.050		mg/kg		0.05	20-OCT-20
Vanadium (V)			<0.20		mg/kg		0.2	20-OCT-20
Zinc (Zn)			<2.0		mg/kg		2	20-OCT-20
Batch	R5259356							
WG3427794-2 CRM		WT-SS-2						
Antimony (Sb)			90.9		%		70-130	20-OCT-20
Arsenic (As)			96.5		%		70-130	20-OCT-20
Barium (Ba)			100.2		%		70-130	20-OCT-20
Beryllium (Be)			99.2		%		70-130	20-OCT-20
Boron (B)			8.7		mg/kg		3.5-13.5	20-OCT-20
Cadmium (Cd)			99.4		%		70-130	20-OCT-20
Chromium (Cr)			94.2		%		70-130	20-OCT-20
Cobalt (Co)			99.9		%		70-130	20-OCT-20
Copper (Cu)			101.7		%		70-130	20-OCT-20
Lead (Pb)			102.7		%		70-130	20-OCT-20
Molybdenum (Mo)			105.6		%		70-130	20-OCT-20
Nickel (Ni)			101.7		%		70-130	20-OCT-20
Selenium (Se)			0.12		mg/kg		0-0.34	20-OCT-20
Silver (Ag)			114.2		%		70-130	20-OCT-20
Thallium (Tl)			0.076		mg/kg		0.029-0.129	20-OCT-20
Uranium (U)			92.1		%		70-130	20-OCT-20
Vanadium (V)			97.0		%		70-130	20-OCT-20
Zinc (Zn)			94.2		%		70-130	20-OCT-20
WG3427794-6 DUP		WG3427794-5						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	20-OCT-20
Arsenic (As)		1.14	1.17		ug/g	2.0	30	20-OCT-20
Barium (Ba)		39.3	38.8		ug/g	1.2	40	20-OCT-20
Beryllium (Be)		0.27	0.27		ug/g	0.9	30	20-OCT-20
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	20-OCT-20
Cadmium (Cd)		0.067	0.062		ug/g	6.5	30	20-OCT-20
Chromium (Cr)		13.5	13.1		ug/g	3.2	30	20-OCT-20
Cobalt (Co)		4.11	4.05		ug/g	1.4	30	20-OCT-20
Copper (Cu)		6.67	6.68		ug/g	0.2	30	20-OCT-20
Lead (Pb)		3.22	3.21		ug/g	0.3	40	20-OCT-20



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	Soil							
Batch	R5259356							
WG3427794-6	DUP	WG3427794-5						
Molybdenum (Mo)		0.16	0.14		ug/g	10	40	20-OCT-20
Nickel (Ni)		7.51	7.38		ug/g	1.8	30	20-OCT-20
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	20-OCT-20
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-OCT-20
Thallium (Tl)		0.054	0.055		ug/g	1.8	30	20-OCT-20
Uranium (U)		0.331	0.323		ug/g	2.5	30	20-OCT-20
Vanadium (V)		30.9	31.3		ug/g	1.3	30	20-OCT-20
Zinc (Zn)		18.1	18.8		ug/g	4.2	30	20-OCT-20
WG3427794-4	LCS							
Antimony (Sb)			97.5		%		80-120	20-OCT-20
Arsenic (As)			97.2		%		80-120	20-OCT-20
Barium (Ba)			98.2		%		80-120	20-OCT-20
Beryllium (Be)			89.9		%		80-120	20-OCT-20
Boron (B)			94.6		%		80-120	20-OCT-20
Cadmium (Cd)			92.6		%		80-120	20-OCT-20
Chromium (Cr)			97.5		%		80-120	20-OCT-20
Cobalt (Co)			97.2		%		80-120	20-OCT-20
Copper (Cu)			96.2		%		80-120	20-OCT-20
Lead (Pb)			96.7		%		80-120	20-OCT-20
Molybdenum (Mo)			96.5		%		80-120	20-OCT-20
Nickel (Ni)			97.5		%		80-120	20-OCT-20
Selenium (Se)			100.3		%		80-120	20-OCT-20
Silver (Ag)			95.7		%		80-120	20-OCT-20
Thallium (Tl)			96.0		%		80-120	20-OCT-20
Uranium (U)			95.5		%		80-120	20-OCT-20
Vanadium (V)			99.8		%		80-120	20-OCT-20
Zinc (Zn)			93.0		%		80-120	20-OCT-20
WG3427794-1	MB							
Antimony (Sb)			<0.10		mg/kg		0.1	20-OCT-20
Arsenic (As)			<0.10		mg/kg		0.1	20-OCT-20
Barium (Ba)			<0.50		mg/kg		0.5	20-OCT-20
Beryllium (Be)			<0.10		mg/kg		0.1	20-OCT-20
Boron (B)			<5.0		mg/kg		5	20-OCT-20
Cadmium (Cd)			<0.020		mg/kg		0.02	20-OCT-20



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	Soil							
Batch	R5259356							
WG3427794-1	MB							
Chromium (Cr)			<0.50		mg/kg		0.5	20-OCT-20
Cobalt (Co)			<0.10		mg/kg		0.1	20-OCT-20
Copper (Cu)			<0.50		mg/kg		0.5	20-OCT-20
Lead (Pb)			<0.50		mg/kg		0.5	20-OCT-20
Molybdenum (Mo)			<0.10		mg/kg		0.1	20-OCT-20
Nickel (Ni)			<0.50		mg/kg		0.5	20-OCT-20
Selenium (Se)			<0.20		mg/kg		0.2	20-OCT-20
Silver (Ag)			<0.10		mg/kg		0.1	20-OCT-20
Thallium (Tl)			<0.050		mg/kg		0.05	20-OCT-20
Uranium (U)			<0.050		mg/kg		0.05	20-OCT-20
Vanadium (V)			<0.20		mg/kg		0.2	20-OCT-20
Zinc (Zn)			<2.0		mg/kg		2	20-OCT-20
MOISTURE-WT	Soil							
Batch	R5254595							
WG3424625-3	DUP	L2515508-4						
% Moisture		9.40	9.21		%	2.0	20	16-OCT-20
WG3424625-2	LCS							
% Moisture			100.2		%		90-110	16-OCT-20
WG3424625-1	MB							
% Moisture			<0.25		%		0.25	16-OCT-20
Batch	R5254598							
WG3424236-3	DUP	L2514423-31						
% Moisture		2.49	2.40		%	3.7	20	15-OCT-20
WG3424236-2	LCS							
% Moisture			99.7		%		90-110	15-OCT-20
WG3424236-1	MB							
% Moisture			<0.25		%		0.25	15-OCT-20
Batch	R5254599							
WG3424652-3	DUP	L2515508-24						
% Moisture		6.11	6.34		%	3.7	20	16-OCT-20
WG3424652-2	LCS							
% Moisture			99.9		%		90-110	16-OCT-20
WG3424652-1	MB							
% Moisture			<0.25		%		0.25	16-OCT-20



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-WT		Soil						
Batch	R5254601							
WG3424629-3	DUP	L2515508-23						
% Moisture		7.61	7.73		%	1.6	20	16-OCT-20
WG3424629-2	LCS							
% Moisture			100.5		%		90-110	16-OCT-20
WG3424629-1	MB							
% Moisture			<0.25		%		0.25	16-OCT-20
PEST-OC-511-WT		Soil						
Batch	R5256903							
WG3424403-3	DUP	WG3424403-5						
Aldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
a-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
g-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
op-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
pp-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
o,p-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
pp-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
op-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
pp-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
Dieldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
Endosulfan I		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
Endosulfan II		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
Endrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
gamma-hexachlorocyclohexane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	19-OCT-20
Heptachlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
Heptachlor Epoxide		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
Hexachlorobenzene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	19-OCT-20
Hexachlorobutadiene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	19-OCT-20
Hexachloroethane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	19-OCT-20
Methoxychlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-OCT-20
WG3424403-2	LCS							
Aldrin			132.8		%		50-140	19-OCT-20
a-chlordane			92.6		%		50-140	19-OCT-20
g-chlordane			91.6		%		50-140	19-OCT-20
op-DDD			96.0		%		50-140	19-OCT-20
pp-DDD			101.5		%		50-140	19-OCT-20



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	Soil							
Batch	R5256903							
WG3424403-2	LCS							
o,p-DDE			83.0		%		50-140	19-OCT-20
pp-DDE			94.7		%		50-140	19-OCT-20
op-DDT			116.9		%		50-140	19-OCT-20
pp-DDT			126.4		%		50-140	19-OCT-20
Dieldrin			108.2		%		50-140	19-OCT-20
Endosulfan I			93.3		%		50-140	19-OCT-20
Endosulfan II			98.8		%		50-140	19-OCT-20
Endrin			142.5	LCS-H	%		50-140	19-OCT-20
gamma-hexachlorocyclohexane			102.1		%		50-140	19-OCT-20
Heptachlor			133.7		%		50-140	19-OCT-20
Heptachlor Epoxide			106.8		%		50-140	19-OCT-20
Hexachlorobenzene			98.2		%		50-140	19-OCT-20
Hexachlorobutadiene			92.9		%		50-140	19-OCT-20
Hexachloroethane			97.9		%		50-140	19-OCT-20
Methoxychlor			148.8	LCS-H	%		50-140	19-OCT-20
WG3424403-1	MB							
Aldrin			<0.020		ug/g		0.02	19-OCT-20
a-chlordane			<0.020		ug/g		0.02	19-OCT-20
g-chlordane			<0.020		ug/g		0.02	19-OCT-20
op-DDD			<0.020		ug/g		0.02	19-OCT-20
pp-DDD			<0.020		ug/g		0.02	19-OCT-20
o,p-DDE			<0.020		ug/g		0.02	19-OCT-20
pp-DDE			<0.020		ug/g		0.02	19-OCT-20
op-DDT			<0.020		ug/g		0.02	19-OCT-20
pp-DDT			<0.020		ug/g		0.02	19-OCT-20
Dieldrin			<0.020		ug/g		0.02	19-OCT-20
Endosulfan I			<0.020		ug/g		0.02	19-OCT-20
Endosulfan II			<0.020		ug/g		0.02	19-OCT-20
Endrin			<0.020		ug/g		0.02	19-OCT-20
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	19-OCT-20
Heptachlor			<0.020		ug/g		0.02	19-OCT-20
Heptachlor Epoxide			<0.020		ug/g		0.02	19-OCT-20
Hexachlorobenzene			<0.010		ug/g		0.01	19-OCT-20
Hexachlorobutadiene			<0.010		ug/g		0.01	19-OCT-20



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	Soil							
Batch	R5256903							
WG3424403-1 MB								
Hexachloroethane			<0.010		ug/g		0.01	19-OCT-20
Methoxychlor			<0.020		ug/g		0.02	19-OCT-20
Surrogate: 2-Fluorobiphenyl			73.2		%		50-140	19-OCT-20
Surrogate: d14-Terphenyl			62.3		%		50-140	19-OCT-20
WG3424403-4 MS		WG3424403-5						
Aldrin			124.9		%		50-140	19-OCT-20
a-chlordane			98.6		%		50-140	19-OCT-20
g-chlordane			98.6		%		50-140	19-OCT-20
op-DDD			102.9		%		50-140	19-OCT-20
pp-DDD			108.5		%		50-140	19-OCT-20
o,p-DDE			90.1		%		50-140	19-OCT-20
pp-DDE			102.9		%		50-140	19-OCT-20
op-DDT			113.0		%		50-140	19-OCT-20
pp-DDT			111.0		%		50-140	19-OCT-20
Dieldrin			114.0		%		50-140	19-OCT-20
Endosulfan I			101.0		%		50-140	19-OCT-20
Endosulfan II			107.0		%		50-140	19-OCT-20
Endrin			161.7	RRQC	%		50-140	19-OCT-20
gamma-hexachlorocyclohexane			94.7		%		50-140	19-OCT-20
Heptachlor			121.2		%		50-140	19-OCT-20
Heptachlor Epoxide			114.2		%		50-140	19-OCT-20
Hexachlorobenzene			91.9		%		50-140	19-OCT-20
Hexachlorobutadiene			86.9		%		50-140	19-OCT-20
Hexachloroethane			90.9		%		50-140	19-OCT-20
Methoxychlor			138.7		%		50-140	19-OCT-20

COMMENTS: RRQC: Analyte recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.

Batch	R5259178							
WG3426147-3 DUP		WG3426147-5						
Aldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
a-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
g-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
op-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
pp-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	Soil							
Batch	R5259178							
WG3426147-3	DUP	WG3426147-5						
o,p-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
pp-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
op-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
pp-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
Dieldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
Endosulfan I		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
Endosulfan II		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
Endrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
gamma-hexachlorocyclohexane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-OCT-20
Heptachlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
Heptachlor Epoxide		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
Hexachlorobenzene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-OCT-20
Hexachlorobutadiene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-OCT-20
Hexachloroethane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-OCT-20
Methoxychlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-OCT-20
WG3426147-2	LCS							
Aldrin			124.4		%		50-140	20-OCT-20
a-chlordane			93.5		%		50-140	20-OCT-20
g-chlordane			93.9		%		50-140	20-OCT-20
op-DDD			97.8		%		50-140	20-OCT-20
pp-DDD			96.6		%		50-140	20-OCT-20
o,p-DDE			90.3		%		50-140	20-OCT-20
pp-DDE			101.9		%		50-140	20-OCT-20
op-DDT			125.6		%		50-140	20-OCT-20
pp-DDT			122.9		%		50-140	20-OCT-20
Dieldrin			108.8		%		50-140	20-OCT-20
Endosulfan I			96.3		%		50-140	20-OCT-20
Endosulfan II			94.8		%		50-140	20-OCT-20
Endrin			165.9	LCS-H	%		50-140	20-OCT-20
gamma-hexachlorocyclohexane			98.3		%		50-140	20-OCT-20
Heptachlor			130.6		%		50-140	20-OCT-20
Heptachlor Epoxide			112.4		%		50-140	20-OCT-20
Hexachlorobenzene			94.9		%		50-140	20-OCT-20



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	Soil							
Batch	R5259178							
WG3426147-2	LCS							
Hexachlorobutadiene			91.0		%		50-140	20-OCT-20
Hexachloroethane			96.9		%		50-140	20-OCT-20
Methoxychlor			148.5	LCS-H	%		50-140	20-OCT-20
WG3426147-1	MB							
Aldrin			<0.020		ug/g		0.02	20-OCT-20
a-chlordane			<0.020		ug/g		0.02	20-OCT-20
g-chlordane			<0.020		ug/g		0.02	20-OCT-20
op-DDD			<0.020		ug/g		0.02	20-OCT-20
pp-DDD			<0.020		ug/g		0.02	20-OCT-20
o,p-DDE			<0.020		ug/g		0.02	20-OCT-20
pp-DDE			<0.020		ug/g		0.02	20-OCT-20
op-DDT			<0.020		ug/g		0.02	20-OCT-20
pp-DDT			<0.020		ug/g		0.02	20-OCT-20
Dieldrin			<0.020		ug/g		0.02	20-OCT-20
Endosulfan I			<0.020		ug/g		0.02	20-OCT-20
Endosulfan II			<0.020		ug/g		0.02	20-OCT-20
Endrin			<0.020		ug/g		0.02	20-OCT-20
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	20-OCT-20
Heptachlor			<0.020		ug/g		0.02	20-OCT-20
Heptachlor Epoxide			<0.020		ug/g		0.02	20-OCT-20
Hexachlorobenzene			<0.010		ug/g		0.01	20-OCT-20
Hexachlorobutadiene			<0.010		ug/g		0.01	20-OCT-20
Hexachloroethane			<0.010		ug/g		0.01	20-OCT-20
Methoxychlor			<0.020		ug/g		0.02	20-OCT-20
Surrogate: 2-Fluorobiphenyl			72.6		%		50-140	20-OCT-20
Surrogate: d14-Terphenyl			63.8		%		50-140	20-OCT-20
WG3426147-4	MS	WG3426147-5						
Aldrin			121.6		%		50-140	20-OCT-20
a-chlordane			113.7		%		50-140	20-OCT-20
g-chlordane			116.0		%		50-140	20-OCT-20
op-DDD			117.1		%		50-140	20-OCT-20
pp-DDD			115.6		%		50-140	20-OCT-20
o,p-DDE			109.4		%		50-140	20-OCT-20
pp-DDE			123.6		%		50-140	20-OCT-20



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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	Soil							
Batch	R5259178							
WG3426147-4	MS	WG3426147-5						
op-DDT			132.8		%		50-140	20-OCT-20
pp-DDT			132.5		%		50-140	20-OCT-20
Dieldrin			132.9		%		50-140	20-OCT-20
Endosulfan I			117.3		%		50-140	20-OCT-20
Endosulfan II			117.8		%		50-140	20-OCT-20
Endrin			169.9	RRQC	%		50-140	20-OCT-20
gamma-hexachlorocyclohexane			93.3		%		50-140	20-OCT-20
Heptachlor			126.7		%		50-140	20-OCT-20
Heptachlor Epoxide			128.8		%		50-140	20-OCT-20
Hexachlorobenzene			92.2		%		50-140	20-OCT-20
Hexachlorobutadiene			87.8		%		50-140	20-OCT-20
Hexachloroethane			93.0		%		50-140	20-OCT-20
Methoxychlor			173.6	RRQC	%		50-140	20-OCT-20
COMMENTS: RRQC: Analyte recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.								
PH-WT	Soil							
Batch	R5254765							
WG3423700-1	DUP	L2515502-1						
pH		7.62	7.58	J	pH units	0.04	0.3	15-OCT-20
WG3424861-1	LCS							
pH			6.95		pH units		6.9-7.1	15-OCT-20
Batch	R5255171							
WG3424664-1	DUP	L2515508-20						
pH		7.68	7.73	J	pH units	0.05	0.3	15-OCT-20
WG3425289-1	LCS							
pH			7.02		pH units		6.9-7.1	15-OCT-20
Batch	R5255642							
WG3425641-1	DUP	L2515001-4						
pH		7.25	7.35	J	pH units	0.10	0.3	16-OCT-20
WG3425796-1	LCS							
pH			6.96		pH units		6.9-7.1	16-OCT-20
Batch	R5256756							
WG3426250-1	DUP	L2515508-22						
pH		7.88	7.81	J	pH units	0.07	0.3	19-OCT-20
WG3427178-1	LCS							
pH			6.97		pH units		6.9-7.1	19-OCT-20



Quality Control Report

Workorder: L2515508

Report Date: 20-OCT-20

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Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

Contact: Kent Malcolm

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	Soil							
Batch	R5259183							
WG3427789-4	DUP	WG3427789-3						
Calcium (Ca)		13.3	13.0		mg/L	2.3	30	20-OCT-20
Sodium (Na)		3.13	3.02		mg/L	3.6	30	20-OCT-20
Magnesium (Mg)		<0.50	<0.50	RPD-NA	mg/L	N/A	30	20-OCT-20
WG3427789-2	IRM	WT SAR4						
Calcium (Ca)			115.0		%		70-130	20-OCT-20
Sodium (Na)			90.3		%		70-130	20-OCT-20
Magnesium (Mg)			108.5		%		70-130	20-OCT-20
WG3427789-5	LCS							
Calcium (Ca)			107.3		%		80-120	20-OCT-20
Sodium (Na)			100.6		%		80-120	20-OCT-20
Magnesium (Mg)			102.2		%		80-120	20-OCT-20
WG3427789-1	MB							
Calcium (Ca)			<0.50		mg/L		0.5	20-OCT-20
Sodium (Na)			<0.50		mg/L		0.5	20-OCT-20
Magnesium (Mg)			<0.50		mg/L		0.5	20-OCT-20
Batch	R5259261							
WG3427796-4	DUP	WG3427796-3						
Calcium (Ca)		16.5	17.1		mg/L	3.6	30	20-OCT-20
Sodium (Na)		193	194		mg/L	0.5	30	20-OCT-20
Magnesium (Mg)		3.16	3.30		mg/L	4.3	30	20-OCT-20
WG3427796-2	IRM	WT SAR4						
Calcium (Ca)			102.3		%		70-130	20-OCT-20
Sodium (Na)			97.7		%		70-130	20-OCT-20
Magnesium (Mg)			106.0		%		70-130	20-OCT-20
WG3427796-5	LCS							
Calcium (Ca)			107.3		%		80-120	20-OCT-20
Sodium (Na)			98.0		%		80-120	20-OCT-20
Magnesium (Mg)			101.0		%		80-120	20-OCT-20
WG3427796-1	MB							
Calcium (Ca)			<0.50		mg/L		0.5	20-OCT-20
Sodium (Na)			<0.50		mg/L		0.5	20-OCT-20
Magnesium (Mg)			<0.50		mg/L		0.5	20-OCT-20

Quality Control Report

Workorder: L2515508

Report Date: 20-OCT-20

Client: WSP Canada Inc. (Barrie)
561 Bryne Drive Unit C & D
Barrie ON L4N 9Y3

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Contact: Kent Malcolm

Legend:

Limit ALS Control Limit (Data Quality Objectives)
DUP Duplicate
RPD Relative Percent Difference
N/A Not Available
LCS Laboratory Control Sample
SRM Standard Reference Material
MS Matrix Spike
MSD Matrix Spike Duplicate
ADE Average Desorption Efficiency
MB Method Blank
IRM Internal Reference Material
CRM Certified Reference Material
CCV Continuing Calibration Verification
CVS Calibration Verification Standard
LCSD Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.
RRQC	Refer to report remarks for information regarding this QC result.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

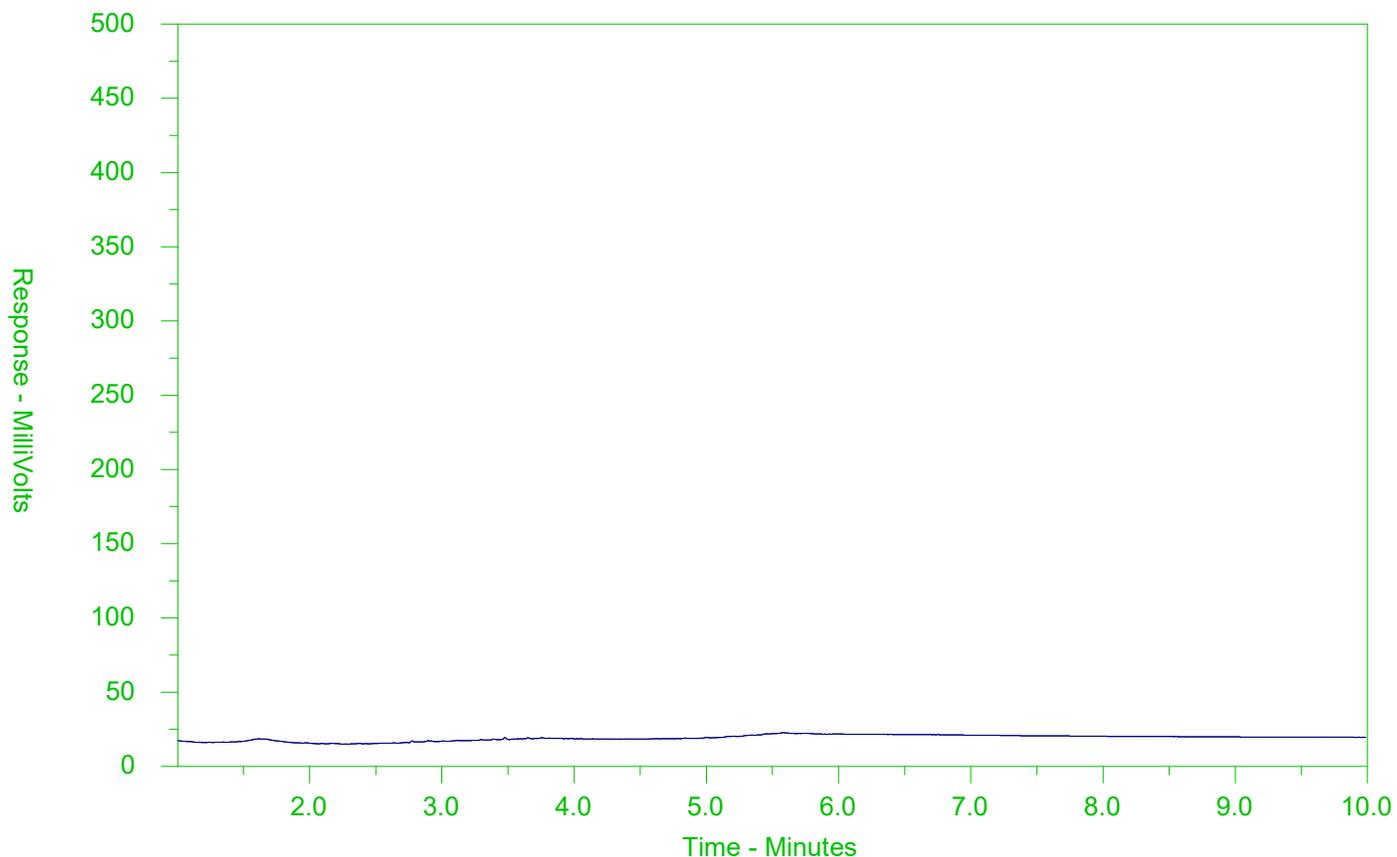
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-1
 Client Sample ID: GS13



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

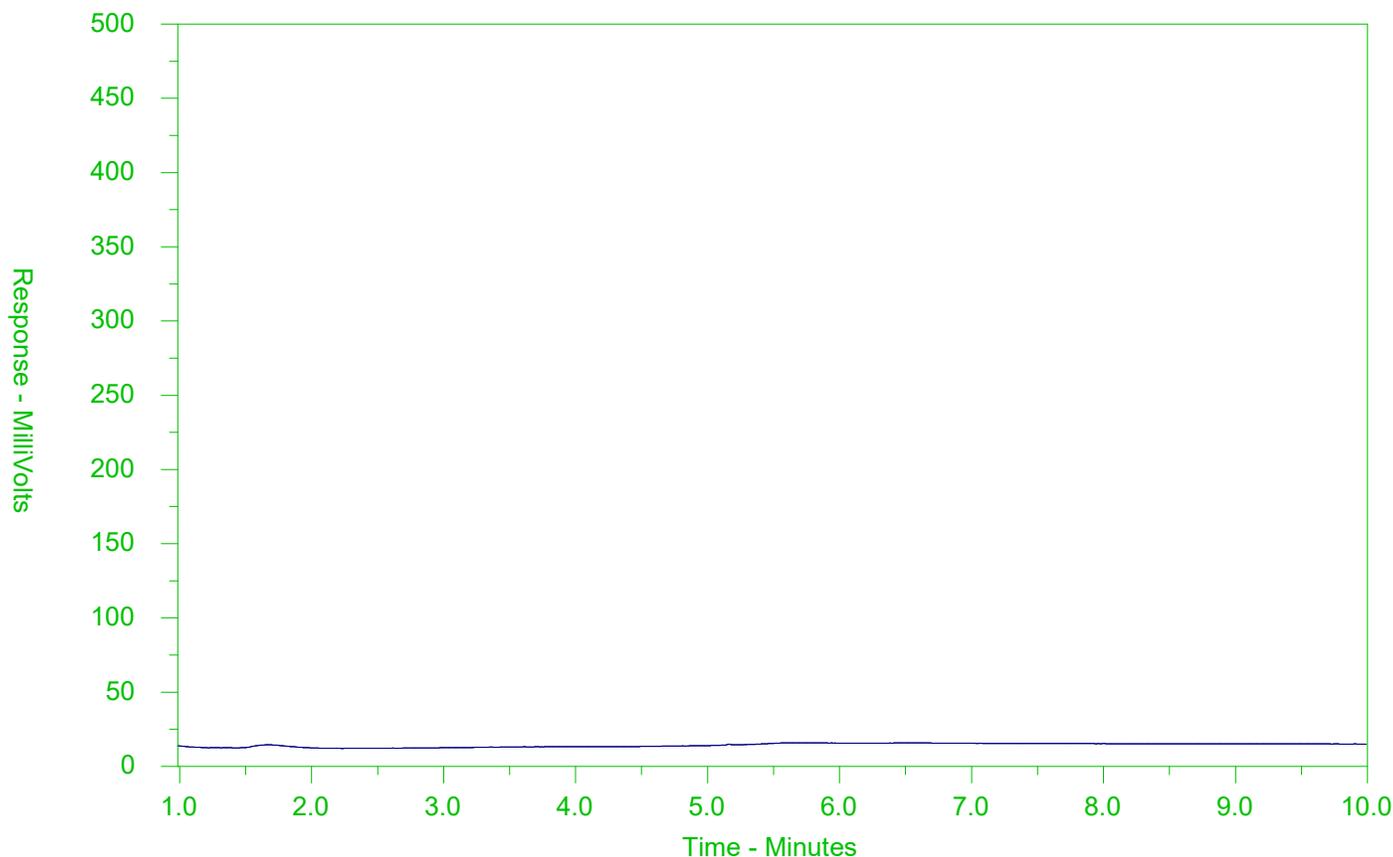
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-2
 Client Sample ID: GS14



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

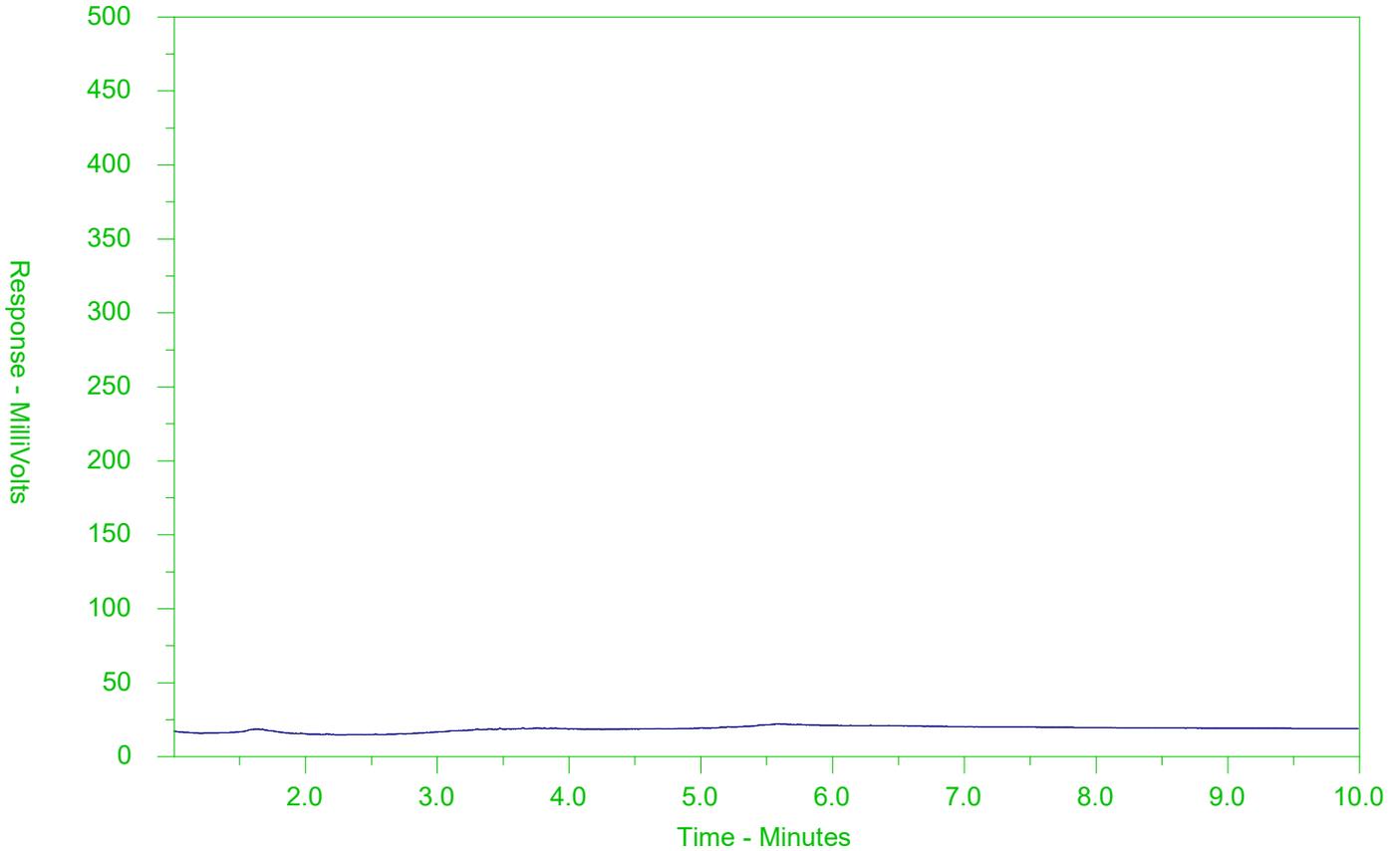
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-3
 Client Sample ID: GS15



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

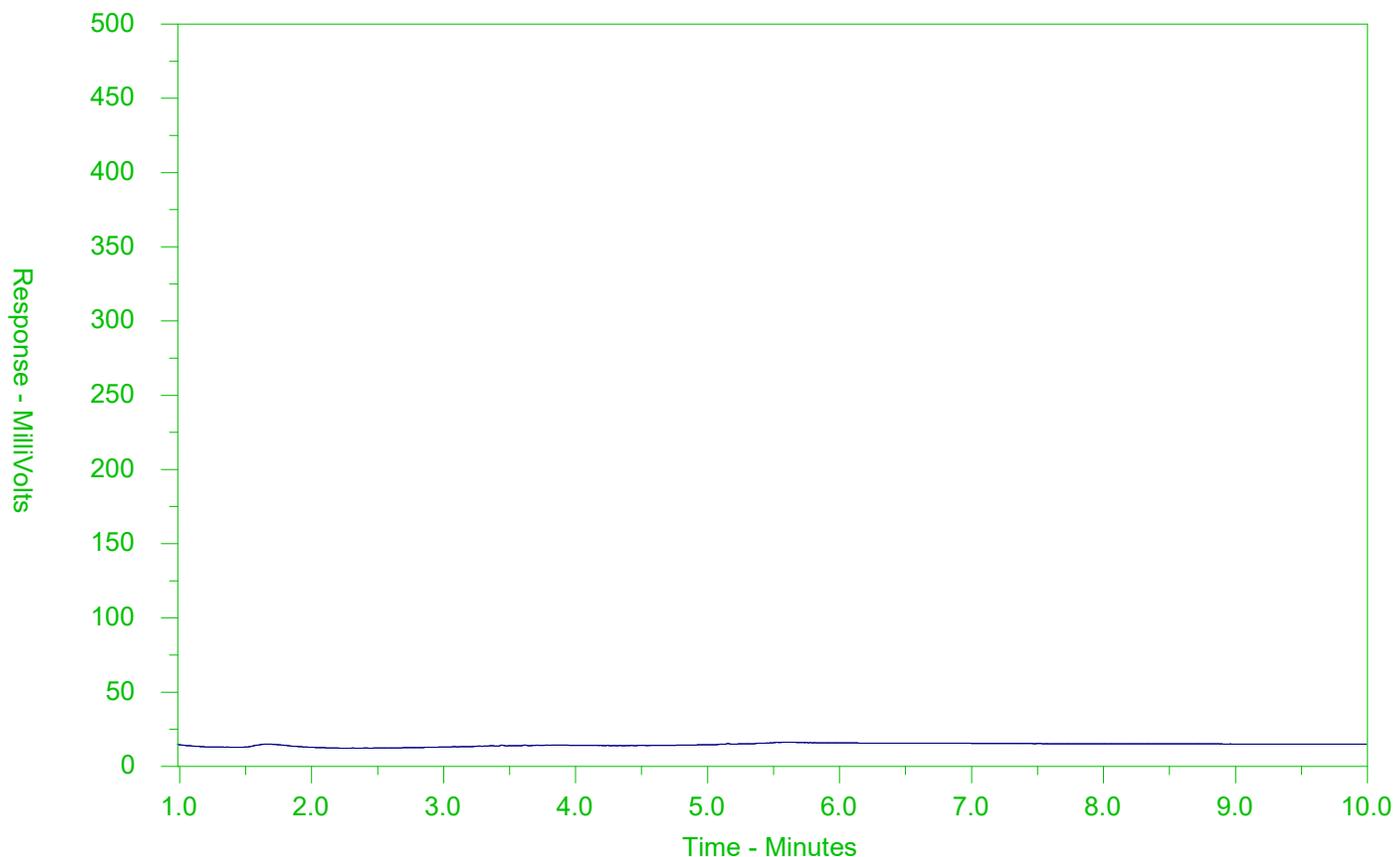
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-4
 Client Sample ID: GS16



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

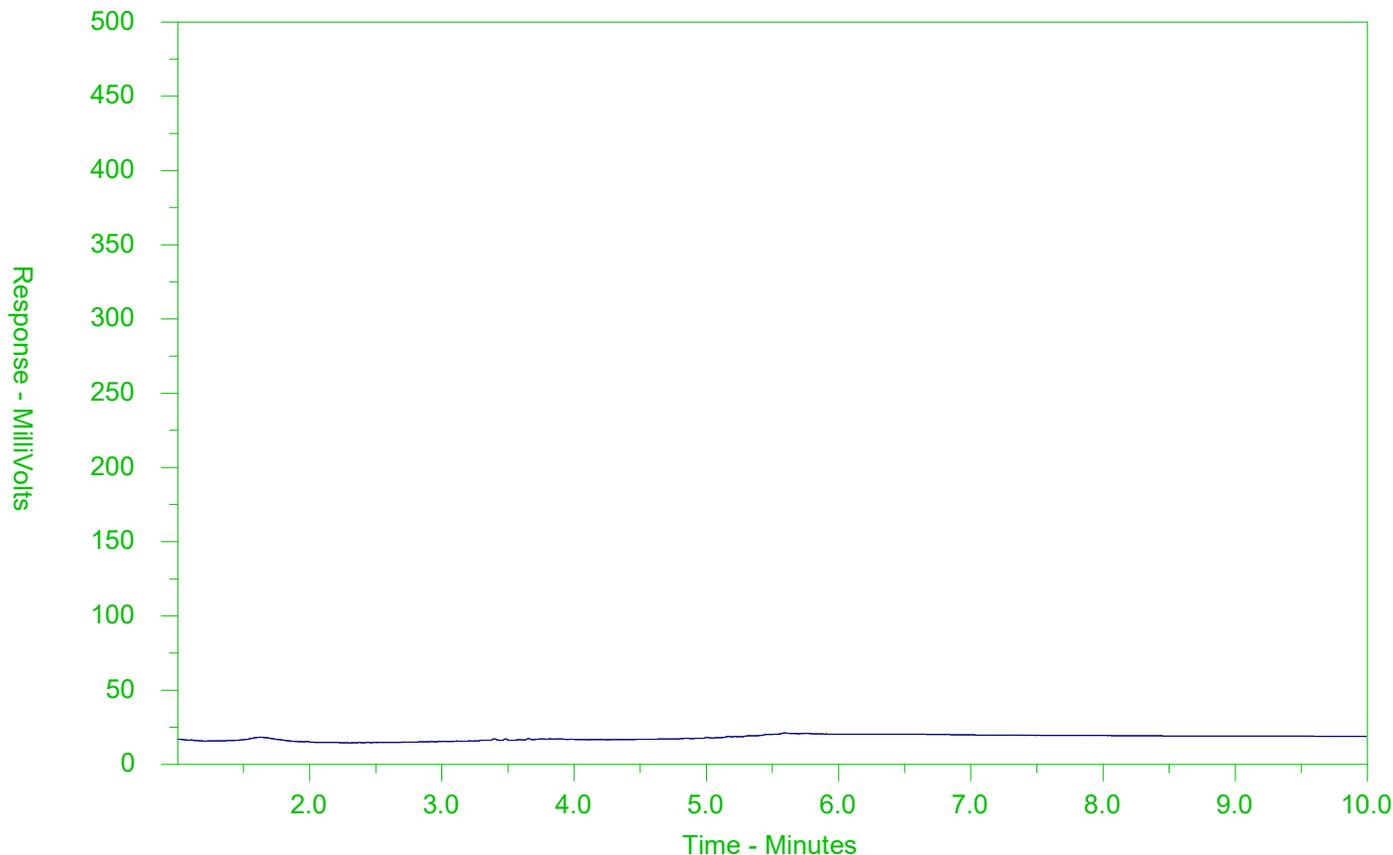
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-5
 Client Sample ID: GS17



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

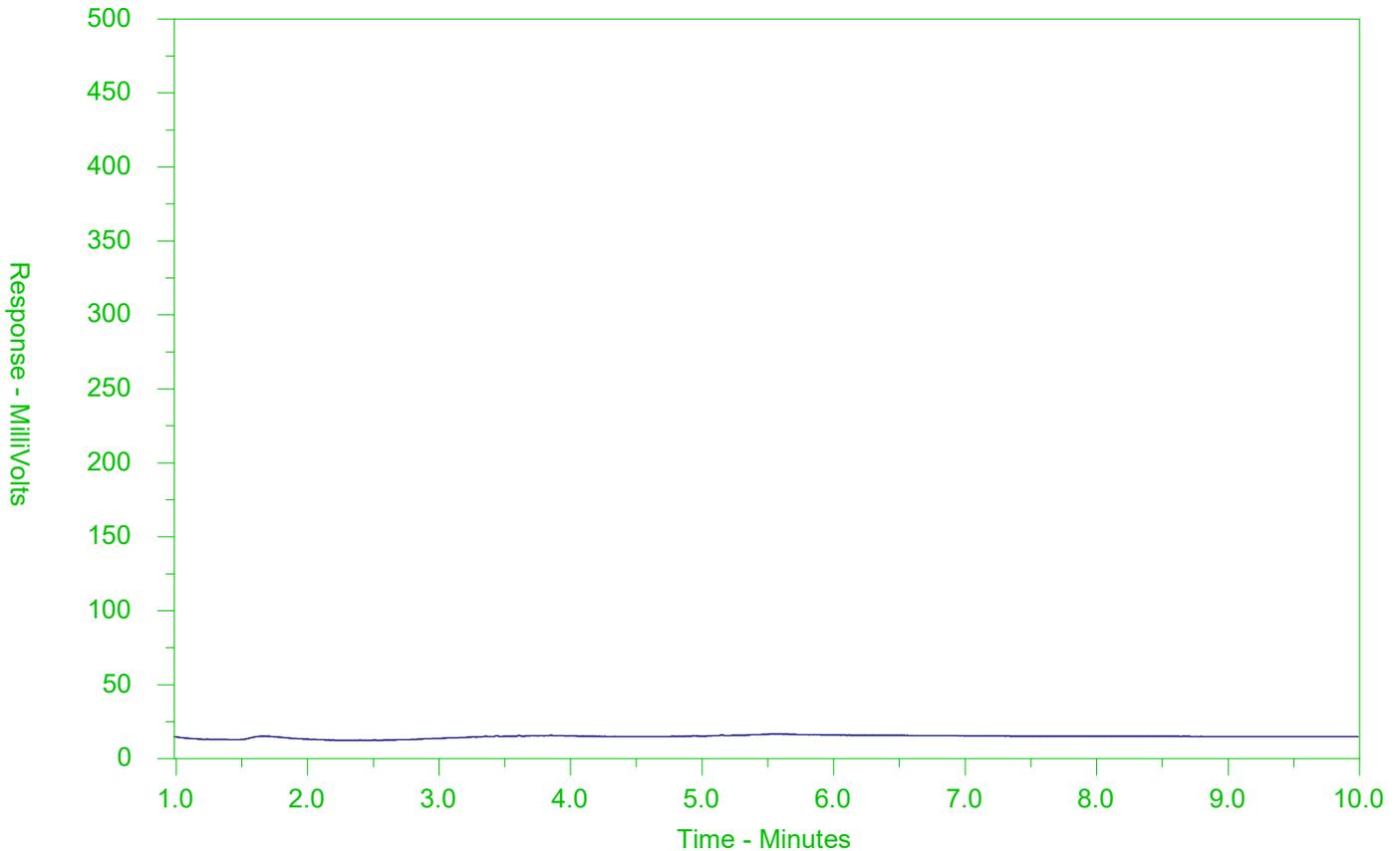
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-6
 Client Sample ID: GS18



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

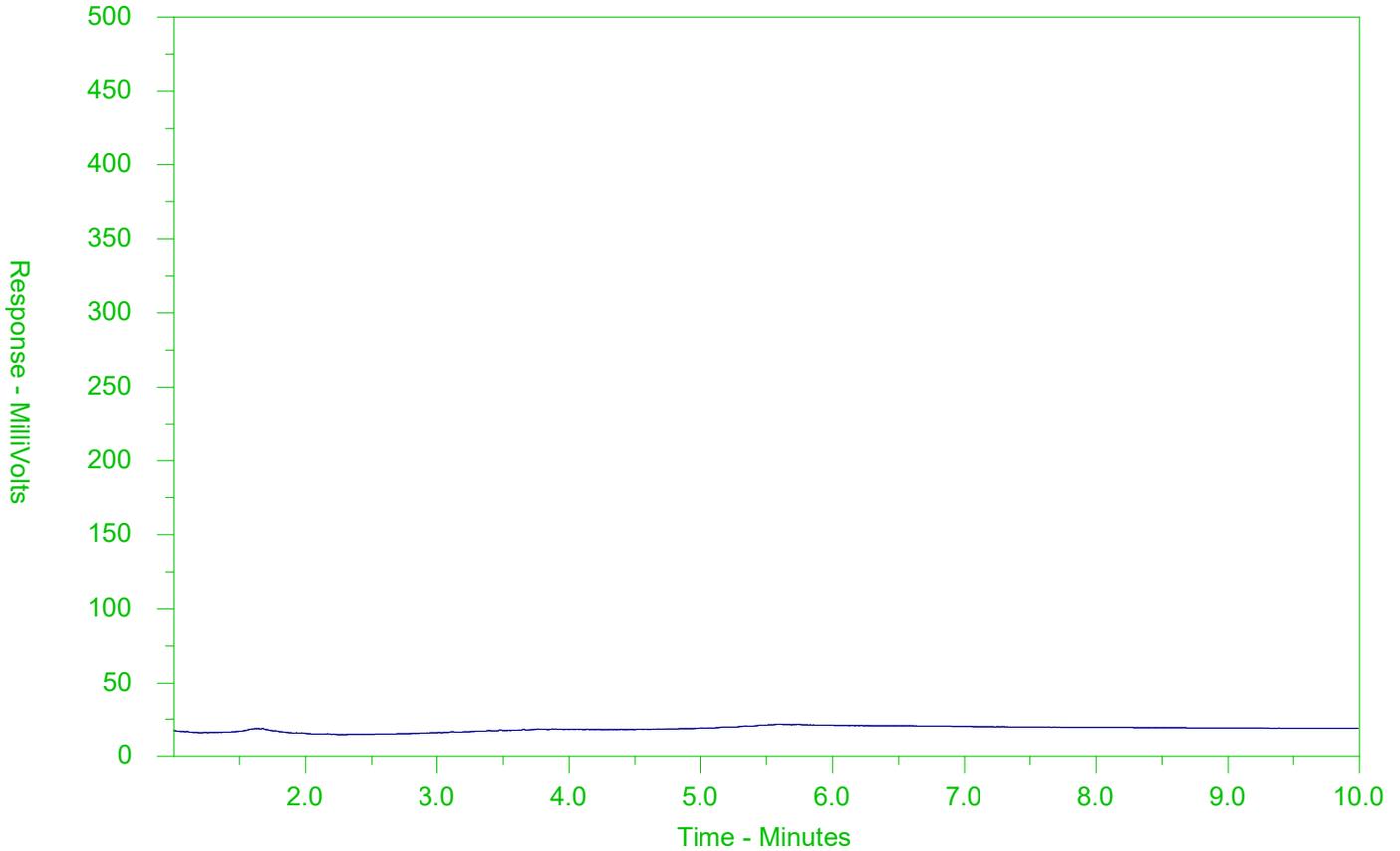
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-7
 Client Sample ID: GS19



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

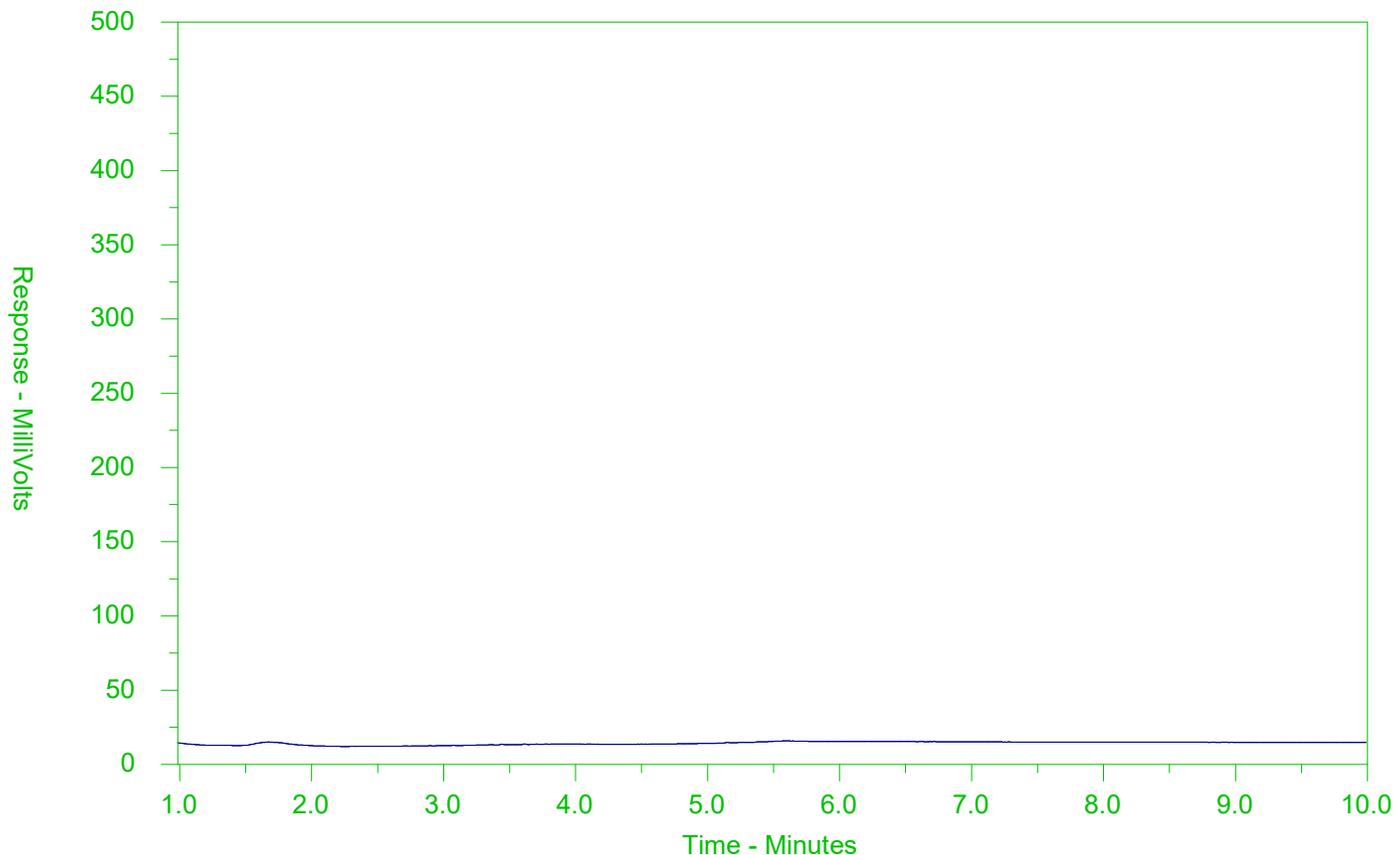
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-8
 Client Sample ID: GS20



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

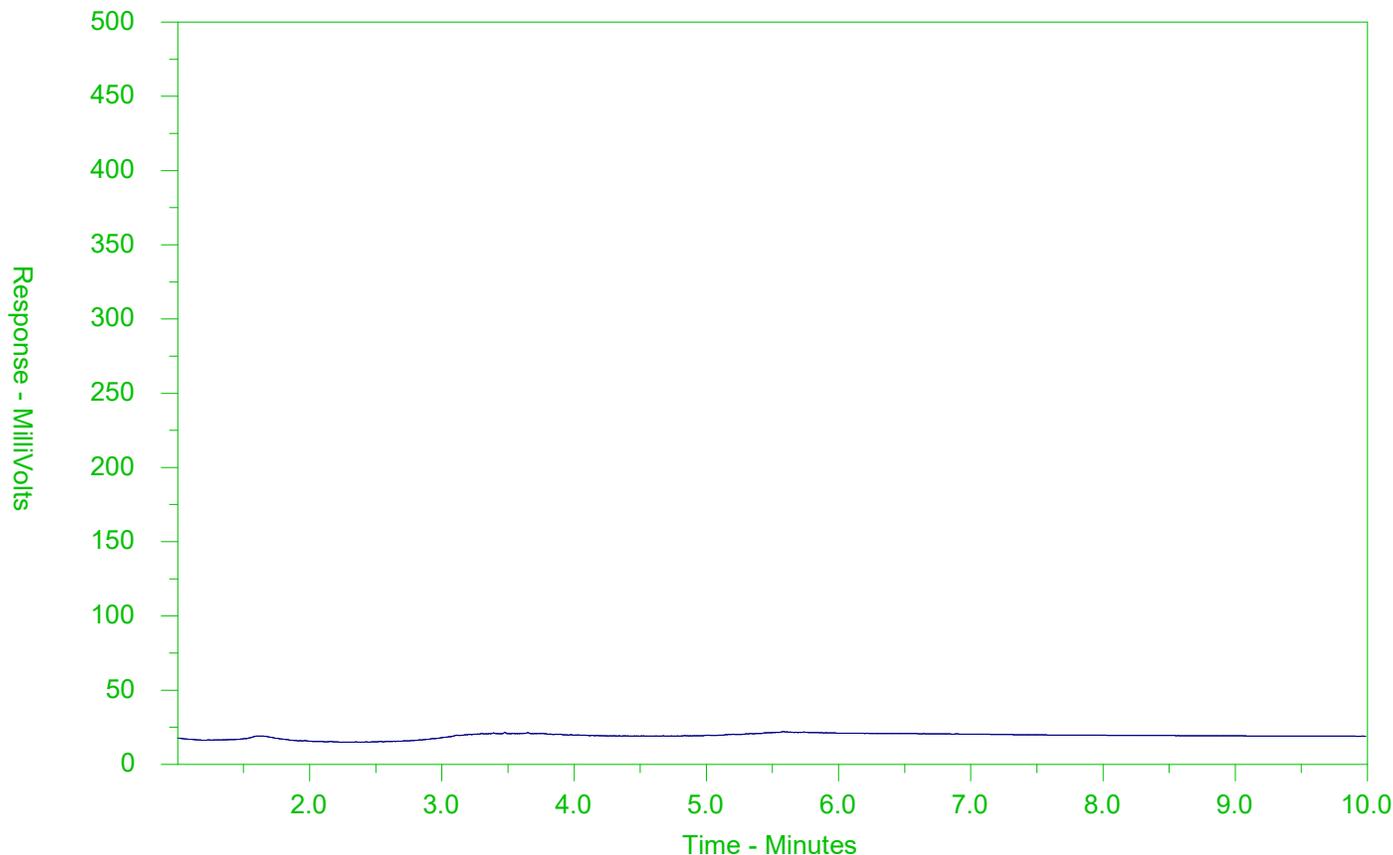
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-9
 Client Sample ID: GS21



← F2 →		← F3 →		← F4 →	
nC10	nC16			nC34	nC50
174°C	287°C			481°C	575°C
346°F	549°F			898°F	1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

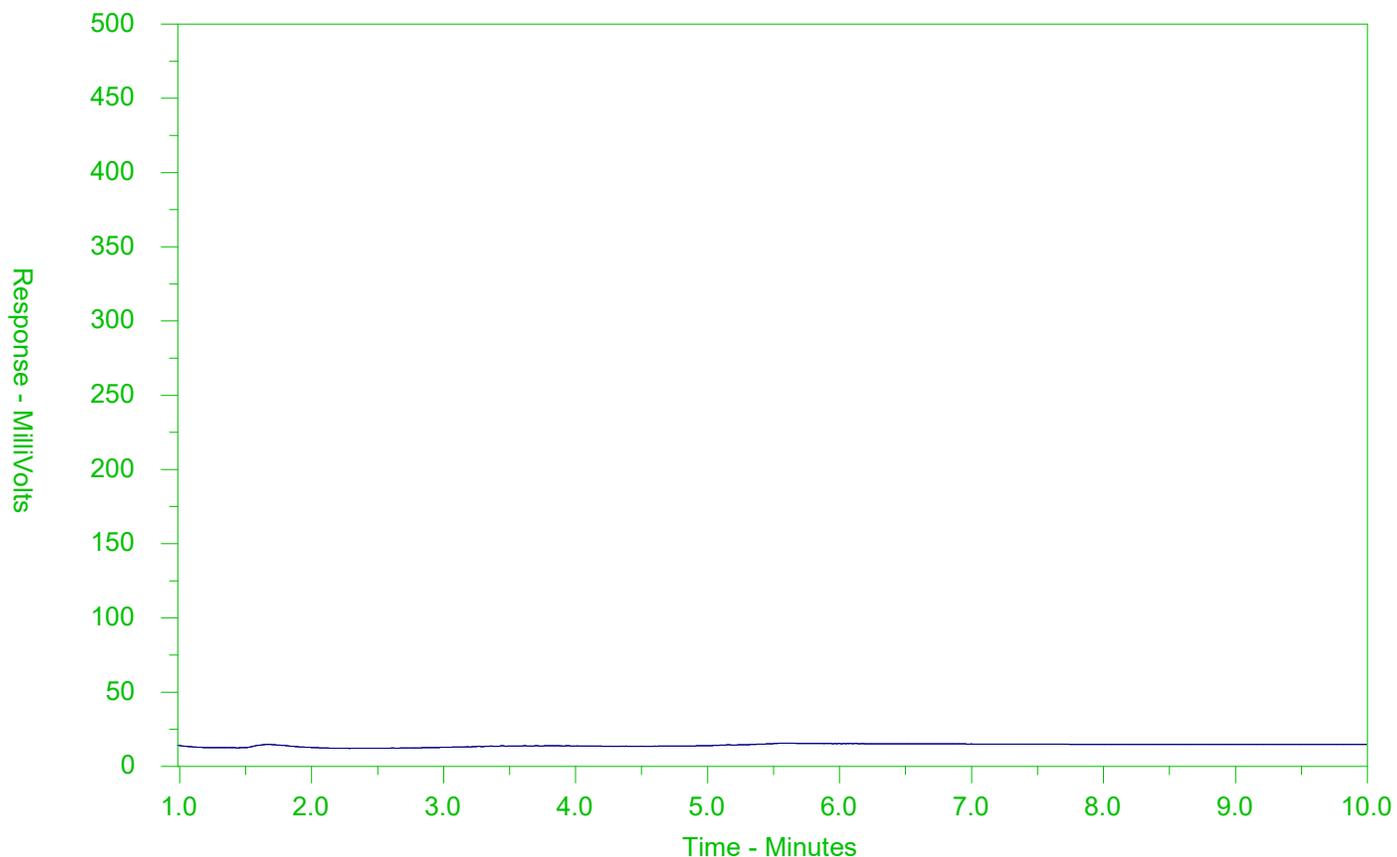
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-10
 Client Sample ID: GS22



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

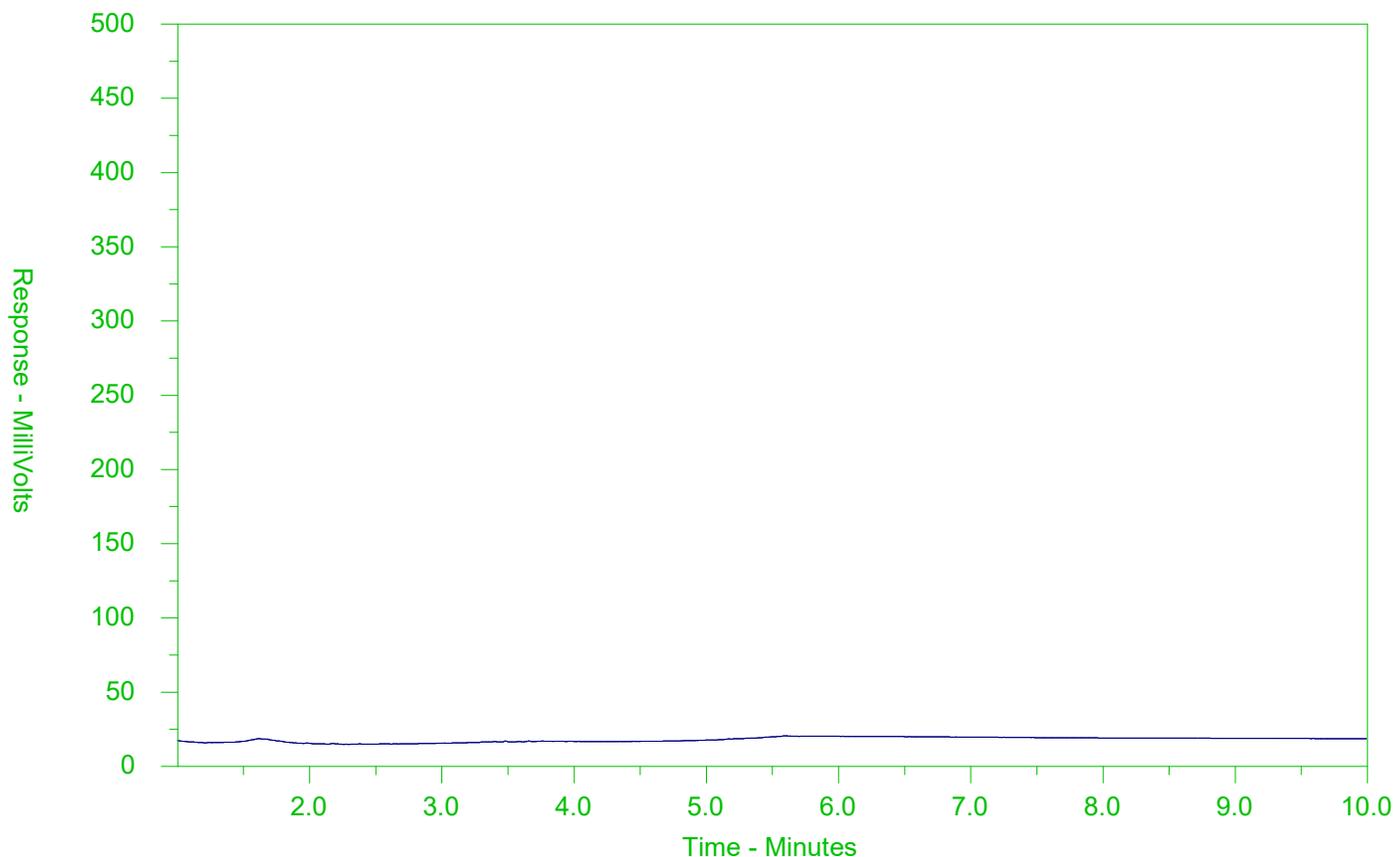
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-11
 Client Sample ID: GS23



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

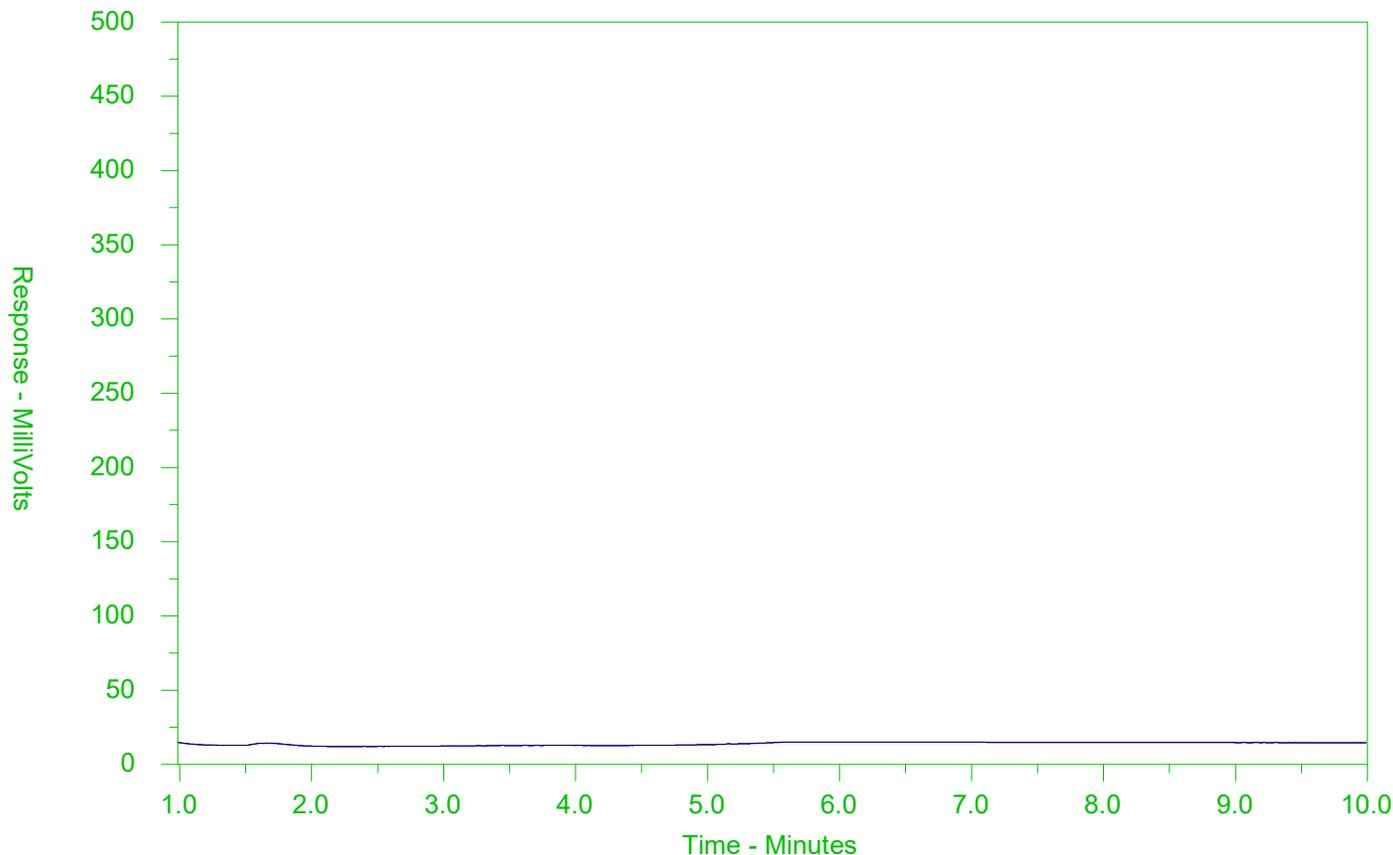
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-12
 Client Sample ID: GS24



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

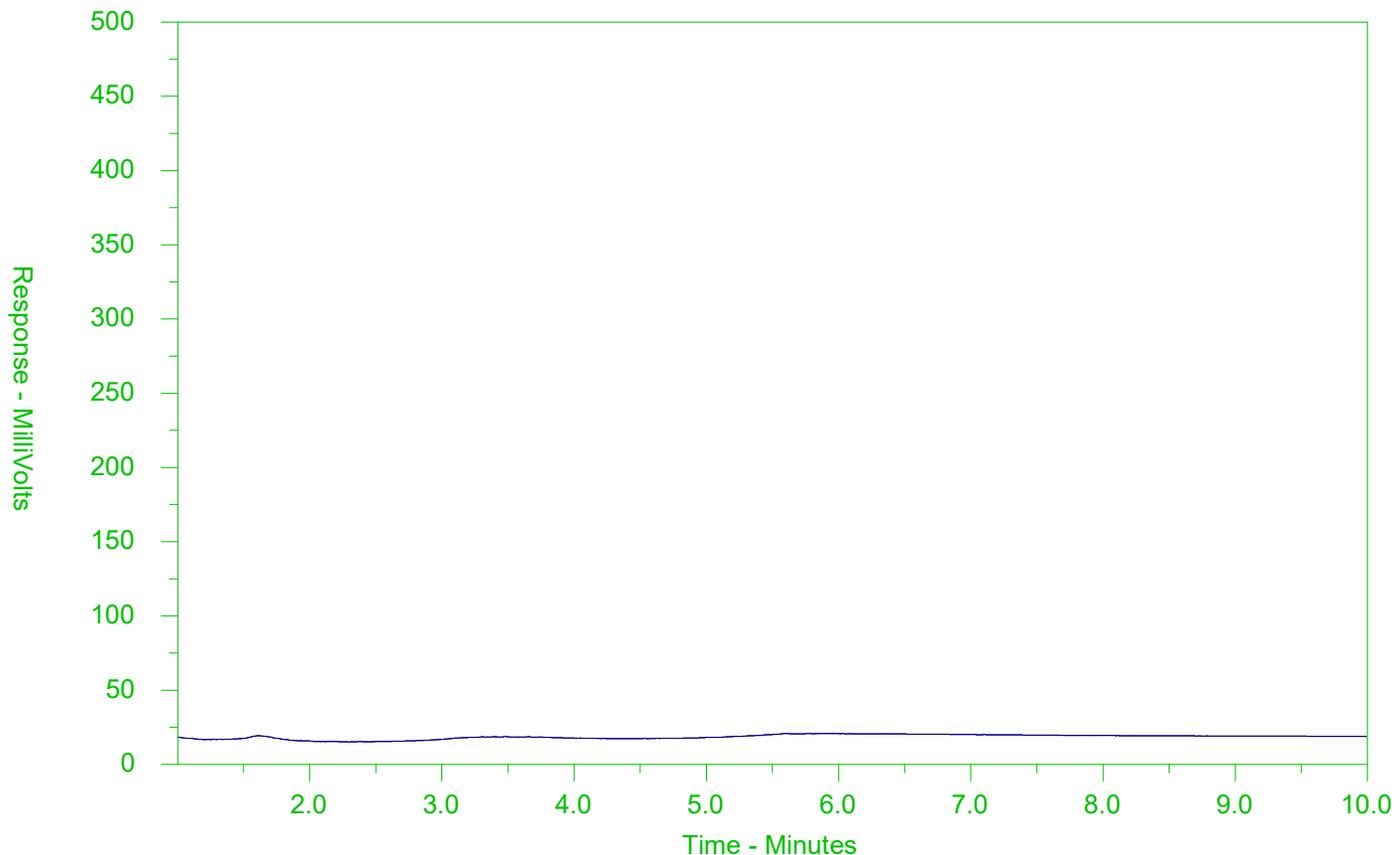
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-13
 Client Sample ID: GS25



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

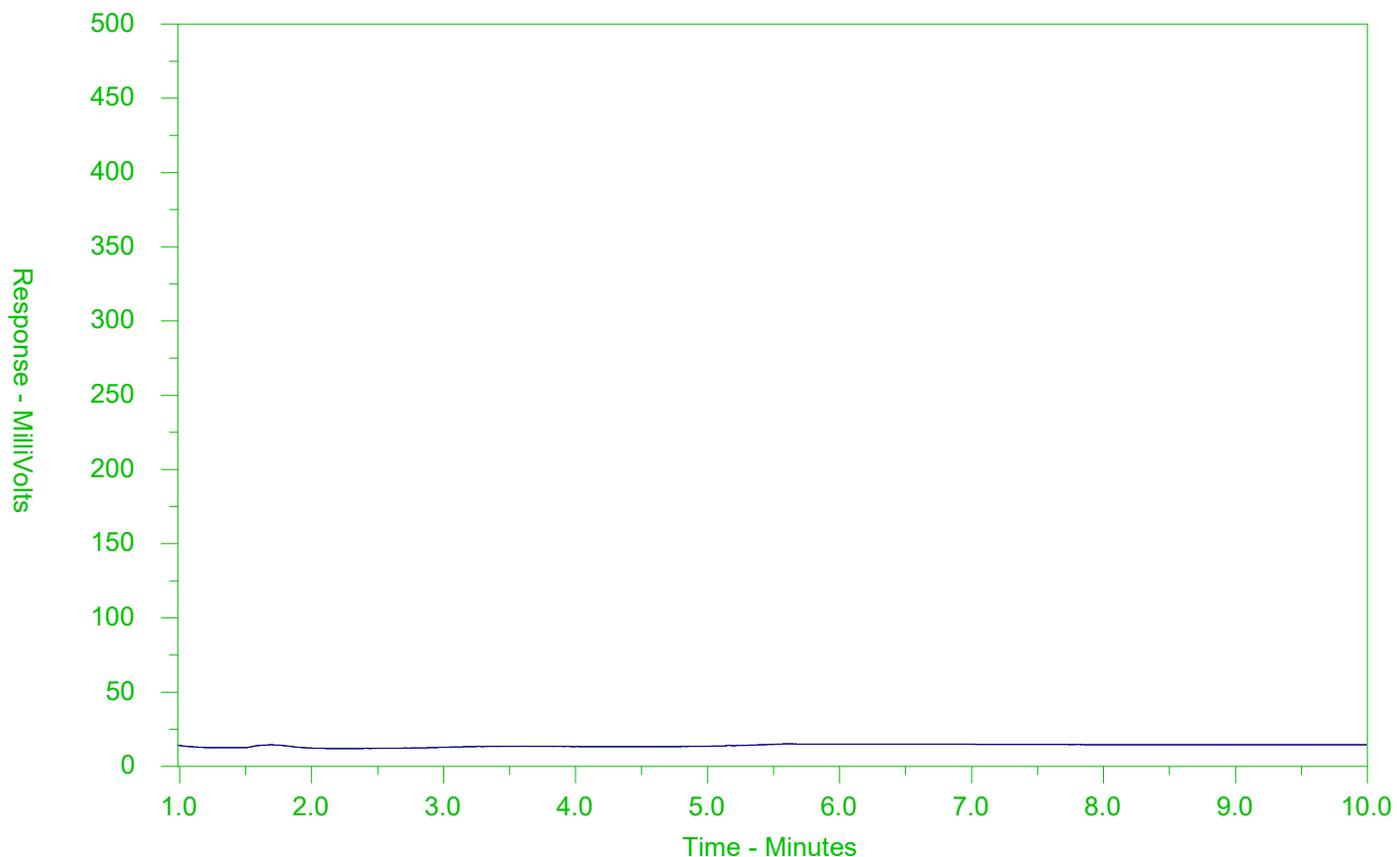
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-14
 Client Sample ID: GS26



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

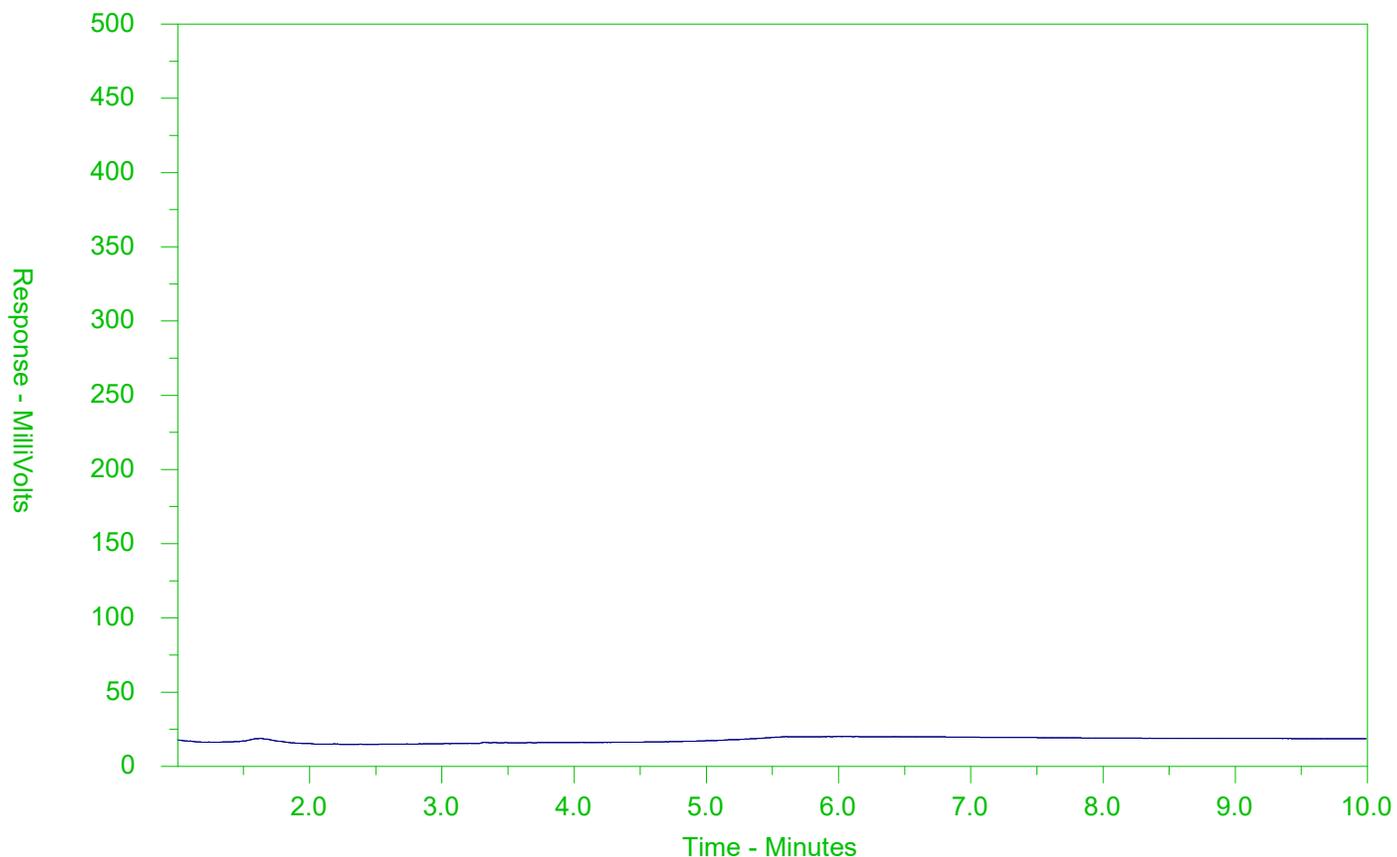
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-15
 Client Sample ID: GS27



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

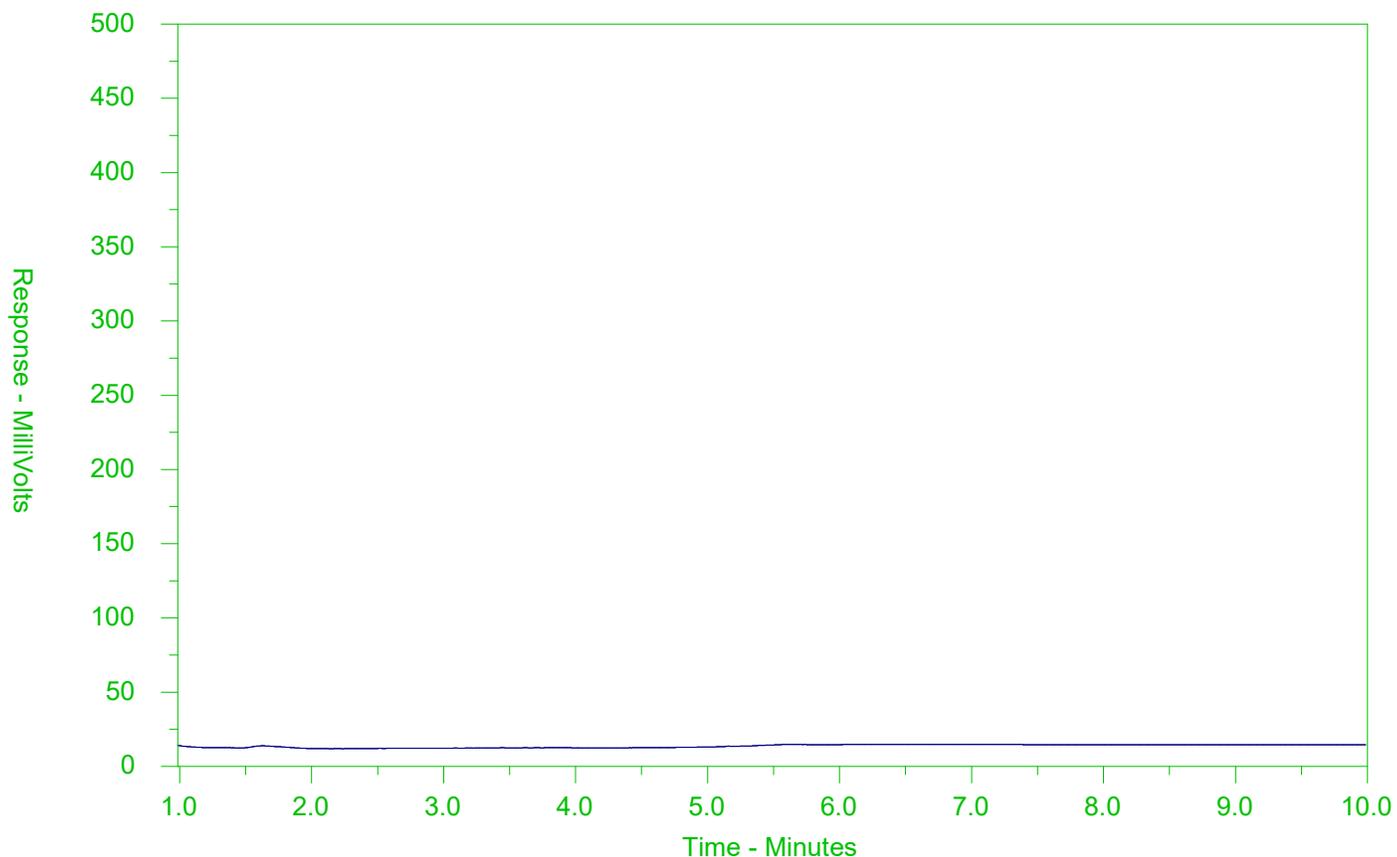
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-16
 Client Sample ID: GS28



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

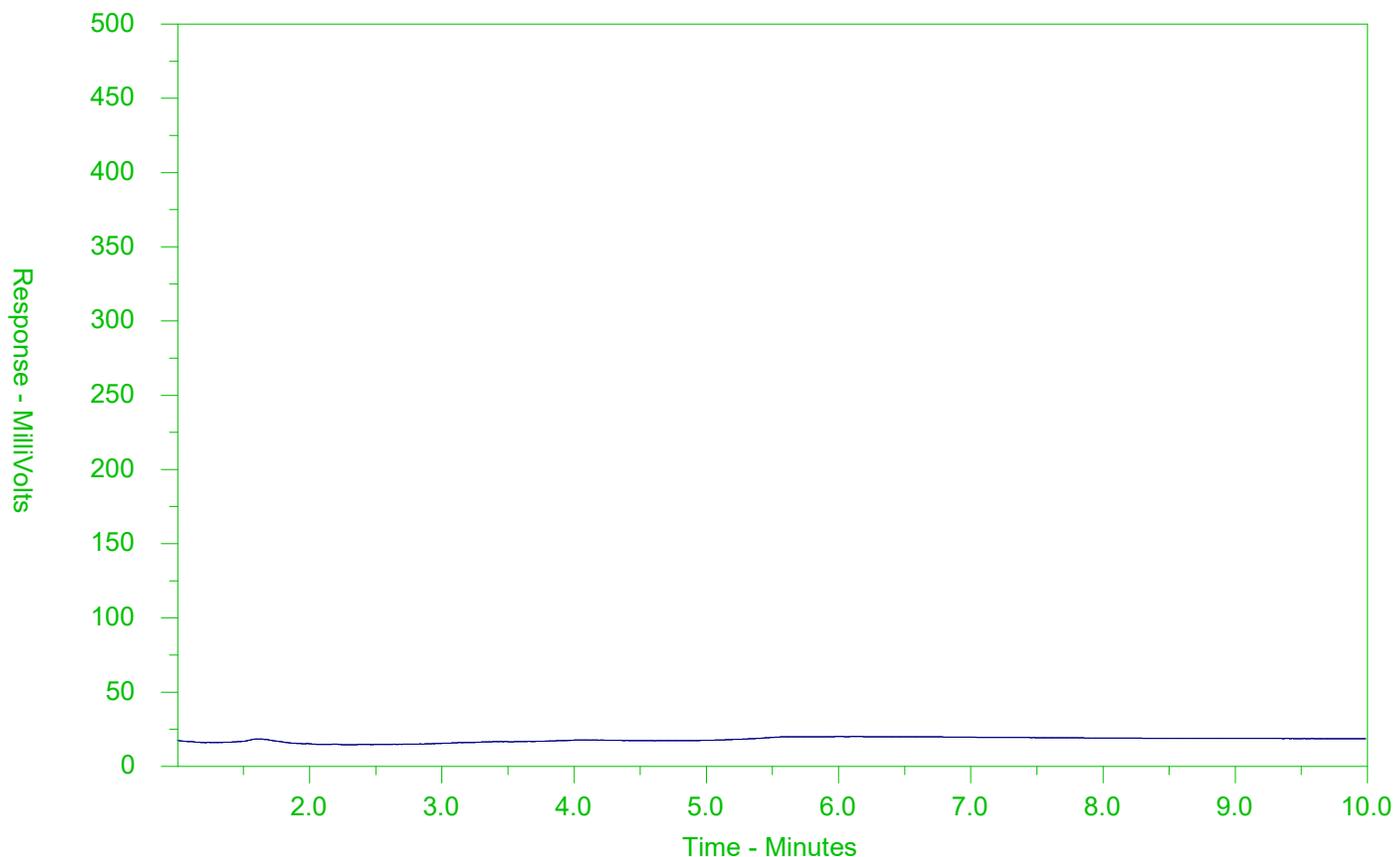
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-17
 Client Sample ID: GS29



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

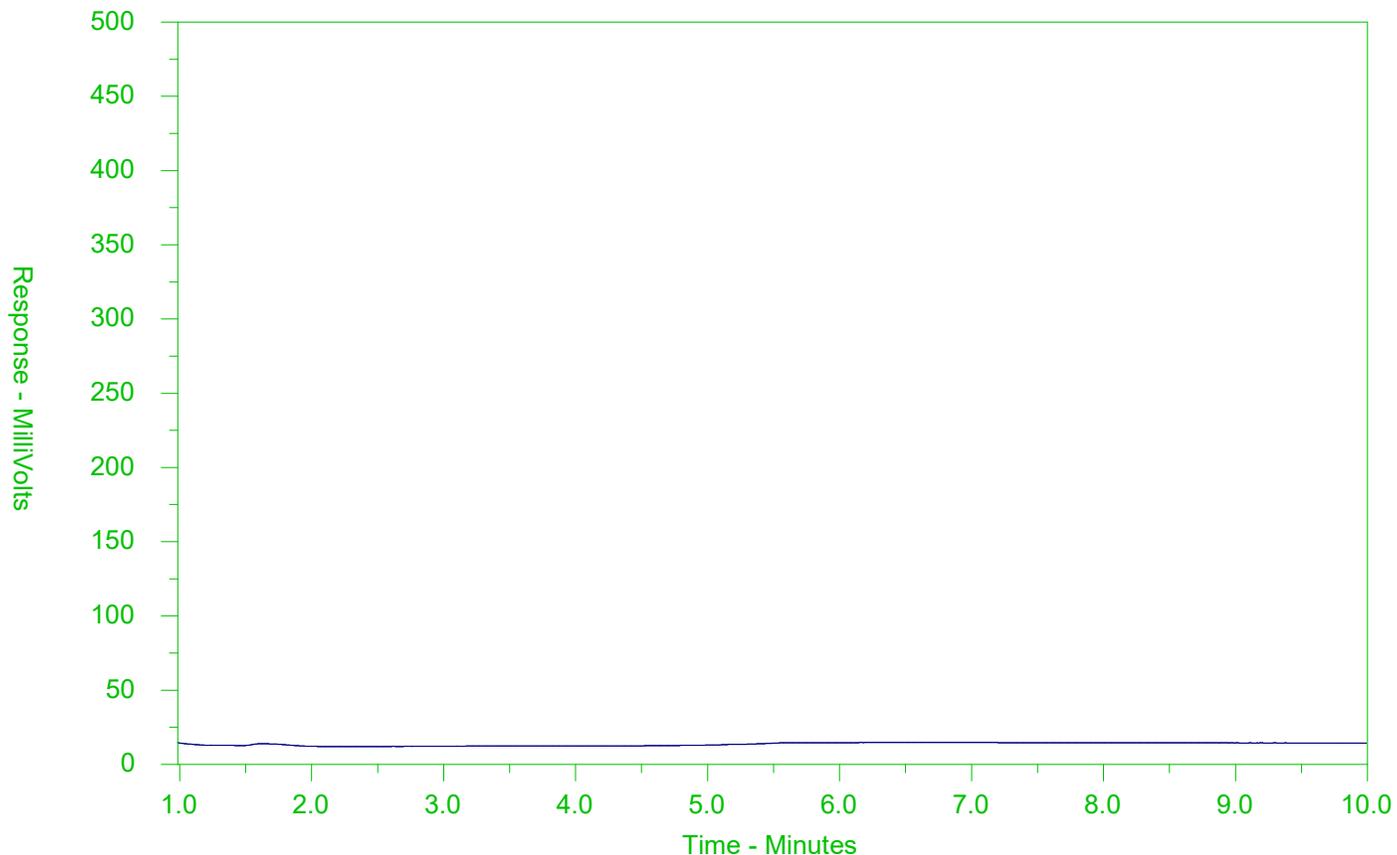
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-18
 Client Sample ID: GS30



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

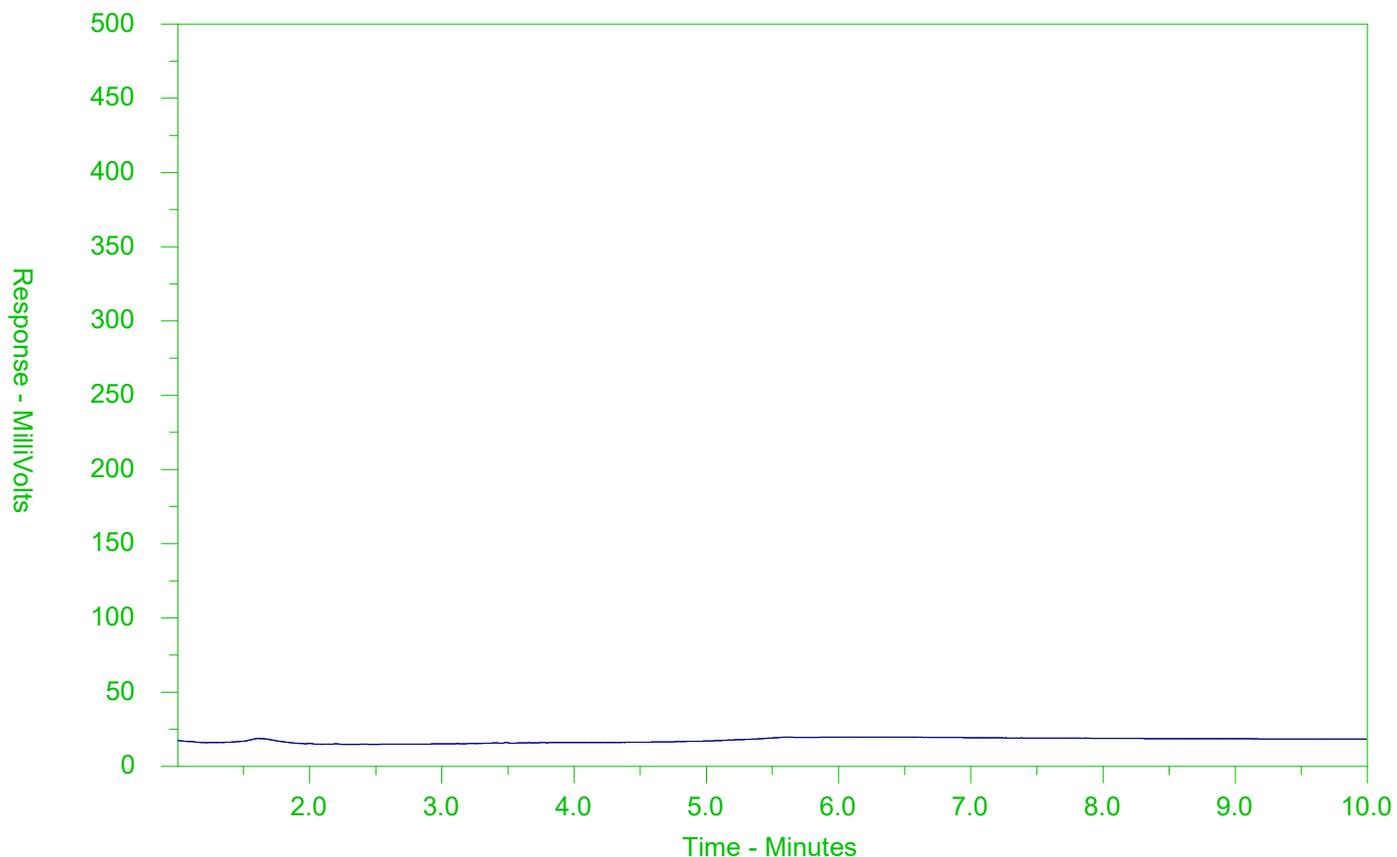
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-19
 Client Sample ID: GS31



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

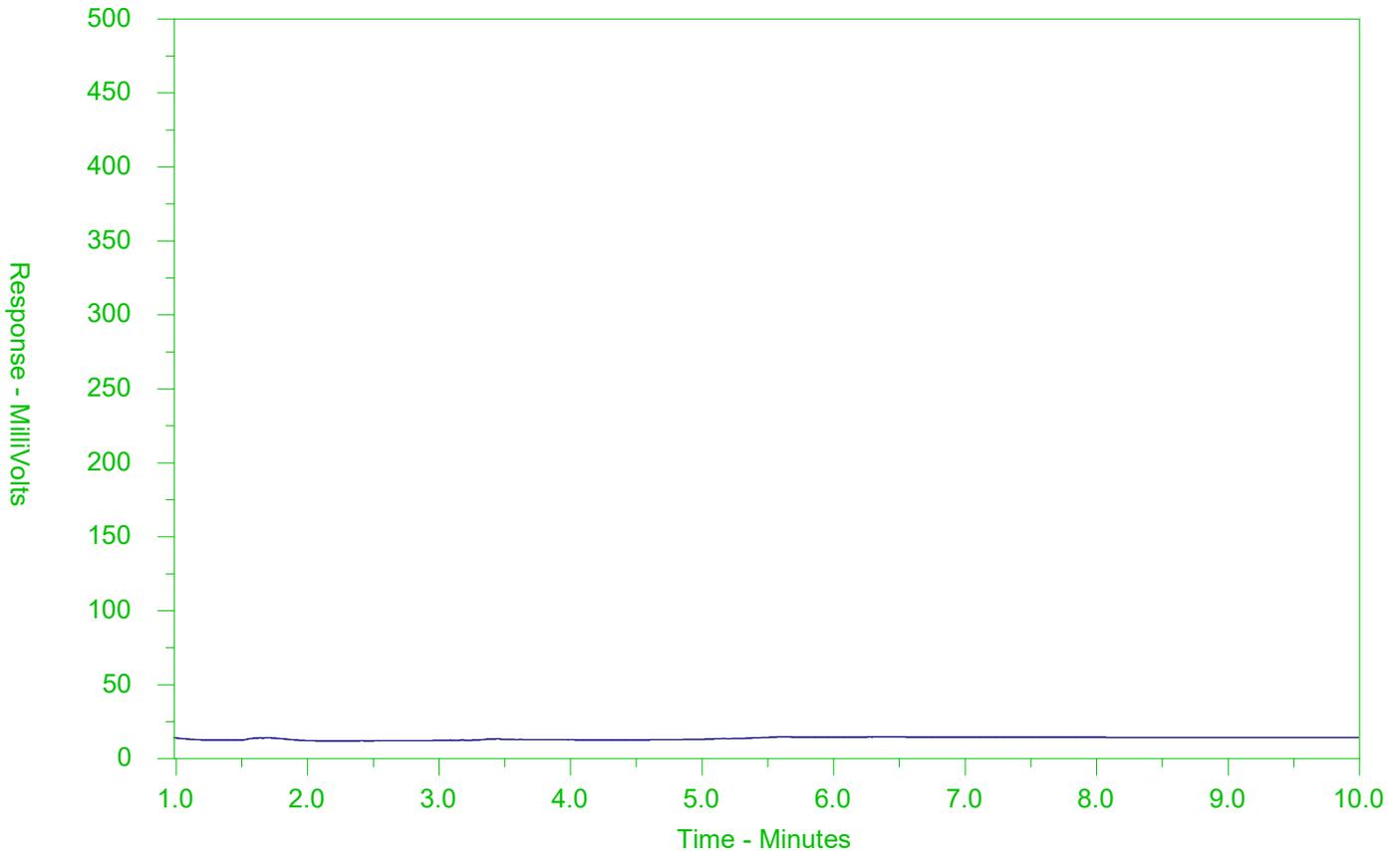
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-20
 Client Sample ID: GS32



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

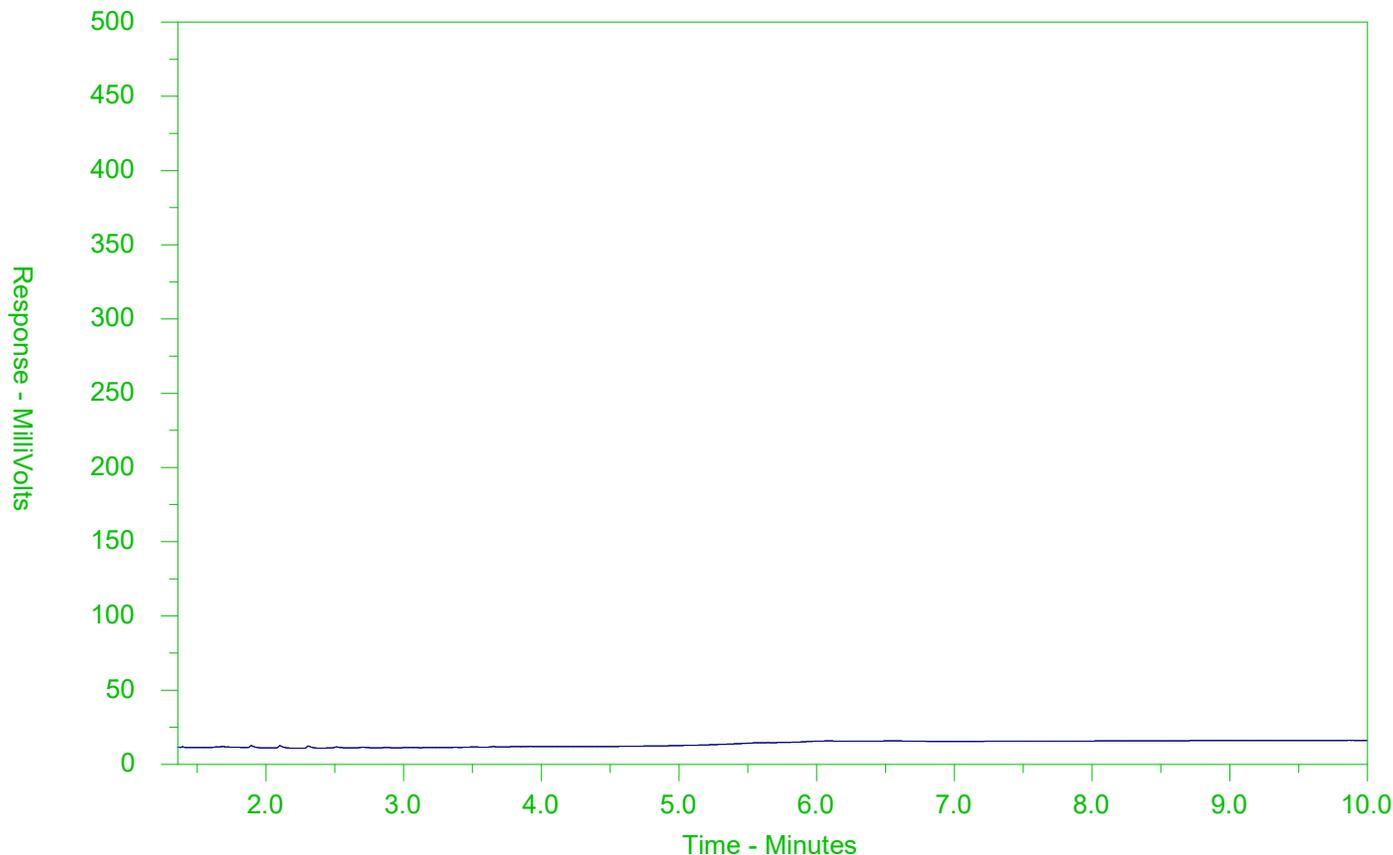
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-21
 Client Sample ID: GS33



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

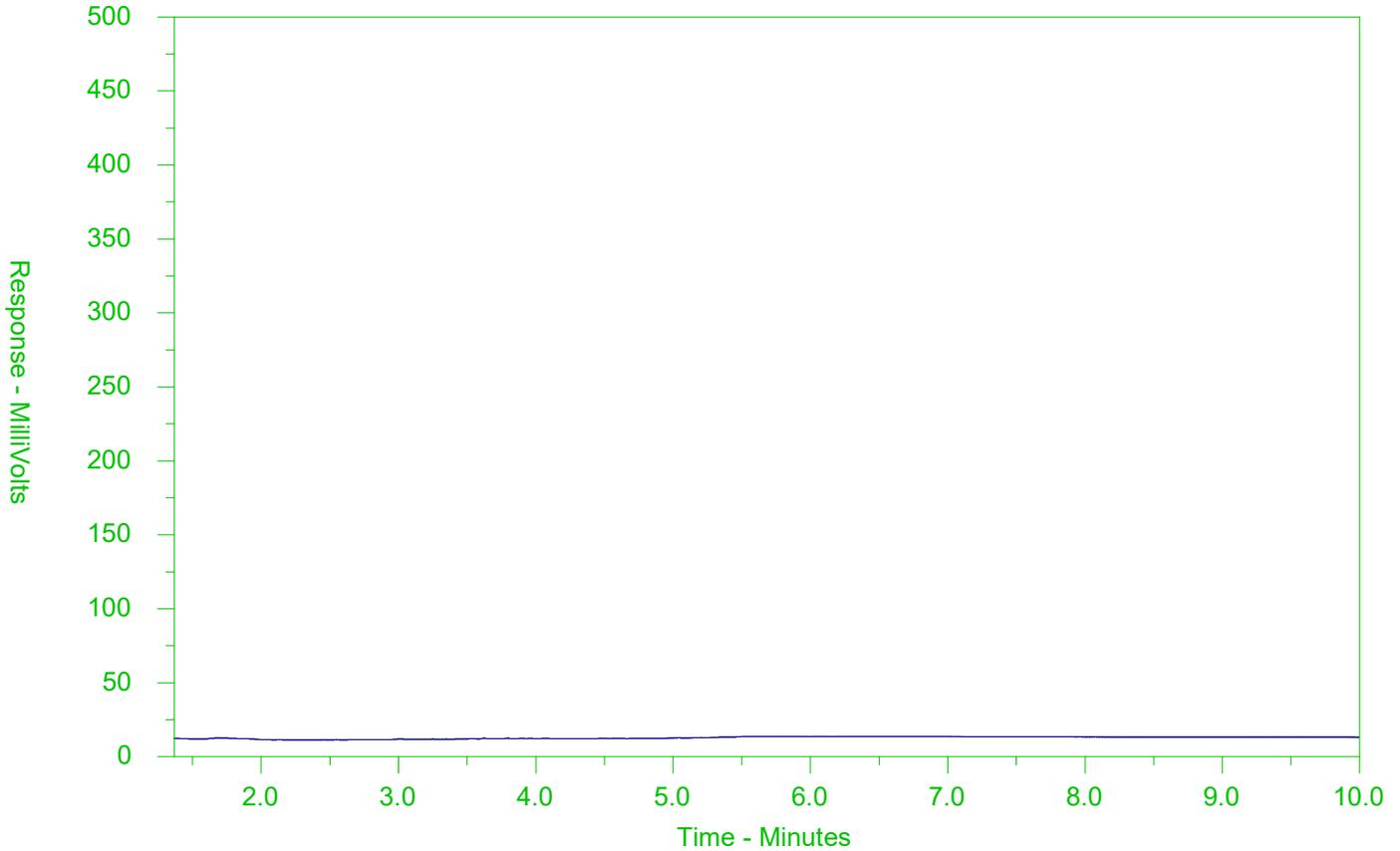
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-22
 Client Sample ID: GS34



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

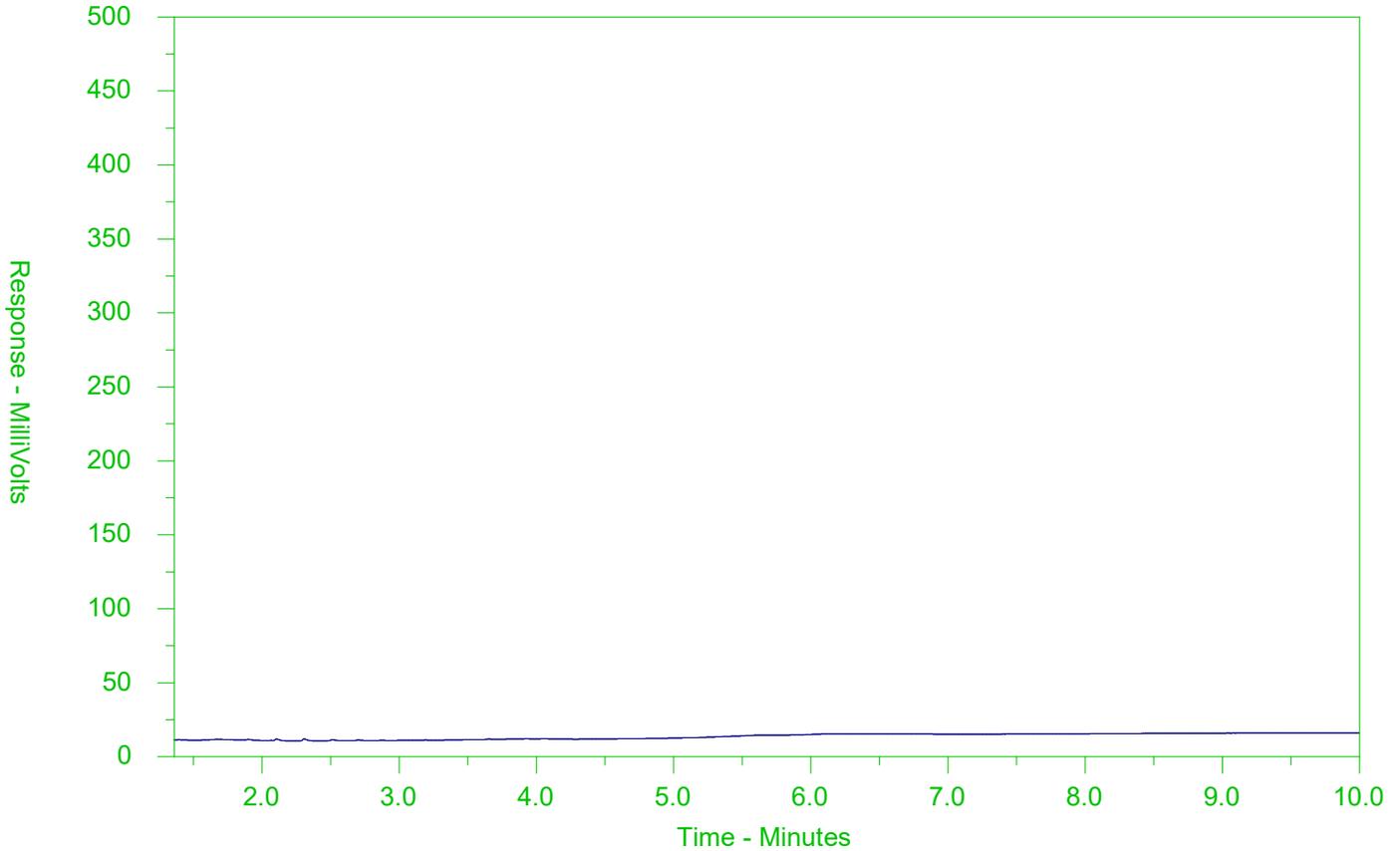
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-23
 Client Sample ID: GS35



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

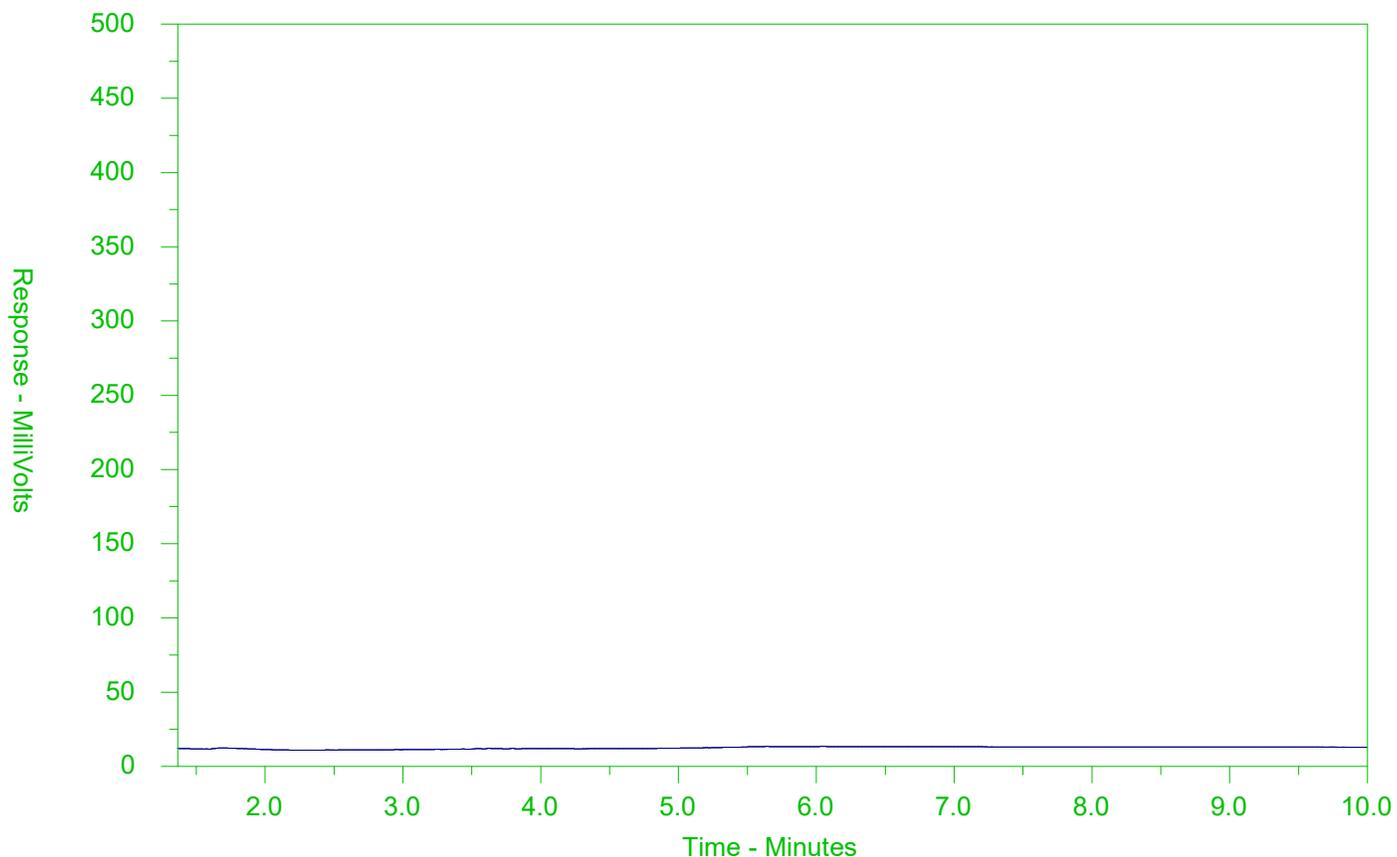
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-24
 Client Sample ID: GS36



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →			← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

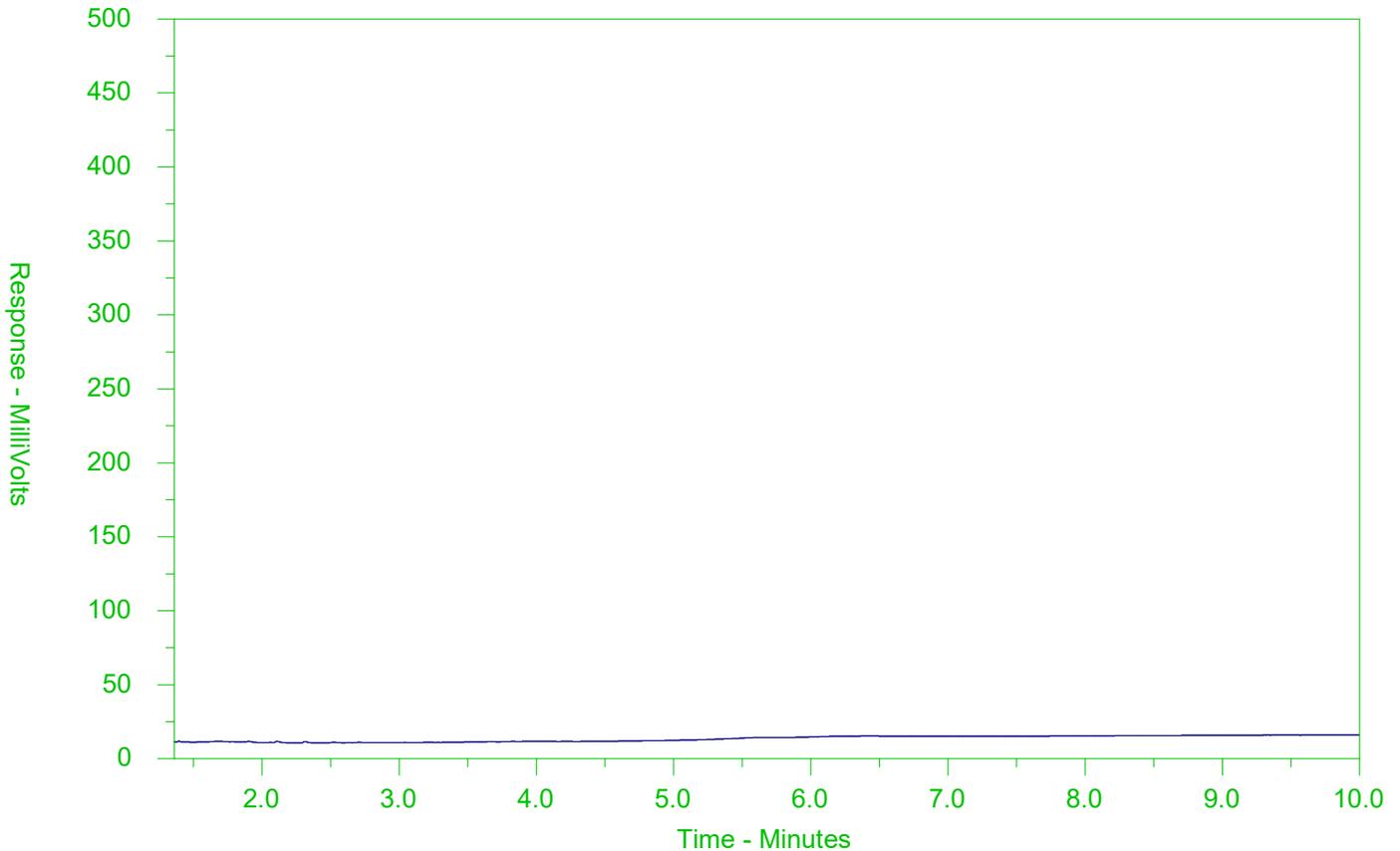
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-25
 Client Sample ID: GS37



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

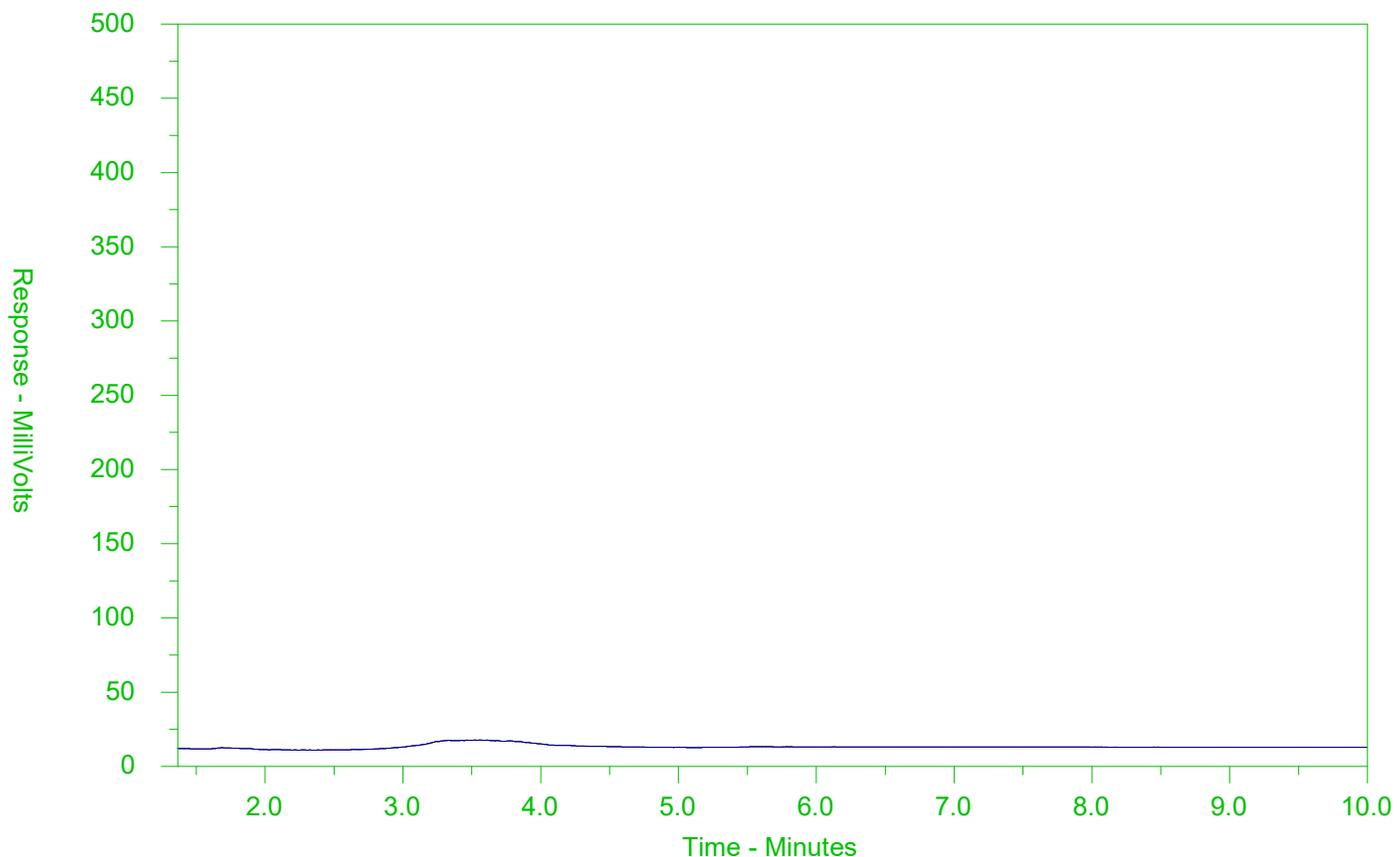
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-26
 Client Sample ID: GS38



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

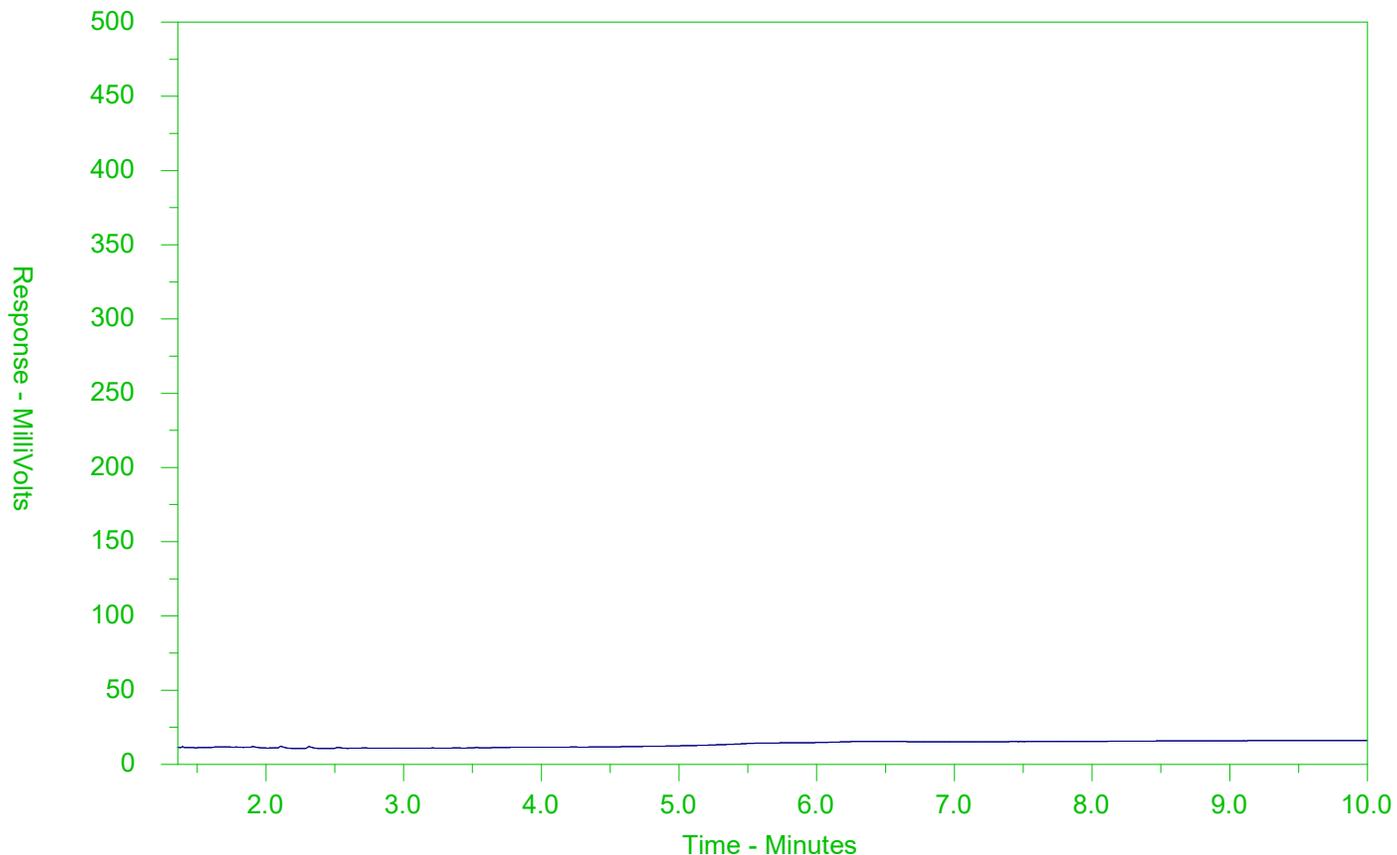
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-27
 Client Sample ID: GS39



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

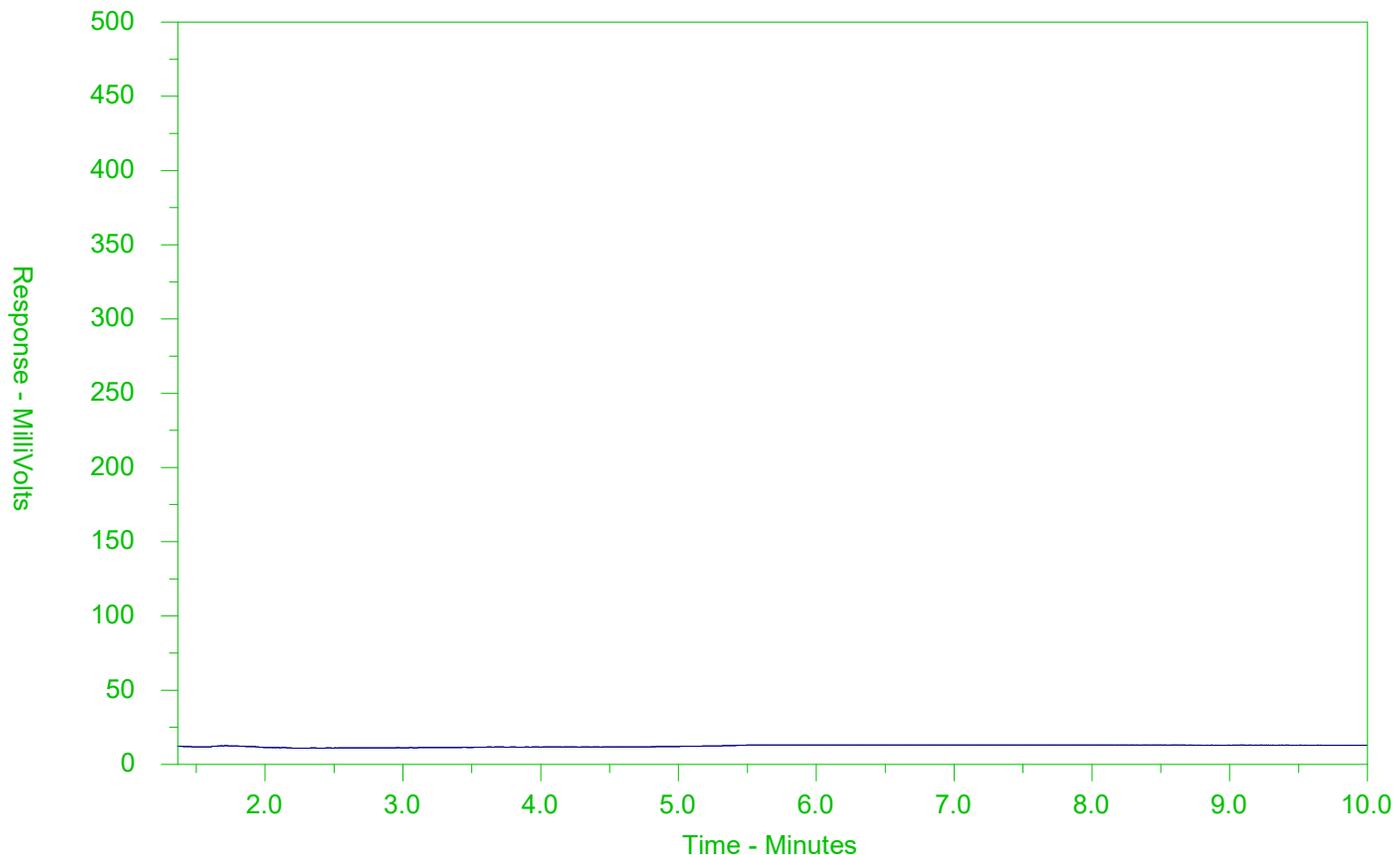
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L2515508-28
 Client Sample ID: GS40



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
Gasoline →			← Motor Oils/Lube Oils/Grease		
← Diesel/Jet Fuels →					

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com



L2515508-COFC

COC Number: 17 - 870030

Page 1 of 1

Report To
 Contact and company name below will appear on the final report
 Company: WSP
 Contact: KENT MALCOLM
 Phone: 905-333-0080
 Company address below will appear on the final report
 Street: 561 BRUNE DR.
 City/Province: BARRIE ON
 Postal Code: L4N 9Y3
 Invoice To: Same as Report To YES NO
 Copy of Invoice with Report YES NO
 Company: WSP
 Contact: KENT MALCOLM

Report Format / Distribution
 Select Report Format: PDF EXCEL EDD (DIGITAL)
 Quality Control (QC) Report with Report YES NO
 Compare Results to Criteria of Report - provide details below if box checked
 Select Distribution: EMAIL MAIL FAX
 Email 1 or Fax: Kent.malcolm@wsp.com
 Email 2: Jay.dolan@wsp.com
 Email 3: Kent.malcolm@wsp.com

Oil and Gas Required Fields (client use)
 AFE/Cost Center: PO#
 Major/Minor Code: Routing Code:
 Requisitioner: Location:

Project Information
 ALS Account # / Quote #: ALS 080326
 Job #: 181-07067-00
 PO / AFE: HERITAGE
 LSD: 40

ALS Lab Work Order # (lab use only): L2515508

ALS Samples # (lab use only)

ALS Samples # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (h:mm)	Sample Type	Sampler:
G512		09-10-20	AM	SOIL	KNT
G514					
G515					
G516					
G517					
G518					
G519					
G520					
G521					
G522					
G523					
G524					

Shipping Information
 Shipping Release (client use)
 Released by: [Signature] Date: Oct 9 20
 Initial Shipment Reception (lab use only)
 Received by: PM Karan Patel Date: 10/13/20

Final Shipment Reception (lab use only)
 Received by: Sy Date: Oct-13
 Time: 12:03
 Time: 2:30pm

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
0. Res 153/04

Temperature Readings
 Initial Cooler Temperatures °C: 16.8
 Final Cooler Temperatures °C: 17.2
 Initial Cooler Temperatures °C: 15.8
 Final Cooler Temperatures °C: 15.8

Sample Condition as Received (lab use only)
 Frozen SIF Observations Yes No
 Ice Packs Ice Cubes Custody seal intact Yes No
 Cooling Initiated

Analysis Request
 Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
 NUMBER OF CONTAINERS: 5
 BTX X
 METALS & INORGANICS X
 DC PESTICIDES X
 SUSPECTED HAZARD (see Special Instructions)

Shipping and Time Required for all E&P TATs: dd-mm-yy hh:mm
 dd-mm-yy hh:mm

Priority
 Regular (R) Standard TAT if received by 3 pm - business days - no surcharges apply
 4 day (P4-20%) 1 Business day (E - 100%)
 3 day (P3-25%) Same Day, Weekend or Statutory holiday (E2 -200%)
 2 day (P2-50%) (Laboratory opening fees may apply)

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

REFER TO BACK PAGE FOR TALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Time: 2:30pm

No Ice pack



Appendix E
Parcel Registry and ERIS Report

PROPERTY DESCRIPTION: PART LOT 19 CONCESSION 11 INNISFIL PT 1 51R41262; CITY OF BARRIE

PROPERTY REMARKS: FOR THE PURPOSE OF THE QUALIFIER, THE DATE OF REGISTRATION OF ABSOLUTE TITLE IS 2017/11/20.

ESTATE/QUALIFIER: FEE SIMPLE
LT ABSOLUTE PLUS

RECENTLY: RE-ENTRY FROM 58092-0054

PIN CREATION DATE:
2017/11/20

OWNERS' NAMES
MAPLEVIEW SOUTH (INNISFIL) LTD.

CAPACITY SHARE

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM	PARTIES TO	CERT/CHKD
** PRINTOUT INCLUDES ALL DOCUMENT TYPES (DELETED INSTRUMENTS NOT INCLUDED) **						
**SUBJECT TO SUBSECTION 44(1) OF THE LAND TITLES ACT, EXCEPT PARAGRAPHS 3 AND 14 AND *						
** PROVINCIAL SUCCESSION DUTIES AND EXCEPT PARAGRAPH 11 AND ESCHEATS OR FORFEITURE **						
** TO THE CROWN UP TO THE DATE OF REGISTRATION WITH AN ABSOLUTE TITLE. **						
SC443445	2006/06/01	TRANSFER	\$1,638,350	DUIVENVOORDEN, JOHN DUIVENVOORDEN, JOHN WILLIAM	MAPLEVIEW SOUTH (INNISFIL) LTD.	C
51R41262	2017/11/20	PLAN REFERENCE				C
SC1470735	2017/11/20	APL ABSOLUTE TITLE		MAPLEVIEW SOUTH (INNISFIL) LTD.	MAPLEVIEW SOUTH (INNISFIL) LTD.	C
SC1917909	2022/07/28	CHARGE	\$4,500,000	MAPLEVIEW SOUTH (INNISFIL) LTD.	VENTO HOLDINGS LTD. COCCIA, GIUSEPPE TAZ-TECH INC.	C



DATABASE REPORT

Project Property: *Phase I Environmental Site Assessment
953 Mapleview Drive East
Innisfil ON L9J 0C2*

Project No: *18342-001*

Report Type: *Quote - Custom-Build Your Own Report*

Order No: *23062600439*

Requested by: *Cambium Inc.*

Date Completed: *June 29, 2023*

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Reliance on information in Report: This report DOES NOT replace a full Phase I Environmental Site Assessment but is solely intended to be used as a database review of environmental records.

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Executive Summary

Property Information:

Project Property: *Phase I Environmental Site Assessment
953 Mapleview Drive East Innisfil ON L9J 0C2*

Project No: 18342-001

Coordinates:

Latitude: 44.3540368
Longitude: -79.6010484
UTM Northing: 4,912,147.78
UTM Easting: 611,490.88
UTM Zone: 17T

Elevation: 862 FT
262.81 M

Order Information:

Order No: 23062600439
Date Requested: June 26, 2023
Requested by: Cambium Inc.
Report Type: Quote - Custom-Build Your Own Report

Historical/Products:

City Directory Search *CD - Subject Site plus 5 Adjacent Properties*
ERIS Xplorer [ERIS Xplorer](#)
Insurance Products *Fire Insurance Maps/Inspection Reports/Site Plans*
Land Title Search *Current Land Title Search*

Executive Summary: Report Summary

<i>Database</i>	<i>Name</i>	<i>Searched</i>	<i>Project Property</i>	<i>Within 0.25 km</i>	<i>Total</i>
AAGR	<i>Abandoned Aggregate Inventory</i>	Y	0	0	0
AGR	<i>Aggregate Inventory</i>	Y	0	0	0
AMIS	<i>Abandoned Mine Information System</i>	Y	0	0	0
ANDR	<i>Anderson's Waste Disposal Sites</i>	Y	0	0	0
AST	<i>Aboveground Storage Tanks</i>	Y	0	0	0
AUWR	<i>Automobile Wrecking & Supplies</i>	Y	0	0	0
BORE	<i>Borehole</i>	Y	0	0	0
CA	<i>Certificates of Approval</i>	Y	0	0	0
CDRY	<i>Dry Cleaning Facilities</i>	Y	0	0	0
CFOT	<i>Commercial Fuel Oil Tanks</i>	Y	0	0	0
CHEM	<i>Chemical Manufacturers and Distributors</i>	Y	0	0	0
CHM	<i>Chemical Register</i>	Y	0	0	0
CNG	<i>Compressed Natural Gas Stations</i>	Y	0	0	0
COAL	<i>Inventory of Coal Gasification Plants and Coal Tar Sites</i>	Y	0	0	0
CONV	<i>Compliance and Convictions</i>	Y	0	0	0
CPU	<i>Certificates of Property Use</i>	Y	0	0	0
DRL	<i>Drill Hole Database</i>	Y	0	0	0
DTNK	<i>Delisted Fuel Tanks</i>	Y	0	0	0
EASR	<i>Environmental Activity and Sector Registry</i>	Y	0	0	0
EBR	<i>Environmental Registry</i>	Y	0	0	0
ECA	<i>Environmental Compliance Approval</i>	Y	0	4	4
EEM	<i>Environmental Effects Monitoring</i>	Y	0	0	0
EHS	<i>ERIS Historical Searches</i>	Y	0	3	3
EIIS	<i>Environmental Issues Inventory System</i>	Y	0	0	0
EMHE	<i>Emergency Management Historical Event</i>	Y	0	0	0
EPAR	<i>Environmental Penalty Annual Report</i>	Y	0	0	0
EXP	<i>List of Expired Fuels Safety Facilities</i>	Y	0	0	0
FCON	<i>Federal Convictions</i>	Y	0	0	0
FCS	<i>Contaminated Sites on Federal Land</i>	Y	0	0	0
FOFT	<i>Fisheries & Oceans Fuel Tanks</i>	Y	0	0	0
FRST	<i>Federal Identification Registry for Storage Tank Systems (FIRSTS)</i>	Y	0	0	0
FST	<i>Fuel Storage Tank</i>	Y	0	0	0
FSTH	<i>Fuel Storage Tank - Historic</i>	Y	0	0	0
GEN	<i>Ontario Regulation 347 Waste Generators Summary</i>	Y	0	0	0
GHG	<i>Greenhouse Gas Emissions from Large Facilities</i>	Y	0	0	0
HINC	<i>TSSA Historic Incidents</i>	Y	0	0	0
IAFT	<i>Indian & Northern Affairs Fuel Tanks</i>	Y	0	0	0

Database	Name	Searched	Project Property	Within 0.25 km	Total
INC	<i>Fuel Oil Spills and Leaks</i>	Y	0	0	0
LIMO	<i>Landfill Inventory Management Ontario</i>	Y	0	0	0
MINE	<i>Canadian Mine Locations</i>	Y	0	0	0
MNR	<i>Mineral Occurrences</i>	Y	0	0	0
NATE	<i>National Analysis of Trends in Emergencies System (NATES)</i>	Y	0	0	0
NCPL	<i>Non-Compliance Reports</i>	Y	0	0	0
NDFT	<i>National Defense & Canadian Forces Fuel Tanks</i>	Y	0	0	0
NDSP	<i>National Defense & Canadian Forces Spills</i>	Y	0	0	0
NDWD	<i>National Defence & Canadian Forces Waste Disposal Sites</i>	Y	0	0	0
NEBI	<i>National Energy Board Pipeline Incidents</i>	Y	0	0	0
NEBP	<i>National Energy Board Wells</i>	Y	0	0	0
NEES	<i>National Environmental Emergencies System (NEES)</i>	Y	0	0	0
NPCB	<i>National PCB Inventory</i>	Y	0	0	0
NPRI	<i>National Pollutant Release Inventory</i>	Y	0	0	0
OGWE	<i>Oil and Gas Wells</i>	Y	0	0	0
OGW	<i>Ontario Oil and Gas Wells</i>	Y	0	0	0
OPCB	<i>Inventory of PCB Storage Sites</i>	Y	0	0	0
ORD	<i>Orders</i>	Y	0	0	0
PAP	<i>Canadian Pulp and Paper</i>	Y	0	0	0
PCFT	<i>Parks Canada Fuel Storage Tanks</i>	Y	0	0	0
PES	<i>Pesticide Register</i>	Y	0	0	0
PINC	<i>Pipeline Incidents</i>	Y	0	0	0
PRT	<i>Private and Retail Fuel Storage Tanks</i>	Y	0	0	0
PTTW	<i>Permit to Take Water</i>	Y	0	1	1
REC	<i>Ontario Regulation 347 Waste Receivers Summary</i>	Y	0	0	0
RSC	<i>Record of Site Condition</i>	Y	0	2	2
RST	<i>Retail Fuel Storage Tanks</i>	Y	0	0	0
SCT	<i>Scott's Manufacturing Directory</i>	Y	0	0	0
SPL	<i>Ontario Spills</i>	Y	0	0	0
SRDS	<i>Wastewater Discharger Registration Database</i>	Y	0	0	0
TANK	<i>Anderson's Storage Tanks</i>	Y	0	0	0
TCFT	<i>Transport Canada Fuel Storage Tanks</i>	Y	0	0	0
VAR	<i>Variances for Abandonment of Underground Storage Tanks</i>	Y	0	0	0
WDS	<i>Waste Disposal Sites - MOE CA Inventory</i>	Y	0	0	0
WDSH	<i>Waste Disposal Sites - MOE 1991 Historical Approval Inventory</i>	Y	0	0	0
WWIS	<i>Water Well Information System</i>	Y	1	11	12
Total:			1	21	22

Executive Summary: Site Report Summary - Project Property

<i>Map Key</i>	<i>DB</i>	<i>Company/Site Name</i>	<i>Address</i>	<i>Dir/Dist (m)</i>	<i>Elev diff (m)</i>	<i>Page Number</i>
1	WWIS		953 mapleview dr lot 19 con 11 Innisfil ON Well ID: 7347374	WSW/39.7	0.00	15

Executive Summary: Site Report Summary - Surrounding Properties

<i>Map Key</i>	<i>DB</i>	<i>Company/Site Name</i>	<i>Address</i>	<i>Dir/Dist (m)</i>	<i>Elev Diff (m)</i>	<i>Page Number</i>
2	EHS		1700 Mapleview Drive East Innisfil ON	N/66.6	1.29	17
2	EHS		1700 Mapleview Dr E Innisfil ON	N/66.6	1.29	17
3	EHS		969 Mapleview Drive East Barrie, ON ON L9S	ENE/118.8	-0.03	17
4	ECA	970 Mapleview Inc.	970 Mapleview Dr E 1005 Big Bay Point Road Barrie ON L4K 1W7	WNW/130.7	0.29	17
4	ECA	970 Mapleview Inc.	970 Mapleview Drive East Lot 19, Concession 12 of Geographic Township of Innisfil Barrie ON L4K 1W7	WNW/130.7	0.29	18
4	PTTW	970 Mapleview Inc.	970 Mapleview Drive East Innisfil, ON Canada ON	WNW/130.7	0.29	18
4	ECA	970 Mapleview Inc.	970 Mapleview Dr E 1005 Big Bay Point Road Barrie ON L4K 1W7	WNW/130.7	0.29	18
4	ECA	970 Mapleview Inc.	970 Mapleview Dr E Barrie ON L4K 1W7	WNW/130.7	0.29	19
5	WWIS		MAPLEVIEW DR E Barrie ON Well ID: 7336560	W/148.9	-0.25	19
6	WWIS		953 MAPLE VIEW DR E ON Well ID: 7315563	SE/154.9	-9.28	22
7	WWIS		970 Mapleview Drive lot 19 con 12 Innisfil ON Well ID: 7389702	NE/160.2	2.05	25

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
8	WWIS		lot 19 con 12 ON Well ID: 7370392	NE/160.3	2.05	27
9	WWIS		970 Mapleview Drive lot 19 con 12 Innisfil ON Well ID: 7389703	NNE/168.8	3.20	28
10	WWIS		lot 19 con 11 ON Well ID: 5701423	E/169.8	-4.20	30
11	WWIS		lot 19 con 11 ON Well ID: 7328887	ESE/174.6	-6.95	33
12	RSC	970 MAPLEVIEW INC.	970 MAPLEVIEW DRIVE EAST, BARRIE, ON L4M 7G8 Barrie ON	NE/178.2	3.14	34
13	RSC	970 MAPLEVIEW INC.	932 MAPLEVIEW DRIVE EAST, BARRIE, ON L9J 0C4 Barrie ON	W/187.5	0.08	36
14	WWIS		970 MAPLEVIEW DRIVE EAST lot 19 con 12 Barrie ON Well ID: 7362533	NE/209.2	3.05	37
15	WWIS		970 Mapleview Drive lot 19 con 12 Innisfil ON Well ID: 7389701	NNE/217.4	3.05	40
16	WWIS		MOLSON PARK DR & PRINCE (MAPLE COURT SBDIV)RICHARD BARRIE ON Well ID: 5740741	W/218.9	-0.97	42
17	WWIS		883 MAPLEVIEW DR Barrie ON Well ID: 7356670	WSW/241.7	-1.95	45

Executive Summary: Summary By Data Source

ECA - Environmental Compliance Approval

A search of the ECA database, dated Oct 2011- Apr 30, 2023 has found that there are 4 ECA site(s) within approximately 0.25 kilometers of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
970 Mapleview Inc.	970 Mapleview Dr E Barrie ON L4K 1W7	WNW	130.75	<u>4</u>
970 Mapleview Inc.	970 Mapleview Dr E 1005 Big Bay Point Road Barrie ON L4K 1W7	WNW	130.75	<u>4</u>
970 Mapleview Inc.	970 Mapleview Drive East Lot 19, Concession 12 of Geographic Township of Innisfil Barrie ON L4K 1W7	WNW	130.75	<u>4</u>
970 Mapleview Inc.	970 Mapleview Dr E 1005 Big Bay Point Road Barrie ON L4K 1W7	WNW	130.75	<u>4</u>

EHS - ERIS Historical Searches

A search of the EHS database, dated 1999-Mar 31, 2023 has found that there are 3 EHS site(s) within approximately 0.25 kilometers of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
	1700 Mapleview Drive East Innisfil ON	N	66.57	<u>2</u>
	1700 Mapleview Dr E Innisfil ON	N	66.57	<u>2</u>
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
	969 Mapleview Drive East Barrie, ON ON L9S	ENE	118.83	<u>3</u>

PTTW - Permit to Take Water

A search of the PTTW database, dated 1994 - Apr 30, 2023 has found that there are 1 PTTW site(s) within approximately 0.25 kilometers of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
970 Mapleview Inc.	970 Mapleview Drive East Innisfil, ON Canada ON	WNW	130.75	<u>4</u>

RSC - Record of Site Condition

A search of the RSC database, dated 1997-Sept 2001, Oct 2004-Apr 2023 has found that there are 2 RSC site(s) within approximately 0.25 kilometers of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
970 MAPLEVIEW INC.	970 MAPLEVIEW DRIVE EAST, BARRIE, ON L4M 7G8 Barrie ON	NE	178.23	<u>12</u>
970 MAPLEVIEW INC.	932 MAPLEVIEW DRIVE EAST, BARRIE, ON L9J 0C4 Barrie ON	W	187.46	<u>13</u>

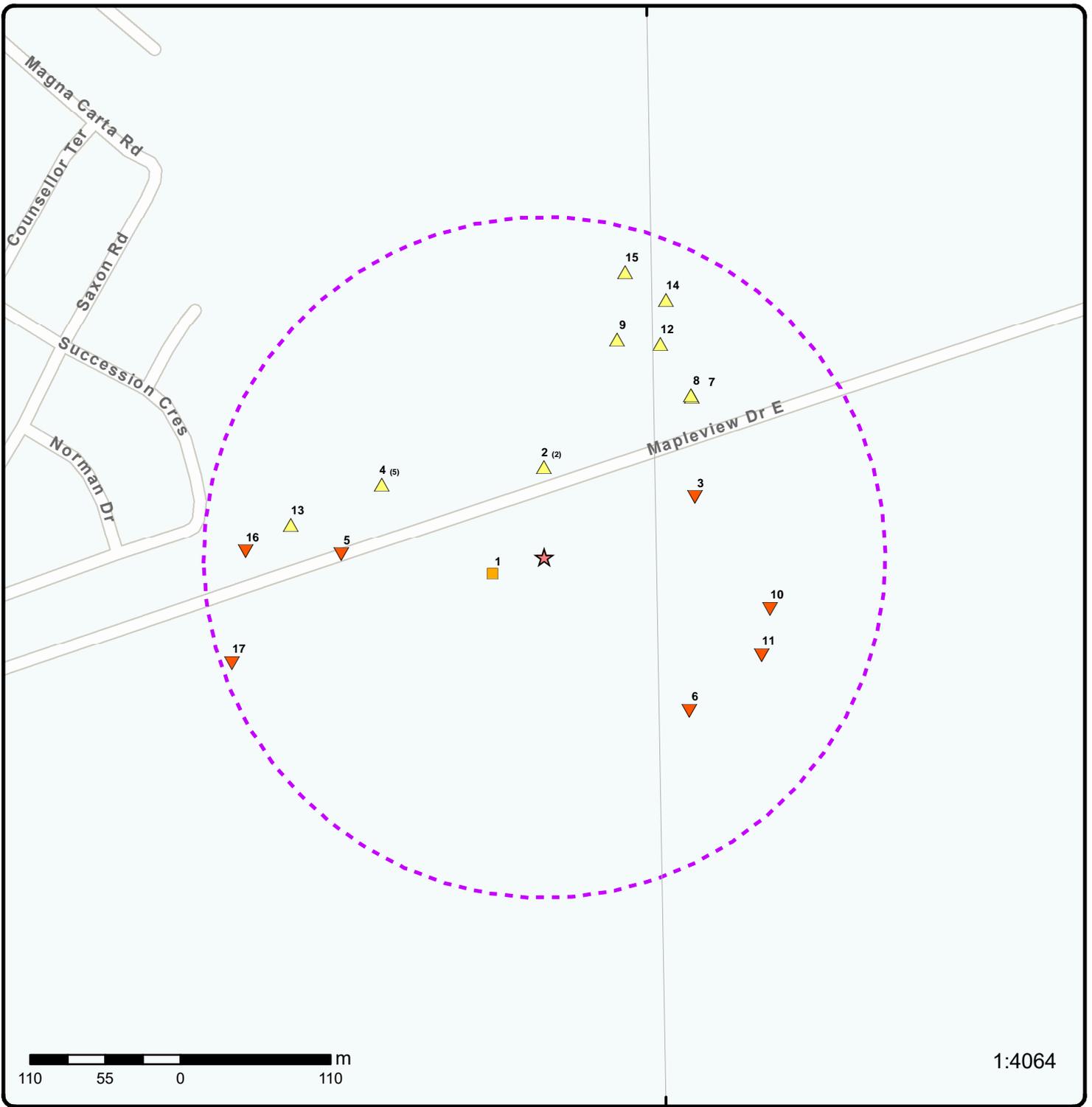
WWIS - Water Well Information System

A search of the WWIS database, dated Mar 31 2023 has found that there are 12 WWIS site(s) within approximately 0.25 kilometers of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
	953 mapleview dr lot 19 con 11 Innisfil ON <i>Well ID: 7347374</i>	WSW	39.67	<u>1</u>
	970 Mapleview Drive lot 19 con 12 Innisfil ON <i>Well ID: 7389702</i>	NE	160.21	<u>7</u>
	lot 19 con 12 ON <i>Well ID: 7370392</i>	NE	160.28	<u>8</u>
	970 Mapleview Drive lot 19 con 12 Innisfil ON	NNE	168.80	<u>9</u>

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
	<i>Well ID:</i> 7389703			
	970 MAPLEVIEW DRIVE EAST lot 19 con 12 Barrie ON <i>Well ID:</i> 7362533	NE	209.16	14
	970 Mapleview Drive lot 19 con 12 Innisfil ON <i>Well ID:</i> 7389701	NNE	217.42	15

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
	MAPLEVIEW DR E Barrie ON <i>Well ID:</i> 7336560	W	148.89	5
	953 MAPLE VIEW DR E ON <i>Well ID:</i> 7315563	SE	154.86	6
	lot 19 con 11 ON <i>Well ID:</i> 5701423	E	169.78	10
	lot 19 con 11 ON <i>Well ID:</i> 7328887	ESE	174.56	11
	MOLSON PARK DR & PRINCE (MAPLE COURT SBDIV)RICHARD BARRIE ON <i>Well ID:</i> 5740741	W	218.92	16
	883 MAPLEVIEW DR Barrie ON <i>Well ID:</i> 7356670	WSW	241.73	17



Map: 0.25 Kilometer Radius

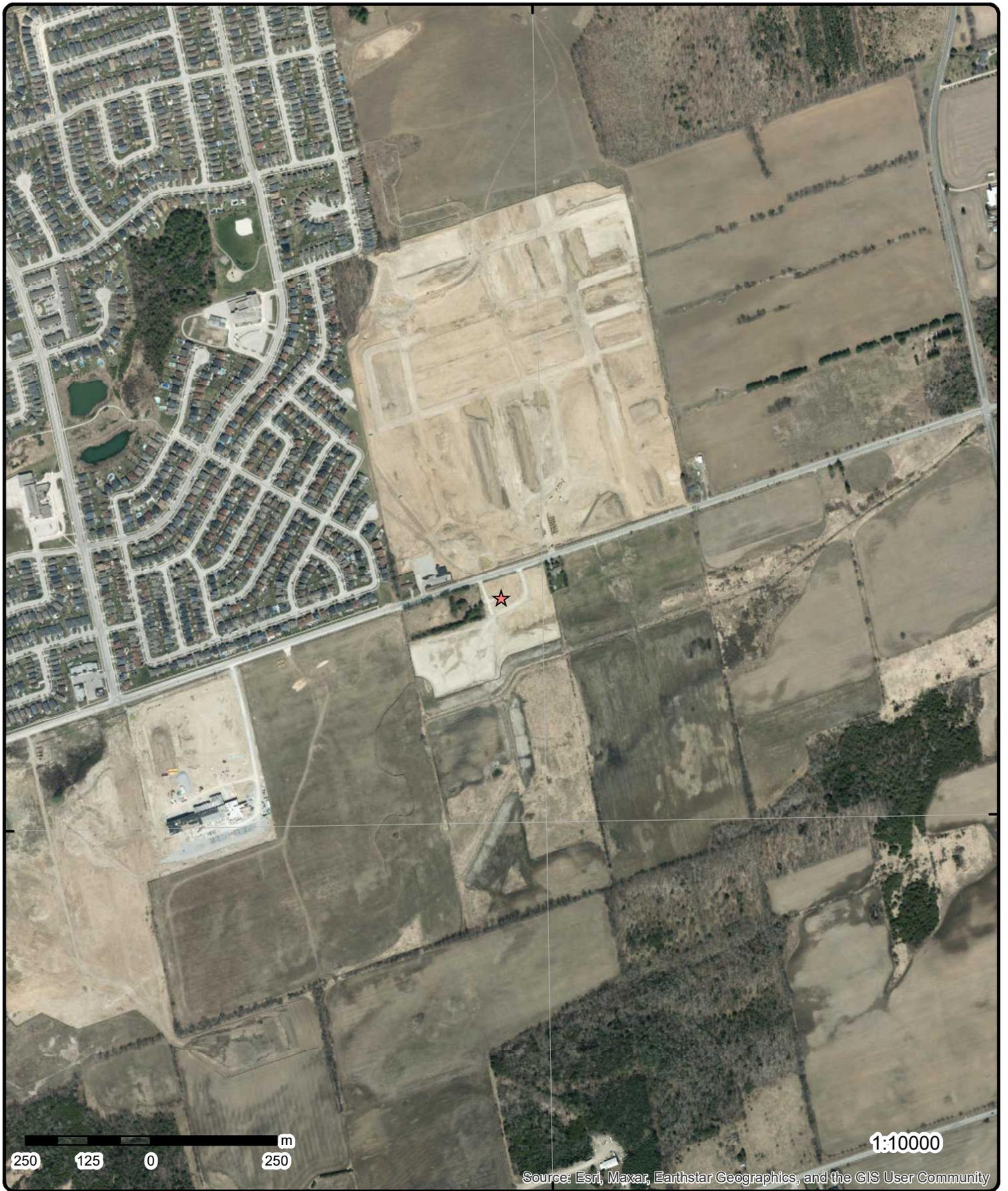
Order Number: 23062600439

Address: 953 Mapleview Drive East, Innisfil, ON



Project Property	Freeways; Highways	Beach	Shopping & Sports Area
Buffer Outline	Traffic Circle; Ramp	Airport	University/College
Eris Sites with Higher Elevation	Major Arterial; Minor Arterial	Industrial Area	Cemetery; Golf Course
Eris Sites with Same Elevation	Local Road	Military Base	Parkt (National)
Eris Sites with Lower Elevation	Service Road; Traffic Circle; Ramp	Aircraft Roads	Park (City/County)
Eris Sites with Unknown Elevation	Rail	Native Reservation	
		Hospital	

79°36'W



44°21'N

44°21'N

Aerial Year: 2020

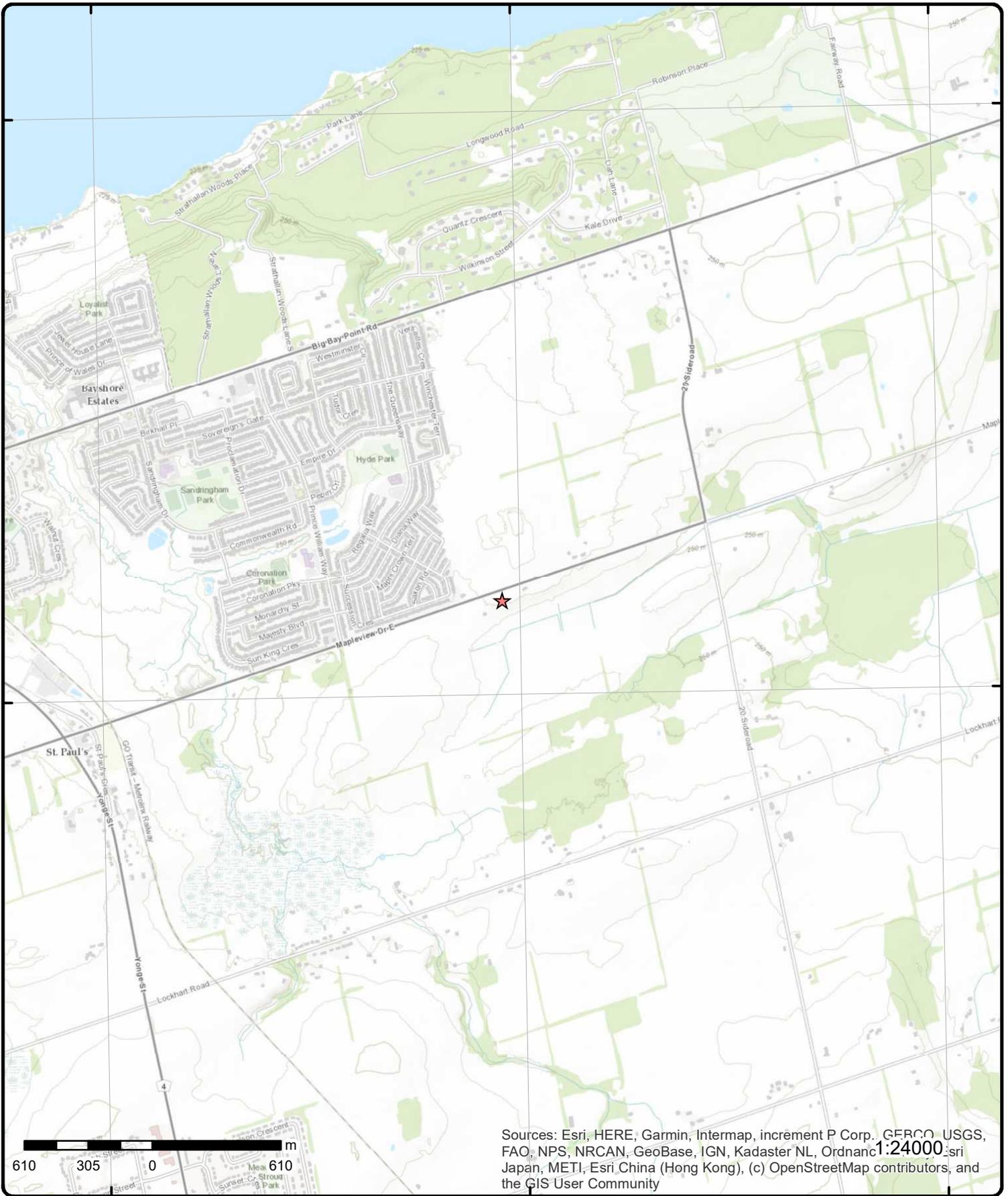
Order Number: 23062600439

Address: 953 Mapleview Drive East, Innisfil, ON



Source: ESRI World Imagery

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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Topographic Map

Address: 953 Mapleview Drive East, ON

Source: ESRI World Topographic Map

Order Number: 23062600439



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Detail Report

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
1	1 of 1	WSW/39.7	262.8 / 0.00	953 mapleview dr lot 19 con 11 Innisfil ON	WWIS

<p>Well ID: 7347374</p> <p>Construction Date:</p> <p>Use 1st: Not Used</p> <p>Use 2nd:</p> <p>Final Well Status: Other Status</p> <p>Water Type:</p> <p>Casing Material:</p> <p>Audit No: Z287492</p> <p>Tag:</p> <p>Constructn Method:</p> <p>Elevation (m):</p> <p>Elevatn Reliabilty:</p> <p>Depth to Bedrock:</p> <p>Well Depth:</p> <p>Overburden/Bedrock:</p> <p>Pump Rate:</p> <p>Static Water Level:</p> <p>Clear/Cloudy:</p> <p>Municipality: INNISFIL TOWNSHIP</p> <p>Site Info:</p>	<p>Flowing (Y/N):</p> <p>Flow Rate:</p> <p>Data Entry Status:</p> <p>Data Src:</p> <p>Date Received: 11/18/2019</p> <p>Selected Flag: TRUE</p> <p>Abandonment Rec: Yes</p> <p>Contractor: 5528</p> <p>Form Version: 7</p> <p>Owner:</p> <p>County: SIMCOE</p> <p>Lot: 019</p> <p>Concession: 11</p> <p>Concession Name: CON</p> <p>Easting NAD83:</p> <p>Northing NAD83:</p> <p>Zone:</p> <p>UTM Reliability:</p>
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PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/734\7347374.pdf

Additional Detail(s) (Map)

Well Completed Date: 09/17/2019

Year Completed: 2019

Depth (m):

Latitude: 44.3539366164872

Longitude: -79.6015260433749

Path: 734\7347374.pdf

Bore Hole Information

<p>Bore Hole ID: 1007715217</p> <p>DP2BR:</p> <p>Spatial Status:</p> <p>Code OB:</p> <p>Code OB Desc:</p> <p>Open Hole:</p> <p>Cluster Kind:</p> <p>Date Completed: 09/17/2019</p> <p>Remarks:</p> <p>Loc Method Desc: on Water Well Record</p> <p>Elevrc Desc:</p> <p>Location Source Date:</p> <p>Improvement Location Source:</p> <p>Improvement Location Method:</p> <p>Source Revision Comment:</p> <p>Supplier Comment:</p>	<p>Elevation:</p> <p>Elevrc:</p> <p>Zone: 17</p> <p>East83: 611453.00</p> <p>North83: 4912136.00</p> <p>Org CS: UTM83</p> <p>UTMRC: 4</p> <p>UTMRC Desc: margin of error : 30 m - 100 m</p> <p>Location Method: wwr</p>
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<i>Map Key</i>	<i>Number of Records</i>	<i>Direction/ Distance (m)</i>	<i>Elev/Diff (m)</i>	<i>Site</i>	<i>DB</i>
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:		1008258983			
Layer:		1			
Plug From:		0.0			
Plug To:		8.19999809265137			
Plug Depth UOM:		m			
<u>Method of Construction & Well Use</u>					
Method Construction ID:		1008259455			
Method Construction Code:		B			
Method Construction:		Other Method			
Other Method Construction:		back hoe			
<u>Pipe Information</u>					
Pipe ID:		1008258029			
Casing No:		0			
Comment:					
Alt Name:					
<u>Construction Record - Casing</u>					
Casing ID:		1008259590			
Layer:		1			
Material:		3			
Open Hole or Material:		CONCRETE			
Depth From:		-0.30000001192092896			
Depth To:		8.19999809265137			
Casing Diameter:		72.0			
Casing Diameter UOM:		cm			
Casing Depth UOM:		m			
<u>Results of Well Yield Testing</u>					
Pumping Test Method Desc:					
Pump Test ID:		1008259937			
Pump Set At:					
Static Level:		4.800000190734863			
Final Level After Pumping:					
Recommended Pump Depth:					
Pumping Rate:					
Flowing Rate:					
Recommended Pump Rate:					
Levels UOM:		m			
Rate UOM:		LPM			
Water State After Test Code:					
Water State After Test:					
Pumping Test Method:		0			
Pumping Duration HR:					
Pumping Duration MIN:					
Flowing:					
<u>Links</u>					
Bore Hole ID:		1007715217		Tag No:	
Depth M:				Contractor:	5528
Year Completed:		2019		Latitude:	44.3539366164872

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Well Completed Dt: 09/17/2019 Longitude: -79.6015260433749 Audit No: Z287492 Y: 44.35393661507987 Path: 734\7347374.pdf X: -79.60152589048238					
<u>2</u>	1 of 2	N/66.6	264.1 / 1.29	1700 Mapleview Drive East Innisfil ON	EHS
Order No: 20070207008 Nearest Intersection: Status: C Municipality: Simcoe Report Type: CAN - Custom Report Client Prov/State: Report Date: 2/8/2007 Search Radius (km): 0.73 Date Received: 2/7/2007 X: -79.600637 Previous Site Name: Y: 44.357911 Lot/Building Size: Additional Info Ordered:					
<u>2</u>	2 of 2	N/66.6	264.1 / 1.29	1700 Mapleview Dr E Innisfil ON	EHS
Order No: 20070910023 Nearest Intersection: Status: C Municipality: Report Type: CAN - Custom Report Client Prov/State: Report Date: 9/14/2007 Search Radius (km): 0.25 Date Received: 9/10/2007 X: -79.60081 Previous Site Name: Y: 44.351262 Lot/Building Size: Additional Info Ordered:					
<u>3</u>	1 of 1	ENE/118.8	262.8 / -0.03	969 Mapleview Drive East Barrie, ON ON L9S	EHS
Order No: 21032500037 Nearest Intersection: Status: C Municipality: Report Type: Custom Report Client Prov/State: ON Report Date: 30-MAR-21 Search Radius (km): .25 Date Received: 25-MAR-21 X: -79.59965517 Previous Site Name: Y: 44.35441735 Lot/Building Size: Additional Info Ordered: City Directory					
<u>4</u>	1 of 5	WNW/130.7	263.1 / 0.29	970 Mapleview Inc. 970 Mapleview Dr E 1005 Big Bay Point Road Barrie ON L4K 1W7	ECA
Approval No: 2315-BQUPNH MOE District: Approval Date: 2020-07-07 City: Status: Approved Longitude: Record Type: ECA Latitude: Link Source: IDS Geometry X: SWP Area Name: Geometry Y: Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS Business Name: 970 Mapleview Inc. Address: 970 Mapleview Dr E 1005 Big Bay Point Road Full Address: Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/9483-BQEGWK-14.pdf PDF Site Location:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
4	2 of 5	WNW/130.7	263.1 / 0.29	970 Mapleview Inc. 970 Mapleview Drive East Lot 19, Concession 12 of Geographic Township of Innisfil Barrie ON L4K 1W7	ECA
Approval No: 1596-BRZQAP Approval Date: 2020-08-25 Status: Approved Record Type: ECA Link Source: IDS SWP Area Name: Lakes Simcoe and Couchiching/Black River Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS Business Name: 970 Mapleview Inc. Address: 970 Mapleview Drive East Lot 19, Concession 12 of Geographic Township of Innisfil Full Address: Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/1938-BRRS6P-14.pdf PDF Site Location:					
4	3 of 5	WNW/130.7	263.1 / 0.29	970 Mapleview Inc. 970 Mapleview Drive East Innisfil, ON Canada ON	PTTW
EBR Registry No: 019-3051 Ministry Ref No: 7887-BXNJUK Notice Type: Instrument Notice Stage: Decision Notice Date: Proposal Date: February 1, 2021 Year: 2021 Instrument Type: Permit to take water Off Instrument Name: Permit to Take Water (OWRA s. 34) Posted By: Ministry of the Environment, Conservation and Parks Company Name: Site Address: 970 Mapleview Drive East Innisfil, ON Canada Location Other: Proponent Name: 970 Mapleview Inc. Proponent Address: 970 Mapleview Inc. Unit 5 - 2200 Highway 7 West Concord, ON L4K 1W7 Canada Comment Period: February 1, 2021 - March 3, 2021 (30 days) Closed URL: https://ero.ontario.ca/notice/019-3051 Site Location Details: Lots 19 & 20, Concession 12					
4	4 of 5	WNW/130.7	263.1 / 0.29	970 Mapleview Inc. 970 Mapleview Dr E 1005 Big Bay Point Road Barrie ON L4K 1W7	ECA
Approval No: 9009-BZNQ9P Approval Date: 2021-04-08 Status: Approved Record Type: ECA Link Source: IDS SWP Area Name: Lakes Simcoe and Couchiching/Black River Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS Business Name: 970 Mapleview Inc. Address: 970 Mapleview Dr E 1005 Big Bay Point Road Full Address: Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/3647-BYTV3D-14.pdf					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
PDF Site Location:					
4	5 of 5	WNW/130.7	263.1 / 0.29	970 Mapleview Inc. 970 Mapleview Dr E Barrie ON L4K 1W7	ECA
Approval No:	6560-C5SGMR			MOE District:	
Approval Date:	2021-08-15			City:	
Status:	Approved			Longitude:	
Record Type:	ECA			Latitude:	
Link Source:	IDS			Geometry X:	-8861570.2535
SWP Area Name:				Geometry Y:	5520703.107299999
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS				
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS				
Business Name:	970 Mapleview Inc.				
Address:	970 Mapleview Dr E				
Full Address:					
Full PDF Link:	https://www.accessenvironment.ene.gov.on.ca/instruments/5500-C5LS44-14.pdf				
PDF Site Location:					

5	1 of 1	W/148.9	262.6 / -0.25	MAPLEVIEW DR E Barrie ON	WWIS
Well ID:	7336560			Flowing (Y/N):	
Construction Date:				Flow Rate:	
Use 1st:	Monitoring			Data Entry Status:	
Use 2nd:				Data Src:	
Final Well Status:	Observation Wells			Date Received:	07/05/2019
Water Type:				Selected Flag:	TRUE
Casing Material:				Abandonment Rec:	
Audit No:	Z312362			Contractor:	7360
Tag:	A266742			Form Version:	7
Constructn Method:				Owner:	
Elevation (m):				County:	SIMCOE
Elevatn Reliabilty:				Lot:	
Depth to Bedrock:				Concession:	
Well Depth:				Concession Name:	
Overburden/Bedrock:				Easting NAD83:	
Pump Rate:				Northing NAD83:	
Static Water Level:				Zone:	
Clear/Cloudy:				UTM Reliability:	
Municipality:	INNISFIL TOWNSHIP				
Site Info:					
PDF URL (Map):	https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/733\7336560.pdf				

Additional Detail(s) (Map)

Well Completed Date: 06/12/2019
Year Completed: 2019
Depth (m): 7.62
Latitude: 44.3540796619434
Longitude: -79.6029154274124
Path: 733\7336560.pdf

Bore Hole Information

Bore Hole ID: 1007511234
DP2BR:
Spatial Status:
Code OB:

Elevation:
Elevrc:
Zone: 17
East83: 611342.00

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Code OB Desc:				North83:	4912150.00
Open Hole:				Org CS:	UTM83
Cluster Kind:				UTMRC:	4
Date Completed:	06/12/2019			UTMRC Desc:	margin of error : 30 m - 100 m
Remarks:				Location Method:	wwr
Loc Method Desc:		on Water Well Record			
Elevrc Desc:					
Location Source Date:					
Improvement Location Source:					
Improvement Location Method:					
Source Revision Comment:					
Supplier Comment:					

Overburden and Bedrock

Materials Interval

Formation ID: 1008216148
Layer: 3
Color: 6
General Color: BROWN
Mat1: 08
Most Common Material: FINE SAND
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 11.0
Formation End Depth: 20.0
Formation End Depth UOM: ft

Overburden and Bedrock

Materials Interval

Formation ID: 1008216146
Layer: 1
Color: 6
General Color: BROWN
Mat1: 11
Most Common Material: GRAVEL
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth: 4.0
Formation End Depth UOM: ft

Overburden and Bedrock

Materials Interval

Formation ID: 1008216149
Layer: 4
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 27
Mat2 Desc: OTHER
Mat3:
Mat3 Desc:
Formation Top Depth: 20.0
Formation End Depth: 25.0
Formation End Depth UOM: ft

<i>Map Key</i>	<i>Number of Records</i>	<i>Direction/ Distance (m)</i>	<i>Elev/Diff (m)</i>	<i>Site</i>	<i>DB</i>
<u>Overburden and Bedrock Materials Interval</u>					
Formation ID:		1008216147			
Layer:		2			
Color:		6			
General Color:		BROWN			
Mat1:		28			
Most Common Material:		SAND			
Mat2:		01			
Mat2 Desc:		FILL			
Mat3:					
Mat3 Desc:					
Formation Top Depth:		4.0			
Formation End Depth:		11.0			
Formation End Depth UOM:		ft			
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:		1008217122			
Layer:		1			
Plug From:		11.0			
Plug To:		0.0			
Plug Depth UOM:		ft			
<u>Method of Construction & Well Use</u>					
Method Construction ID:		1008218272			
Method Construction Code:		B			
Method Construction:		Other Method			
Other Method Construction:		AUGER			
<u>Pipe Information</u>					
Pipe ID:		1008215338			
Casing No:		0			
Comment:					
Alt Name:					
<u>Construction Record - Casing</u>					
Casing ID:		1008218651			
Layer:		1			
Material:		5			
Open Hole or Material:		PLASTIC			
Depth From:		0.0			
Depth To:		13.0			
Casing Diameter:		2.0			
Casing Diameter UOM:		Inch			
Casing Depth UOM:		ft			
<u>Construction Record - Screen</u>					
Screen ID:		1008219056			
Layer:		1			
Slot:		.10			
Screen Top Depth:		13.0			
Screen End Depth:		25.0			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Screen Material:		5			
Screen Depth UOM:		ft			
Screen Diameter UOM:		inch			
Screen Diameter:		2.0			
<u>Results of Well Yield Testing</u>					
Pumping Test Method Desc:					
Pump Test ID:		1008219613			
Pump Set At:					
Static Level:					
Final Level After Pumping:					
Recommended Pump Depth:					
Pumping Rate:					
Flowing Rate:					
Recommended Pump Rate:					
Levels UOM:		ft			
Rate UOM:		GPM			
Water State After Test Code:					
Water State After Test:					
Pumping Test Method:		0			
Pumping Duration HR:					
Pumping Duration MIN:					
Flowing:					
<u>Water Details</u>					
Water ID:		1008219393			
Layer:		1			
Kind Code:		8			
Kind:		Untested			
Water Found Depth:		8.0			
Water Found Depth UOM:		ft			
<u>Hole Diameter</u>					
Hole ID:		1008217826			
Diameter:		6.0			
Depth From:		0.0			
Depth To:		25.0			
Hole Depth UOM:		ft			
Hole Diameter UOM:		Inch			
<u>Links</u>					
Bore Hole ID:		1007511234		Tag No:	A266742
Depth M:		7.62		Contractor:	7360
Year Completed:		2019		Latitude:	44.3540796619434
Well Completed Dt:		06/12/2019		Longitude:	-79.6029154274124
Audit No:		Z312362		Y:	44.35407966046669
Path:		733\7336560.pdf		X:	-79.60291527474766
6	1 of 1	SE/154.9	253.5 / -9.28	953 MAPLE VIEW DR E ON	WWIS
Well ID:		7315563		Flowing (Y/N):	
Construction Date:				Flow Rate:	
Use 1st:		Monitoring		Data Entry Status:	
Use 2nd:				Data Src:	
Final Well Status:		Observation Wells		Date Received:	07/30/2018
Water Type:				Selected Flag:	TRUE
Casing Material:				Abandonment Rec:	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Audit No:	Z287580			Contractor:	7201
Tag:	A248578			Form Version:	7
Constructn Method:				Owner:	
Elevation (m):				County:	SIMCOE
Elevatn Reliability:				Lot:	
Depth to Bedrock:				Concession:	
Well Depth:				Concession Name:	
Overburden/Bedrock:				Easting NAD83:	
Pump Rate:				Northing NAD83:	
Static Water Level:				Zone:	
Clear/Cloudy:				UTM Reliability:	
Municipality:		INNISFIL TOWNSHIP			
Site Info:					

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date: 05/14/2018
Year Completed: 2018
Depth (m): 12.192
Latitude: 44.3530054570757
Longitude: -79.5997413665846
Path:

Bore Hole Information

Bore Hole ID:	1007229631	Elevation:	
DP2BR:		Elevrc:	
Spatial Status:		Zone:	17
Code OB:		East83:	611597.00
Code OB Desc:		North83:	4912035.00
Open Hole:		Org CS:	UTM83
Cluster Kind:		UTMRC:	4
Date Completed:	05/14/2018	UTMRC Desc:	margin of error : 30 m - 100 m
Remarks:		Location Method:	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock
Materials Interval

Formation ID: 1007418044
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 11
Mat2 Desc: GRAVEL
Mat3: 05
Mat3 Desc: CLAY
Formation Top Depth: 0.0
Formation End Depth: 40.0
Formation End Depth UOM: ft

Annular Space/Abandonment

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>Sealing Record</u>					
Plug ID:		1007418051			
Layer:		1			
Plug From:		0.0			
Plug To:		33.0			
Plug Depth UOM:		ft			
<u>Annular Space/Abandonment</u>					
<u>Sealing Record</u>					
Plug ID:		1007418052			
Layer:		2			
Plug From:		33.0			
Plug To:		40.0			
Plug Depth UOM:		ft			
<u>Method of Construction & Well Use</u>					
Method Construction ID:		1007418050			
Method Construction Code:		2			
Method Construction:		Rotary (Convent.)			
Other Method Construction:					
<u>Pipe Information</u>					
Pipe ID:		1007418043			
Casing No:		0			
Comment:					
Alt Name:					
<u>Construction Record - Casing</u>					
Casing ID:		1007418047			
Layer:		1			
Material:		5			
Open Hole or Material:		PLASTIC			
Depth From:		0.0			
Depth To:		35.0			
Casing Diameter:		2.0			
Casing Diameter UOM:		inch			
Casing Depth UOM:		ft			
<u>Construction Record - Screen</u>					
Screen ID:		1007418048			
Layer:		1			
Slot:		.01			
Screen Top Depth:		35.0			
Screen End Depth:		40.0			
Screen Material:		5			
Screen Depth UOM:		ft			
Screen Diameter UOM:		inch			
Screen Diameter:		2.25			
<u>Water Details</u>					
Water ID:		1007418046			
Layer:		1			
Kind Code:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Kind:					
Water Found Depth:					
Water Found Depth UOM:		ft			
<u>Hole Diameter</u>					
Hole ID:		1007418045			
Diameter:		8.25			
Depth From:		0.0			
Depth To:		40.0			
Hole Depth UOM:		ft			
Hole Diameter UOM:		inch			
<u>Links</u>					
Bore Hole ID:	1007229631			Tag No:	A248578
Depth M:	12.192			Contractor:	7201
Year Completed:	2018			Latitude:	44.3530054570757
Well Completed Dt:	05/14/2018			Longitude:	-79.5997413665846
Audit No:	Z287580			Y:	44.35300545560517
Path:				X:	-79.59974121445399

7	1 of 1	NE/160.2	264.9 / 2.05	970 Mapleview Drive lot 19 con 12 Innisfil ON	WWIS
Well ID:	7389702			Flowing (Y/N):	
Construction Date:				Flow Rate:	
Use 1st:				Data Entry Status:	
Use 2nd:				Data Src:	
Final Well Status:	Abandoned-Other			Date Received:	06/14/2021
Water Type:				Selected Flag:	TRUE
Casing Material:				Abandonment Rec:	Yes
Audit No:	SOPDKDMJ			Contractor:	7732
Tag:	_NO_TAG			Form Version:	9
Constructn Method:				Owner:	
Elevation (m):				County:	SIMCOE
Elevatn Reliabilty:				Lot:	019
Depth to Bedrock:				Concession:	12
Well Depth:				Concession Name:	CON
Overburden/Bedrock:				Easting NAD83:	
Pump Rate:				Northing NAD83:	
Static Water Level:				Zone:	
Clear/Cloudy:				UTM Reliability:	
Municipality:	INNISFIL TOWNSHIP				
Site Info:					

Bore Hole Information

Bore Hole ID:	1008679222			Elevation:	
DP2BR:				Elevrc:	
Spatial Status:				Zone:	17
Code OB:				East83:	611599.00
Code OB Desc:				North83:	4912266.00
Open Hole:				Org CS:	UTM83
Cluster Kind:				UTMRC:	4
Date Completed:	05/14/2021			UTMRC Desc:	margin of error : 30 m - 100 m
Remarks:				Location Method:	wwr
Loc Method Desc:	on Water Well Record				
Elevrc Desc:					
Location Source Date:					
Improvement Location Source:					
Improvement Location Method:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Source Revision Comment:					
Supplier Comment:					
<u>Overburden and Bedrock Materials Interval</u>					
Formation ID:		1008679328			
Layer:		1			
Color:					
General Color:					
Mat1:					
Most Common Material:					
Mat2:					
Mat2 Desc:					
Mat3:					
Mat3 Desc:					
Formation Top Depth:		0.0			
Formation End Depth:					
Formation End Depth UOM:		m			
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:		1008679445			
Layer:		1			
Plug From:		0.0			
Plug To:		7.599999904632568			
Plug Depth UOM:		m			
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:		1008679424			
Layer:		1			
Plug From:					
Plug To:					
Plug Depth UOM:		m			
<u>Pipe Information</u>					
Pipe ID:		1008679261			
Casing No:		0			
Comment:					
Alt Name:					
<u>Construction Record - Casing</u>					
Casing ID:		1008679373			
Layer:		1			
Material:		5			
Open Hole or Material:		PLASTIC			
Depth From:		0.0			
Depth To:		4.599999904632568			
Casing Diameter:		5.0			
Casing Diameter UOM:		cm			
Casing Depth UOM:		m			
<u>Construction Record - Screen</u>					
Screen ID:		1008679391			
Layer:		1			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
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Slot:
Screen Top Depth: 4.599999904632568
Screen End Depth: 7.599999904632568
Screen Material: 5
Screen Depth UOM: m
Screen Diameter UOM: cm
Screen Diameter: 6.300000190734863

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1008679262
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM: m
Rate UOM: LPM
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Links

Bore Hole ID:	1008679222	Tag No:	_NO_TAG
Depth M:		Contractor:	7732
Year Completed:	2021	Latitude:	44.3550842086519
Well Completed Dt:	05/14/2021	Longitude:	-79.5996667605969
Audit No:	SOPDKDMJ	Y:	44.3550842076127
Path:	738\7389702.pdf	X:	-79.59966660830318

<u>8</u>	1 of 1	NE/160.3	264.9 / 2.05	lot 19 con 12 ON	WWIS
Well ID:	7370392			Flowing (Y/N):	
Construction Date:				Flow Rate:	
Use 1st:				Data Entry Status:	Yes
Use 2nd:				Data Src:	
Final Well Status:				Date Received:	10/08/2020
Water Type:				Selected Flag:	TRUE
Casing Material:				Abandonment Rec:	
Audit No:	C49847			Contractor:	7230
Tag:	A297432			Form Version:	8
Constructn Method:				Owner:	
Elevation (m):				County:	SIMCOE
Elevatn Reliabilty:				Lot:	019
Depth to Bedrock:				Concession:	12
Well Depth:				Concession Name:	CON
Overburden/Bedrock:				Easting NAD83:	
Pump Rate:				Northing NAD83:	
Static Water Level:				Zone:	
Clear/Cloudy:				UTM Reliability:	
Municipality:	INNISFIL TOWNSHIP				
Site Info:					

Bore Hole Information

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Bore Hole ID:	1008484100			Elevation:	
DP2BR:				Elevrc:	
Spatial Status:				Zone:	17
Code OB:				East83:	611598.00
Code OB Desc:				North83:	4912267.00
Open Hole:				Org CS:	UTM83
Cluster Kind:				UTMRC:	4
Date Completed:	08/27/2020			UTMRC Desc:	margin of error : 30 m - 100 m
Remarks:				Location Method:	wwr
Loc Method Desc:	on Water Well Record				
Elevrc Desc:					
Location Source Date:					
Improvement Location Source:					
Improvement Location Method:					
Source Revision Comment:					
Supplier Comment:					
Links					
Bore Hole ID:	1008484100			Tag No:	A297432
Depth M:				Contractor:	7230
Year Completed:	2020			Latitude:	44.3550933627182
Well Completed Dt:	08/27/2020			Longitude:	-79.5996790903988
Audit No:	C49847			Y:	44.35509336187225
Path:				X:	-79.59967893767566

<u>9</u>	1 of 1	NNE/168.8	266.0 / 3.20	970 Mapleview Drive lot 19 con 12 Innisfil ON	WWIS
Well ID:	7389703			Flowing (Y/N):	
Construction Date:				Flow Rate:	
Use 1st:				Data Entry Status:	
Use 2nd:				Data Src:	
Final Well Status:	Abandoned-Other			Date Received:	06/14/2021
Water Type:				Selected Flag:	TRUE
Casing Material:				Abandonment Rec:	Yes
Audit No:	IN7NTG9Y			Contractor:	7732
Tag:	_NO_TAG			Form Version:	9
Constructn Method:				Owner:	
Elevation (m):				County:	SIMCOE
Elevatn Reliabilty:				Lot:	019
Depth to Bedrock:				Concession:	12
Well Depth:				Concession Name:	CON
Overburden/Bedrock:				Easting NAD83:	
Pump Rate:				Northing NAD83:	
Static Water Level:				Zone:	
Clear/Cloudy:				UTM Reliability:	
Municipality:	INNISFIL TOWNSHIP				
Site Info:					

Bore Hole Information

Bore Hole ID:	1008679225			Elevation:	
DP2BR:				Elevrc:	
Spatial Status:				Zone:	17
Code OB:				East83:	611544.00
Code OB Desc:				North83:	4912308.00
Open Hole:				Org CS:	UTM83
Cluster Kind:				UTMRC:	4
Date Completed:	05/14/2021			UTMRC Desc:	margin of error : 30 m - 100 m
Remarks:				Location Method:	wwr
Loc Method Desc:	on Water Well Record				

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Elevrc Desc:					
Location Source Date:					
Improvement Location Source:					
Improvement Location Method:					
Source Revision Comment:					
Supplier Comment:					
<u>Overburden and Bedrock</u>					
<u>Materials Interval</u>					
Formation ID:		1008679329			
Layer:		1			
Color:					
General Color:					
Mat1:					
Most Common Material:					
Mat2:					
Mat2 Desc:					
Mat3:					
Mat3 Desc:					
Formation Top Depth:		0.0			
Formation End Depth:					
Formation End Depth UOM:		m			
<u>Annular Space/Abandonment</u>					
<u>Sealing Record</u>					
Plug ID:		1008679425			
Layer:		1			
Plug From:					
Plug To:					
Plug Depth UOM:		m			
<u>Annular Space/Abandonment</u>					
<u>Sealing Record</u>					
Plug ID:		1008679446			
Layer:		1			
Plug From:		0.0			
Plug To:		7.599999904632568			
Plug Depth UOM:		m			
<u>Pipe Information</u>					
Pipe ID:		1008679263			
Casing No:		0			
Comment:					
Alt Name:					
<u>Construction Record - Casing</u>					
Casing ID:		1008679374			
Layer:		1			
Material:		5			
Open Hole or Material:		PLASTIC			
Depth From:		0.0			
Depth To:		4.599999904632568			
Casing Diameter:		5.0			
Casing Diameter UOM:		cm			
Casing Depth UOM:		m			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
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Construction Record - Screen

Screen ID: 1008679392
Layer: 1
Slot:
Screen Top Depth: 4.599999904632568
Screen End Depth: 7.599999904632568
Screen Material: 5
Screen Depth UOM: m
Screen Diameter UOM: cm
Screen Diameter: 6.300000190734863

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1008679264
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM: m
Rate UOM: LPM
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Links

Bore Hole ID:	1008679225	Tag No:	_NO_TAG
Depth M:		Contractor:	7732
Year Completed:	2021	Latitude:	44.3554706770413
Well Completed Dt:	05/14/2021	Longitude:	-79.6003476910004
Audit No:	IN7NTG9Y	Y:	44.35547067580842
Path:	738\7389703.pdf	X:	-79.60034753822097

10	1 of 1	E/169.8	258.6 / -4.20	lot 19 con 11 ON	WWIS
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Well ID:	5701423	Flowing (Y/N):	
Construction Date:		Flow Rate:	
Use 1st:	Livestock	Data Entry Status:	
Use 2nd:	Domestic	Data Src:	1
Final Well Status:	Water Supply	Date Received:	12/13/1965
Water Type:		Selected Flag:	TRUE
Casing Material:		Abandonment Rec:	
Audit No:		Contractor:	1510
Tag:		Form Version:	1
Constructn Method:		Owner:	
Elevation (m):		County:	SIMCOE
Elevatn Reliabilty:		Lot:	019
Depth to Bedrock:		Concession:	11
Well Depth:		Concession Name:	CON
Overburden/Bedrock:		Easting NAD83:	
Pump Rate:		Northing NAD83:	
Static Water Level:		Zone:	
Clear/Cloudy:		UTM Reliability:	
Municipality:	INNISFIL TOWNSHIP		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
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Site Info:

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/570\5701423.pdf

Additional Detail(s) (Map)

Well Completed Date: 09/15/1965
Year Completed: 1965
Depth (m): 13.4112
Latitude: 44.3536713380996
Longitude: -79.5989801838204
Path: 570\5701423.pdf

Bore Hole Information

Bore Hole ID:	10379316	Elevation:	
DP2BR:		Elevrc:	
Spatial Status:		Zone:	17
Code OB:		East83:	611656.40
Code OB Desc:		North83:	4912110.00
Open Hole:		Org CS:	
Cluster Kind:		UTMRC:	5
Date Completed:	09/15/1965	UTMRC Desc:	margin of error : 100 m - 300 m
Remarks:		Location Method:	p5
Loc Method Desc:	Original Pre1985 UTM Rel Code 5: margin of error : 100 m - 300 m		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock

Materials Interval

Formation ID: 932261053
Layer: 3
Color:
General Color:
Mat1: 08
Most Common Material: FINE SAND
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 30.0
Formation End Depth: 36.0
Formation End Depth UOM: ft

Overburden and Bedrock

Materials Interval

Formation ID: 932261054
Layer: 4
Color:
General Color:
Mat1: 10
Most Common Material: COARSE SAND
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Formation Top Depth:		36.0			
Formation End Depth:		44.0			
Formation End Depth UOM:		ft			
<u>Overburden and Bedrock Materials Interval</u>					
Formation ID:		932261051			
Layer:		1			
Color:		6			
General Color:		BROWN			
Mat1:		05			
Most Common Material:		CLAY			
Mat2:					
Mat2 Desc:					
Mat3:					
Mat3 Desc:					
Formation Top Depth:		0.0			
Formation End Depth:		3.0			
Formation End Depth UOM:		ft			
<u>Overburden and Bedrock Materials Interval</u>					
Formation ID:		932261052			
Layer:		2			
Color:		6			
General Color:		BROWN			
Mat1:		05			
Most Common Material:		CLAY			
Mat2:		12			
Mat2 Desc:		STONES			
Mat3:					
Mat3 Desc:					
Formation Top Depth:		3.0			
Formation End Depth:		30.0			
Formation End Depth UOM:		ft			
<u>Method of Construction & Well Use</u>					
Method Construction ID:		965701423			
Method Construction Code:		1			
Method Construction:		Cable Tool			
Other Method Construction:					
<u>Pipe Information</u>					
Pipe ID:		10927886			
Casing No:		1			
Comment:					
Alt Name:					
<u>Construction Record - Casing</u>					
Casing ID:		930627165			
Layer:		1			
Material:		1			
Open Hole or Material:		STEEL			
Depth From:					
Depth To:		40.0			
Casing Diameter:		4.0			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Casing Diameter UOM:		inch			
Casing Depth UOM:		ft			
<u>Construction Record - Screen</u>					
Screen ID:		933363331			
Layer:		1			
Slot:		016			
Screen Top Depth:		40.0			
Screen End Depth:		44.0			
Screen Material:					
Screen Depth UOM:		ft			
Screen Diameter UOM:		inch			
Screen Diameter:					
<u>Results of Well Yield Testing</u>					
Pumping Test Method Desc:		PUMP			
Pump Test ID:		995701423			
Pump Set At:					
Static Level:		15.0			
Final Level After Pumping:		17.0			
Recommended Pump Depth:		30.0			
Pumping Rate:		10.0			
Flowing Rate:					
Recommended Pump Rate:		5.0			
Levels UOM:		ft			
Rate UOM:		GPM			
Water State After Test Code:		1			
Water State After Test:		CLEAR			
Pumping Test Method:		1			
Pumping Duration HR:		2			
Pumping Duration MIN:		0			
Flowing:		No			
<u>Water Details</u>					
Water ID:		933860783			
Layer:		1			
Kind Code:		1			
Kind:		FRESH			
Water Found Depth:		30.0			
Water Found Depth UOM:		ft			
<u>Links</u>					
Bore Hole ID:		10379316		Tag No:	
Depth M:		13.4112		Contractor: 1510	
Year Completed:		1965		Latitude: 44.3536713380996	
Well Completed Dt:		09/15/1965		Longitude: -79.5989801838204	
Audit No:				Y: 44.353671336677074	
Path:		570\5701423.pdf		X: -79.59898003167216	

[11](#) 1 of 1 ESE/174.6 255.9 / -6.95 lot 19 con 11 ON WWIS

Well ID:	7328887	Flowing (Y/N):	
Construction Date:		Flow Rate:	
Use 1st:		Data Entry Status:	Yes
Use 2nd:		Data Src:	
Final Well Status:		Date Received:	02/21/2019
Water Type:		Selected Flag:	TRUE

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Casing Material: Audit No: C43391 Tag: A255624 Constructn Method: Elevation (m): Elevatn Reliabilty: Depth to Bedrock: Well Depth: Overburden/Bedrock: Pump Rate: Static Water Level: Clear/Cloudy: Municipality: INNISFIL TOWNSHIP Site Info:		Abandonment Rec: Contractor: 7626 Form Version: 8 Owner: County: SIMCOE Lot: 019 Concession: 11 Concession Name: CON Easting NAD83: Northing NAD83: Zone: UTM Reliability:			
PDF URL (Map):					
<u>Additional Detail(s) (Map)</u>					
Well Completed Date: 10/12/2018 Year Completed: 2018 Depth (m): Latitude: 44.3533663142734 Longitude: -79.5990677561771 Path:					
<u>Bore Hole Information</u>					
Bore Hole ID: 1007382584 DP2BR: Spatial Status: Code OB: Code OB Desc: Open Hole: Cluster Kind: Date Completed: 10/12/2018 Remarks: Loc Method Desc: on Water Well Record Elevrc Desc: Location Source Date: Improvement Location Source: Improvement Location Method: Source Revision Comment: Supplier Comment:		Elevation: Elevrc: Zone: 17 East83: 611650.00 North83: 4912076.00 Org CS: UTM83 UTMRC: 4 UTMRC Desc: margin of error : 30 m - 100 m Location Method: wwr			
<u>Links</u>					
Bore Hole ID: 1007382584 Depth M: Year Completed: 2018 Well Completed Dt: 10/12/2018 Audit No: C43391 Path:		Tag No: A255624 Contractor: 7626 Latitude: 44.3533663142734 Longitude: -79.5990677561771 Y: 44.35336631286604 X: -79.59906760303942			
12	1 of 1	NE/178.2	265.9 / 3.14	970 MAPLEVIEW INC. 970 MAPLEVIEW DRIVE EAST, BARRIE, ON L4M 7G8 Barrie ON	RSC
RSC ID: 229891 RA No: RSC Type: Phase 1 and 2 RSC		Cert Date: Cert Prop Use No: Intended Prop Use: Residential			

<i>Map Key</i>	<i>Number of Records</i>	<i>Direction/ Distance (m)</i>	<i>Elev/Diff (m)</i>	<i>Site</i>	<i>DB</i>
Curr Property Use: Ministry District: Filing Date: Date Ack: Date Returned: Restoration Type: Soil Type: Criteria: CPU Issued Sect 1686: Asmt Roll No:	Agricultural/Other Barrie District Office 2021/11/02			Qual Person Name: SIMON LAN Stratified (Y/N): Audit (Y/N): Entire Leg Prop. (Y/N): Accuracy Estimate: Telephone: Fax: Email:	
Prop ID No (PIN):	4342090037097000000, 4342090037098000000, 4342090037098010000				
Property Municipal Address:	58091-3814 (LT), 58091-3813 (LT), 58091-3777 (LT)				
Mailing Address: Latitude & Latitude: UTM Coordinates: Consultant: Legal Desc: Measurement Method: Applicable Standards: RSC PDF:	970 MAPLEVIEW DRIVE EAST, BARRIE, ON L4M 7G8, 1002 MAPLEVIEW DRIVE EAST, BARRIE, ON L4M 7G8, 1006 MAPLEVIEW DRIVE EAST, BARRIE, ON L4M 7G8				
<u>Document(s) Detail</u>					
Document Heading: Document Name: Document Type: Document Link:	Supporting Documents CertofStatus.pdf Certificate of Status https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=153190&fileName=BROWNFIELDS-E.pdf				
Document Heading: Document Name: Document Type: Document Link:	Supporting Documents Lawyers Letter - 970 Mapleview - S2.pdf Lawyer's letter consisting of a legal description of the property https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=153186&fileName=Lawyers+Letter+-+970+Mapleview+-+S2.pdf				
Document Heading: Document Name: Document Type: Document Link:	Supporting Documents TransferDeed - 970 Mapleview - S2.pdf Copy of any deed(s), transfer(s) or other document(s) https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=153193&fileName=TransferDeed+-+970+Mapleview+-+S2.pdf				
Document Heading: Document Name: Document Type: Document Link:	Supporting Documents TableofCandPUUses - 970 Mapleview - S1.pdf Table of Current and Past Property Use https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=153191&fileName=TableofCandPUUses+-+970+Mapleview+-+S1.pdf				
Document Heading: Document Name: Document Type: Document Link:	Supporting Documents APEC Table - 970 Mapleview - S3.pdf Area(s) of Potential Environmental Concern https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=153192&fileName=APEC+Table+-+970+Mapleview+-+S3.pdf				
Document Heading: Document Name: Document Type: Document Link:	Supporting Documents Plan of Survey - 970 Mapleview - S1.pdf A Current plan of Survey https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=153185&fileName=Plan+of+Survey+-+970+Mapleview+-+S1.pdf				

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Document Heading:		Supporting Documents			
Document Name:		PhaseTwo.pdf			
Document Type:		Phase 2 Conceptual Site Model			
Document Link:		https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=155645&fileName=PhaseTwo.pdf			

13	1 of 1	W/187.5	262.9 / 0.08	970 MAPLEVIEW INC. 932 MAPLEVIEW DRIVE EAST, BARRIE, ON L9J 0C4 Barrie ON	RSC
RSC ID:		229706		Cert Date:	
RA No:				Cert Prop Use No:	
RSC Type:		Phase 1 and 2 RSC		Intended Prop Use: Residential	
Curr Property Use:		Residential		Qual Person Name: SIMON LAN	
Ministry District:		Barrie District Office		Stratified (Y/N):	
Filing Date:		2021/09/22		Audit (Y/N):	
Date Ack:				Entire Leg Prop. (Y/N):	
Date Returned:				Accuracy Estimate:	
Restoration Type:				Telephone:	
Soil Type:				Fax:	
Criteria:				Email:	
CPU Issued Sect 1686:					
Asmt Roll No:		4342090037096000000			
Prop ID No (PIN):		58091-3910 (LT)			
Property Municipal Address:		932 MAPLEVIEW DRIVE EAST, BARRIE, ON L9J 0C4			
Mailing Address:					
Latitude & Latitude:					
UTM Coordinates:					
Consultant:					
Legal Desc:					
Measurement Method:					
Applicable Standards:					
RSC PDF:		https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=151248&fileName=BROWNFIELDS-E.pdf			

Document(s) Detail

Document Heading: Supporting Documents
Document Name: APEC Table - 932 Mapleview - S1.pdf
Document Type: Area(s) of Potential Environmental Concern
Document Link: <https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=151250&fileName=APEC+Table+-+932+Mapleview+-+S1.pdf>

Document Heading: Supporting Documents
Document Name: Transfer Deeds - 932 Mapleview - S1.pdf
Document Type: Copy of any deed(s), transfer(s) or other document(s)
Document Link: <https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=151252&fileName=Transfer+Deeds+-+932+Mapleview+-+S1.pdf>

Document Heading: Supporting Documents
Document Name: PhaseTwo.pdf
Document Type: Phase 2 Conceptual Site Model
Document Link: <https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=153618&fileName=PhaseTwo.pdf>

Document Heading: Supporting Documents
Document Name: Lawyers Letter - 932 Mapleview - S1.pdf
Document Type: Lawyer's letter consisting of a legal description of the property
Document Link: <https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=151247&fileName=Lawyers+Letter+-+932+Mapleview+-+S1.pdf>

Document Heading: Supporting Documents

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Document Name:		CertofStatus.pdf			
Document Type:		Certificate of Status			
Document Link:		https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=153619&fileName=CertofStatus.pdf			
Document Heading:		Supporting Documents			
Document Name:		Table of C and P Uses - 932 Mapleview - S1.pdf			
Document Type:		Table of Current and Past Property Use			
Document Link:		https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=151251&fileName=Table+of+C+and+P+Uses+-+932+Mapleview+-+S1.pdf			
Document Heading:		Supporting Documents			
Document Name:		Plan of Survey - 932 Mapleview - S1.pdf			
Document Type:		A Current plan of Survey			
Document Link:		https://www.lrcsde.lrc.gov.on.ca/BFISWebPublic/pub/viewDocument.action?attachmentId=151243&fileName=Plan+of+Survey+-+932+Mapleview+-+S1.pdf			

14	1 of 1	NE/209.2	265.9 / 3.05	970 MAPLEVIEW DRIVE EAST lot 19 con 12 Barrie ON	WWIS
Well ID:	7362533			Flowing (Y/N):	
Construction Date:				Flow Rate:	
Use 1st:				Data Entry Status:	
Use 2nd:				Data Src:	
Final Well Status:	Abandoned-Other			Date Received:	07/13/2020
Water Type:				Selected Flag:	TRUE
Casing Material:				Abandonment Rec:	Yes
Audit No:	Z333769			Contractor:	7523
Tag:				Form Version:	7
Constructn Method:				Owner:	
Elevation (m):				County:	SIMCOE
Elevatn Reliabilty:				Lot:	019
Depth to Bedrock:				Concession:	12
Well Depth:				Concession Name:	CON
Overburden/Bedrock:				Easting NAD83:	
Pump Rate:				Northing NAD83:	
Static Water Level:				Zone:	
Clear/Cloudy:				UTM Reliability:	
Municipality:	INNISFIL TOWNSHIP				
Site Info:					

Bore Hole Information

Bore Hole ID:	1008364196			Elevation:	
DP2BR:				Elevrc:	
Spatial Status:				Zone:	17
Code OB:				East83:	611580.00
Code OB Desc:				North83:	4912337.00
Open Hole:				Org CS:	UTM83
Cluster Kind:				UTMRC:	4
Date Completed:	06/20/2020			UTMRC Desc:	margin of error : 30 m - 100 m
Remarks:				Location Method:	wwr
Loc Method Desc:	on Water Well Record				
Elevrc Desc:					
Location Source Date:					
Improvement Location Source:					
Improvement Location Method:					
Source Revision Comment:					
Supplier Comment:					

Overburden and Bedrock Materials Interval

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Formation ID:		1008383840			
Layer:					
Color:					
General Color:					
Mat1:					
Most Common Material:					
Mat2:					
Mat2 Desc:					
Mat3:					
Mat3 Desc:					
Formation Top Depth:					
Formation End Depth:					
Formation End Depth UOM:		m			
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:		1008383850			
Layer:		4			
Plug From:		7.5			
Plug To:		8.0			
Plug Depth UOM:		m			
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:		1008383851			
Layer:		5			
Plug From:		8.0			
Plug To:		18.0			
Plug Depth UOM:		m			
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:		1008383848			
Layer:		2			
Plug From:		2.0			
Plug To:		2.200000047683716			
Plug Depth UOM:		m			
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:		1008383849			
Layer:		3			
Plug From:		2.200000047683716			
Plug To:		7.5			
Plug Depth UOM:		m			
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:		1008383847			
Layer:		1			
Plug From:		0.0			
Plug To:		2.0			
Plug Depth UOM:		m			
<u>Annular Space/Abandonment Sealing Record</u>					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Plug ID:		1008383852			
Layer:		6			
Plug From:		18.0			
Plug To:		19.57999923706055			
Plug Depth UOM:		m			
<u>Method of Construction & Well Use</u>					
Method Construction ID:		1008383846			
Method Construction Code:					
Method Construction:					
Other Method Construction:					
<u>Pipe Information</u>					
Pipe ID:		1008383839			
Casing No:		0			
Comment:					
Alt Name:					
<u>Construction Record - Casing</u>					
Casing ID:		1008383844			
Layer:		2			
Material:		1			
Open Hole or Material:		STEEL			
Depth From:		1.5			
Depth To:		19.57999923706055			
Casing Diameter:		15.880000114440918			
Casing Diameter UOM:		cm			
Casing Depth UOM:		m			
<u>Construction Record - Casing</u>					
Casing ID:		1008383843			
Layer:		1			
Material:		3			
Open Hole or Material:		CONCRETE			
Depth From:		0.0			
Depth To:		8.229999542236328			
Casing Diameter:		91.44000244140625			
Casing Diameter UOM:		cm			
Casing Depth UOM:		m			
<u>Construction Record - Screen</u>					
Screen ID:		1008383845			
Layer:					
Slot:					
Screen Top Depth:					
Screen End Depth:					
Screen Material:					
Screen Depth UOM:		m			
Screen Diameter UOM:		cm			
Screen Diameter:					
<u>Water Details</u>					
Water ID:		1008383842			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Layer:					
Kind Code:					
Kind:					
Water Found Depth:					
Water Found Depth UOM:		m			
Hole Diameter					
Hole ID:		1008383841			
Diameter:					
Depth From:					
Depth To:					
Hole Depth UOM:		m			
Hole Diameter UOM:		cm			
Links					
Bore Hole ID:	1008364196			Tag No:	
Depth M:				Contractor:	7523
Year Completed:	2020			Latitude:	44.3557261489328
Well Completed Dt:	06/20/2020			Longitude:	-79.5998898815248
Audit No:	Z333769			Y:	44.355726147530575
Path:	736\7362533.pdf			X:	-79.59988972902764

15	1 of 1	NNE/217.4	265.9 / 3.05	970 Mapleview Drive lot 19 con 12 Innisfil ON	WWIS
Well ID:	7389701			Flowing (Y/N):	
Construction Date:				Flow Rate:	
Use 1st:				Data Entry Status:	
Use 2nd:				Data Src:	
Final Well Status:	Abandoned-Other			Date Received:	06/14/2021
Water Type:				Selected Flag:	TRUE
Casing Material:				Abandonment Rec:	Yes
Audit No:	DP44LNVD			Contractor:	7732
Tag:	A297432			Form Version:	9
Constructn Method:				Owner:	
Elevation (m):				County:	SIMCOE
Elevatn Reliabilty:				Lot:	019
Depth to Bedrock:				Concession:	12
Well Depth:				Concession Name:	CON
Overburden/Bedrock:				Easting NAD83:	
Pump Rate:				Northing NAD83:	
Static Water Level:				Zone:	
Clear/Cloudy:				UTM Reliability:	
Municipality:	INNISFIL TOWNSHIP				
Site Info:					
Bore Hole Information					
Bore Hole ID:	1008679219			Elevation:	
DP2BR:				Elevrc:	
Spatial Status:				Zone:	17
Code OB:				East83:	611550.00
Code OB Desc:				North83:	4912357.00
Open Hole:				Org CS:	UTM83
Cluster Kind:				UTMRC:	4
Date Completed:	05/14/2021			UTMRC Desc:	margin of error : 30 m - 100 m
Remarks:				Location Method:	wwr
Loc Method Desc:	on Water Well Record				
Elevrc Desc:					
Location Source Date:					

<i>Map Key</i>	<i>Number of Records</i>	<i>Direction/ Distance (m)</i>	<i>Elev/Diff (m)</i>	<i>Site</i>	<i>DB</i>
<i>Improvement Location Source:</i>					
<i>Improvement Location Method:</i>					
<i>Source Revision Comment:</i>					
<i>Supplier Comment:</i>					
<u><i>Overburden and Bedrock</i></u>					
<u><i>Materials Interval</i></u>					
<i>Formation ID:</i>		1008679327			
<i>Layer:</i>		1			
<i>Color:</i>					
<i>General Color:</i>					
<i>Mat1:</i>					
<i>Most Common Material:</i>					
<i>Mat2:</i>					
<i>Mat2 Desc:</i>					
<i>Mat3:</i>					
<i>Mat3 Desc:</i>					
<i>Formation Top Depth:</i>		0.0			
<i>Formation End Depth:</i>					
<i>Formation End Depth UOM:</i>		m			
<u><i>Annular Space/Abandonment</i></u>					
<u><i>Sealing Record</i></u>					
<i>Plug ID:</i>		1008679444			
<i>Layer:</i>		1			
<i>Plug From:</i>		0.0			
<i>Plug To:</i>		7.599999904632568			
<i>Plug Depth UOM:</i>		m			
<u><i>Annular Space/Abandonment</i></u>					
<u><i>Sealing Record</i></u>					
<i>Plug ID:</i>		1008679423			
<i>Layer:</i>		1			
<i>Plug From:</i>					
<i>Plug To:</i>					
<i>Plug Depth UOM:</i>		m			
<u><i>Pipe Information</i></u>					
<i>Pipe ID:</i>		1008679259			
<i>Casing No:</i>		0			
<i>Comment:</i>					
<i>Alt Name:</i>					
<u><i>Construction Record - Casing</i></u>					
<i>Casing ID:</i>		1008679372			
<i>Layer:</i>		1			
<i>Material:</i>		5			
<i>Open Hole or Material:</i>		PLASTIC			
<i>Depth From:</i>		0.0			
<i>Depth To:</i>		4.599999904632568			
<i>Casing Diameter:</i>		5.0			
<i>Casing Diameter UOM:</i>		cm			
<i>Casing Depth UOM:</i>		m			
<u><i>Construction Record - Screen</i></u>					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Screen ID:		1008679390			
Layer:		1			
Slot:					
Screen Top Depth:		4.599999904632568			
Screen End Depth:		7.599999904632568			
Screen Material:		5			
Screen Depth UOM:		m			
Screen Diameter UOM:		cm			
Screen Diameter:		6.300000190734863			

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1008679260
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM: m
Rate UOM: LPM
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Links

Bore Hole ID:	1008679219	Tag No:	A297432
Depth M:		Contractor:	7732
Year Completed:	2021	Latitude:	44.3559107671172
Well Completed Dt:	05/14/2021	Longitude:	-79.6002619252075
Audit No:	DP44LNVD	Y:	44.35591076555912
Path:	738\7389701.pdf	X:	-79.60026177245439

16	1 of 1	W/218.9	261.8 / -0.97	MOLSON PARK DR & PRINCE (MAPLE COURT SBDIV)RICHARD BARRIE ON	WWIS
Well ID:	5740741	Flowing (Y/N):			
Construction Date:		Flow Rate:			
Use 1st:	Not Used	Data Entry Status:			
Use 2nd:		Data Src:			
Final Well Status:	Abandoned-Other	Date Received:	05/24/2006		
Water Type:		Selected Flag:	TRUE		
Casing Material:		Abandonment Rec:	Yes		
Audit No:	Z45901	Contractor:	6926		
Tag:	A035742	Form Version:	3		
Constructn Method:		Owner:			
Elevation (m):		County:	SIMCOE		
Elevatn Reliabilty:		Lot:			
Depth to Bedrock:		Concession:			
Well Depth:		Concession Name:			
Overburden/Bedrock:		Easting NAD83:			
Pump Rate:		Northing NAD83:			
Static Water Level:		Zone:			
Clear/Cloudy:		UTM Reliability:			
Municipality:	INNISFIL TOWNSHIP				
Site Info:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
---------	-------------------	----------------------------	------------------	------	----

PDF URL (Map): https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/574\5740741.pdf

Additional Detail(s) (Map)

Well Completed Date: 05/18/2006
Year Completed: 2006
Depth (m): 5.5
Latitude: 44.3541084008252
Longitude: -79.6037930788194
Path: 574\5740741.pdf

Bore Hole Information

Bore Hole ID:	11556798	Elevation:	
DP2BR:		Elevrc:	
Spatial Status:		Zone:	17
Code OB:		East83:	611272.00
Code OB Desc:		North83:	4912152.00
Open Hole:		Org CS:	UTM83
Cluster Kind:		UTMRC:	3
Date Completed:	05/18/2006	UTMRC Desc:	margin of error : 10 - 30 m
Remarks:		Location Method:	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

**Overburden and Bedrock
Materials Interval**

Formation ID: 933055933
Layer: 2
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2: 06
Mat2 Desc: SILT
Mat3: 31
Mat3 Desc: COARSE GRAVEL
Formation Top Depth: 2.0
Formation End Depth: 5.5
Formation End Depth UOM: m

**Overburden and Bedrock
Materials Interval**

Formation ID: 933055932
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Formation End Depth:		2.0			
Formation End Depth UOM:		m			
<u>Method of Construction & Well Use</u>					
Method Construction ID:		965740741			
Method Construction Code:		2			
Method Construction:		Rotary (Convent.)			
Other Method Construction:					
<u>Pipe Information</u>					
Pipe ID:		11566405			
Casing No:		1			
Comment:					
Alt Name:					
<u>Construction Record - Casing</u>					
Casing ID:		930879749			
Layer:		1			
Material:		5			
Open Hole or Material:		PLASTIC			
Depth From:		0.0			
Depth To:		5.5			
Casing Diameter:		1.7999999523162842			
Casing Diameter UOM:		inch			
Casing Depth UOM:		m			
<u>Construction Record - Screen</u>					
Screen ID:		933418653			
Layer:		1			
Slot:		20			
Screen Top Depth:		4.5			
Screen End Depth:		5.5			
Screen Material:		5			
Screen Depth UOM:		m			
Screen Diameter UOM:		inch			
Screen Diameter:		2.0			
<u>Water Details</u>					
Water ID:		934075715			
Layer:		1			
Kind Code:		1			
Kind:		FRESH			
Water Found Depth:					
Water Found Depth UOM:		m			
<u>Hole Diameter</u>					
Hole ID:		11688629			
Diameter:		12.0			
Depth From:		0.0			
Depth To:		5.5			
Hole Depth UOM:		m			
Hole Diameter UOM:		inch			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>Links</u>					
Bore Hole ID:	11556798			Tag No:	A035742
Depth M:	5.5			Contractor:	6926
Year Completed:	2006			Latitude:	44.3541084008252
Well Completed Dt:	05/18/2006			Longitude:	-79.6037930788194
Audit No:	Z45901			Y:	44.35410840005107
Path:	574\5740741.pdf			X:	-79.60379292669951

17	1 of 1	WSW/241.7	260.9 / -1.95	883 MAPLEVIEW DR Barrie ON	WWIS
Well ID:	7356670			Flowing (Y/N):	
Construction Date:				Flow Rate:	
Use 1st:	Monitoring			Data Entry Status:	
Use 2nd:				Data Src:	
Final Well Status:	Observation Wells			Date Received:	04/09/2020
Water Type:				Selected Flag:	TRUE
Casing Material:				Abandonment Rec:	
Audit No:	Z315474			Contractor:	7314
Tag:	A276933			Form Version:	7
Constructn Method:				Owner:	
Elevation (m):				County:	SIMCOE
Elevatn Reliabilty:				Lot:	
Depth to Bedrock:				Concession:	
Well Depth:				Concession Name:	
Overburden/Bedrock:				Easting NAD83:	
Pump Rate:				Northing NAD83:	
Static Water Level:				Zone:	
Clear/Cloudy:				UTM Reliability:	
Municipality:	INNISFIL TOWNSHIP				
Site Info:					

PDF URL (Map):

Additional Detail(s) (Map)

Well Completed Date:
Year Completed:
Depth (m): 1.9812
Latitude: 44.3533719119438
Longitude: -79.6039360433944
Path:

Bore Hole Information

Bore Hole ID:	1008256491	Elevation:	
DP2BR:		Elevrc:	
Spatial Status:		Zone:	17
Code OB:		East83:	611262.00
Code OB Desc:		North83:	4912070.00
Open Hole:		Org CS:	UTM83
Cluster Kind:		UTMRC:	4
Date Completed:		UTMRC Desc:	margin of error : 30 m - 100 m
Remarks:		Location Method:	wwr
Loc Method Desc:	on Water Well Record		
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>Overburden and Bedrock Materials Interval</u>					
Formation ID:		1008316735			
Layer:		3			
Color:		6			
General Color:		BROWN			
Mat1:		09			
Most Common Material:		MEDIUM SAND			
Mat2:		06			
Mat2 Desc:		SILT			
Mat3:		91			
Mat3 Desc:		WATER-BEARING			
Formation Top Depth:		3.0			
Formation End Depth:		6.5			
Formation End Depth UOM:		ft			
<u>Overburden and Bedrock Materials Interval</u>					
Formation ID:		1008316733			
Layer:		1			
Color:		6			
General Color:		BROWN			
Mat1:		02			
Most Common Material:		TOPSOIL			
Mat2:					
Mat2 Desc:					
Mat3:					
Mat3 Desc:					
Formation Top Depth:		0.0			
Formation End Depth:		0.25			
Formation End Depth UOM:		ft			
<u>Overburden and Bedrock Materials Interval</u>					
Formation ID:		1008316734			
Layer:		2			
Color:		6			
General Color:		BROWN			
Mat1:		06			
Most Common Material:		SILT			
Mat2:		05			
Mat2 Desc:		CLAY			
Mat3:		91			
Mat3 Desc:		WATER-BEARING			
Formation Top Depth:		0.25			
Formation End Depth:		3.0			
Formation End Depth UOM:		ft			
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:		1008316742			
Layer:		1			
Plug From:		0.0			
Plug To:					
Plug Depth UOM:		ft			
<u>Method of Construction & Well Use</u>					

<i>Map Key</i>	<i>Number of Records</i>	<i>Direction/ Distance (m)</i>	<i>Elev/Diff (m)</i>	<i>Site</i>	<i>DB</i>
Method Construction ID:		1008316741			
Method Construction Code:		6			
Method Construction:		Boring			
Other Method Construction:					
 <u>Pipe Information</u>					
Pipe ID:		1008316732			
Casing No:		0			
Comment:					
Alt Name:					
 <u>Construction Record - Casing</u>					
Casing ID:		1008316738			
Layer:		1			
Material:		5			
Open Hole or Material:		PLASTIC			
Depth From:		0.0			
Depth To:					
Casing Diameter:		5.199999809265137			
Casing Diameter UOM:		inch			
Casing Depth UOM:		ft			
 <u>Construction Record - Screen</u>					
Screen ID:		1008316739			
Layer:		1			
Slot:		10			
Screen Top Depth:					
Screen End Depth:					
Screen Material:		5			
Screen Depth UOM:		ft			
Screen Diameter UOM:		inch			
Screen Diameter:		6.0			
 <u>Water Details</u>					
Water ID:		1008316737			
Layer:		1			
Kind Code:					
Kind:					
Water Found Depth:		3.0			
Water Found Depth UOM:		ft			
 <u>Hole Diameter</u>					
Hole ID:		1008316736			
Diameter:					
Depth From:		0.0			
Depth To:					
Hole Depth UOM:		ft			
Hole Diameter UOM:		inch			
 <u>Links</u>					
Bore Hole ID:		1008256491		Tag No: A276933	
Depth M:		1.9812		Contractor: 7314	
Year Completed:				Latitude: 44.3533719119438	
Well Completed Dt:				Longitude: -79.6039360433944	

<i>Map Key</i>	<i>Number of Records</i>	<i>Direction/ Distance (m)</i>	<i>Elev/Diff (m)</i>	<i>Site</i>	<i>DB</i>
<i>Audit No:</i>	Z315474			Y:	44.35337191102828
<i>Path:</i>				X:	-79.60393589000593

Unplottable Summary

Total: 12 Unplottable sites

DB	Company Name/Site Name	Address	City	Postal
CA	KERBAR HOLDINGS INC.	MAPLEVIEW DR. (S.W.M.)	BARRIE CITY ON	
CA	BARRIE DEVELOPMENT CORPORATION	PT.LOTS 1&2,MAPLEVIEW DR.(SWM)	BARRIE CITY ON	
CA	CANADIAN TIRE REAL ESTATE LIMITED	MAPLEVIEW DR., PT.LOT 6/C-11	BARRIE CITY ON	
CA	DEER CREEK DEVELOPMENTS LTD.	PT.LOT 2/CON.12, MAPLEVIEW DR.	BARRIE CITY ON	
CA	HOLLY DEVELOPMENT CORPORATION	MAPLEVIEW DR. SAN.SEW. P.S.	BARRIE CITY ON	
ECA	Pratt Hansen Group Inc.	Mapleview Dr E Kneeshaw Drive, Lot 16 and Part of Lot 17, Concession 11	Barrie ON	L4N 6B5
ECA	Pratt Development Inc.	Mapleview Dr E Kneeshaw Drive, Lot 16 and Part of Lot 17, Concession 11	Barrie ON	L4M 3E6
ECA	Ultramar Ltd.	Mapleview Drive	Barrie ON	H3A 3L3
SPL	denied s. 21(1)	Mapleview Drive<UNOFFICIAL>	Innisfil ON	
SPL		Mapleview Drive (North Side)	Barrie ON	
WWIS		n/a Mapleview Drive East lot 17 con 11	Barrie ON	
WWIS		932 Mapleview Dr lot 19 con 12	Barrie ON	

Unplottable Report

Site: *KERBAR HOLDINGS INC.
MAPLEVIEW DR. (S.W.M.) BARRIE CITY ON*

Database:
CA

Certificate #: 3-0241-94-
Application Year: 94
Issue Date: 5/27/1994
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: *BARRIE DEVELOPMENT CORPORATION
PT.LOTS 1&2,MAPLEVIEW DR.(SWM) BARRIE CITY ON*

Database:
CA

Certificate #: 3-1264-94-
Application Year: 94
Issue Date: 10/3/1994
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: *CANADIAN TIRE REAL ESTATE LIMITED
MAPLEVIEW DR., PT.LOT 6/C-11 BARRIE CITY ON*

Database:
CA

Certificate #: 4-0130-99-
Application Year: 99
Issue Date: 2/17/1999
Approval Type: Industrial wastewater
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description: ON-SITE STORMWATER MANAGEMENT FACILITY
Contaminants:
Emission Control:

Site: *DEER CREEK DEVELOPMENTS LTD.
PT.LOT 2/CON.12, MAPLEVIEW DR. BARRIE CITY ON*

Database:
CA

Certificate #: 3-0157-97-
Application Year: 97

Issue Date: 3/19/1997
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: **HOLLY DEVELOPMENT CORPORATION**
MAPLEVIEW DR. SAN.SEW. P.S. BARRIE CITY ON

Database:
CA

Certificate #: 3-1547-94-
Application Year: 94
Issue Date: 12/7/1994
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name:
Client Address:
Client City:
Client Postal Code:
Project Description:
Contaminants:
Emission Control:

Site: **Pratt Hansen Group Inc.**
Mapleview Dr E Kneeshaw Drive, Lot 16 and Part of Lot 17, Concession 11 Barrie ON L4N 6B5

Database:
ECA

Approval No: 0628-BHEK7K
Approval Date: 2019-11-04
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Business Name: Pratt Hansen Group Inc.
Address: Mapleview Dr E Kneeshaw Drive, Lot 16 and Part of Lot 17, Concession 11
Full Address:
Full PDF Link: <https://www.accessenvironment.ene.gov.on.ca/instruments/0364-BGQPE4-14.pdf>
PDF Site Location:

MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:

Site: **Pratt Development Inc.**
Mapleview Dr E Kneeshaw Drive, Lot 16 and Part of Lot 17, Concession 11 Barrie ON L4M 3E6

Database:
ECA

Approval No: 9686-C4VPE6
Approval Date: 2021-07-15
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
Approval Type: ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS
Project Type: MUNICIPAL AND PRIVATE SEWAGE WORKS
Business Name: Pratt Development Inc.
Address: Mapleview Dr E Kneeshaw Drive, Lot 16 and Part of Lot 17, Concession 11
Full Address:
Full PDF Link: <https://www.accessenvironment.ene.gov.on.ca/instruments/3537-C4MS2F-14.pdf>
PDF Site Location:

MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:

Site: Ultramar Ltd.
Mapleview Drive Barrie ON H3A 3L3

Database:
ECA

Approval No: 2585-93ZPVZ
Approval Date: 2013-01-31
Status: Approved
Record Type: ECA
Link Source: IDS
SWP Area Name:
Approval Type: ECA-INDUSTRIAL SEWAGE WORKS
Project Type: INDUSTRIAL SEWAGE WORKS
Business Name: Ultramar Ltd.
Address: Mapleview Drive
Full Address:
Full PDF Link: <https://www.accessenvironment.ene.gov.on.ca/instruments/7542-8VGNFY-14.pdf>
PDF Site Location:

MOE District:
City:
Longitude:
Latitude:
Geometry X:
Geometry Y:

Site: denied s. 21(1)
Mapleview Drive<UNOFFICIAL> Innisfil ON

Database:
SPL

Ref No: 8815-6B8FP7
Site No:
Incident Dt: 4/7/2005
Year:
Incident Cause: Unknown
Incident Event:
Environment Impact: Possible
Nature of Impact:
MOE Response:
Dt MOE Arvl on Scn:
MOE Reported Dt: 4/7/2005
Dt Document Closed:
Municipality No:
System Facility Address:
Client Type:
Call Report Location Geodata:
Contaminant Code:
Contaminant Name: DIESEL FUEL
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Receiving Medium: Land
Receiving Environment:
Incident Reason:
Incident Summary: Diesel to grnd.
Site Region:
Site Municipality: Innisfil
Activity Preceding Spill:
Property 2nd Watershed:
Property Tertiary Watershed:
Sector Type:
SAC Action Class: Spill to Land
Source Type:
Site County/District:
Site Geo Ref Meth:
Site District Office: Barrie
Nearest Watercourse:
Site Name: Mapleview Drive<UNOFFICIAL>
Site Address:
Client Name: denied s. 21(1)

Contaminant Qty:
Nature of Damage:
Discharger Report: 0
Material Group: Oil
Health/Env Conseq:
Agency Involved:
Site Lot:
Site Conc:
Site Geo Ref Accu:
Site Map Datum:
Northing:
Easting:

Site: Mapleview Drive (North Side) Barrie ON

Database:
SPL

Ref No: 2460-5LHTDX
Site No:
Incident Dt: 4/11/2003

Contaminant Qty:
Nature of Damage:
Discharger Report:

Year:		Material Group:	Waste
Incident Cause:	Discharge Or Bypass To A Watercourse	Health/Env Conseq:	
Incident Event:		Agency Involved:	
Environment Impact:	Possible	Site Lot:	
Nature of Impact:	Surface Water Pollution	Site Conc:	
MOE Response:		Site Geo Ref Accu:	
Dt MOE Arvl on Scn:		Site Map Datum:	
MOE Reported Dt:	4/11/2003	Northing:	
Dt Document Closed:		Easting:	
Municipality No:			
System Facility Address:			
Client Type:			
Call Report Location Geodata:			
Contaminant Code:	43		
Contaminant Name:	SEDIMENT(SUSPENDED SOLIDS/ SAND/ SILT)		
Contaminant Limit 1:			
Contam Limit Freq 1:			
Contaminant UN No 1:			
Receiving Medium:	Water		
Receiving Environment:			
Incident Reason:	Ice/Snow/Rain		
Incident Summary:	Sediment Runoff: Mapleview Drive		
Site Region:	Southwestern		
Site Municipality:	Barrie		
Activity Preceding Spill:			
Property 2nd Watershed:			
Property Tertiary Watershed:			
Sector Type:	Other		
SAC Action Class:	Spill to Inland Watercourses		
Source Type:			
Site County/District:			
Site Geo Ref Meth:			
Site District Office:	Barrie		
Nearest Watercourse:			
Site Name:	CONSTRUCITON SITE<UNOFFICIAL>		
Site Address:			
Client Name:			

Site: n/a Mapleview Drive East lot 17 con 11 Barrie ON

Database:
WWIS

Well ID:	7420227	Flowing (Y/N):	
Construction Date:		Flow Rate:	
Use 1st:	Monitoring and Test Hole	Data Entry Status:	
Use 2nd:		Data Src:	
Final Well Status:	Monitoring and Test Hole	Date Received:	06/07/2022
Water Type:		Selected Flag:	TRUE
Casing Material:		Abandonment Rec:	Yes
Audit No:	VPRUFSSY	Contractor:	7744
Tag:	_NO_TAG	Form Version:	9
Constructn Method:		Owner:	
Elevation (m):		County:	SIMCOE
Elevatn Reliabilty:		Lot:	017
Depth to Bedrock:		Concession:	11
Well Depth:		Concession Name:	CON
Overburden/Bedrock:		Easting NAD83:	
Pump Rate:		Northing NAD83:	
Static Water Level:		Zone:	
Clear/Cloudy:		UTM Reliability:	
Municipality:	INNISFIL TOWNSHIP		
Site Info:			

Bore Hole Information

Bore Hole ID:	1009061633	Elevation:	
DP2BR:		Elevrc:	
Spatial Status:		Zone:	17

Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 05/30/2022
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

East83: 610775.00
North83: 4911593.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock

Materials Interval

Formation ID: 1009061739
Layer: 1
Color:
General Color:
Mat1:
Most Common Material:
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth:
Formation End Depth UOM: ft

Annular Space/Abandonment

Sealing Record

Plug ID: 1009061823
Layer: 1
Plug From: 0.0
Plug To: 21.0
Plug Depth UOM: ft

Annular Space/Abandonment

Sealing Record

Plug ID: 1009061802
Layer: 1
Plug From: 0.0
Plug To: 21.0
Plug Depth UOM: ft

Method of Construction & Well

Use

Method Construction ID: 1009061695
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 1009061678
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1009061751
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: -2.5
Depth To: 11.0
Casing Diameter: 2.0
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1009061763
Layer: 1
Slot: 10
Screen Top Depth: 11.0
Screen End Depth: 21.0
Screen Material: 5
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 2.25

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1009061679
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Site: 932 Mapleview Dr lot 19 con 12 Barrie ON

Database:
[WWIS](#)

Well ID: 7420177
Construction Date:
Use 1st: Domestic
Use 2nd:
Final Well Status: Abandoned-Other
Water Type:
Casing Material:
Audit No: WASR5F3D
Tag: _NO_TAG
Constructn Method:
Elevation (m):
Elevatn Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Clear/Cloudy:
Municipality: INNISFIL TOWNSHIP
Site Info:

Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src:
Date Received: 06/06/2022
Selected Flag: TRUE
Abandonment Rec: Yes
Contractor: 7523
Form Version: 9
Owner:
County: SIMCOE
Lot: 019
Concession: 12
Concession Name: CON
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 1009060834
DP2BR:
Spatial Status:
Code OB:
Code OB Desc:
Open Hole:
Cluster Kind:
Date Completed: 12/15/2021
Remarks:
Loc Method Desc: on Water Well Record
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Elevation:
Elevrc:
Zone: 17
East83: 611290.00
North83: 4912155.00
Org CS: UTM83
UTMRC: 4
UTMRC Desc: margin of error : 30 m - 100 m
Location Method: wwr

Overburden and Bedrock

Materials Interval

Formation ID: 1009060980
Layer: 1
Color:
General Color:
Mat1:
Most Common Material:
Mat2:
Mat2 Desc:
Mat3:
Mat3 Desc:
Formation Top Depth: 0.0
Formation End Depth:
Formation End Depth UOM: m

Annular Space/Abandonment
Sealing Record

Plug ID: 1009061104
Layer: 1
Plug From:
Plug To:
Plug Depth UOM: m

Annular Space/Abandonment
Sealing Record

Plug ID: 1009061078
Layer: 6
Plug From:
Plug To:
Plug Depth UOM: m

Annular Space/Abandonment
Sealing Record

Plug ID: 1009061073
Layer: 1
Plug From: 0.0
Plug To: 2.0
Plug Depth UOM: m

Annular Space/Abandonment
Sealing Record

Plug ID: 1009061077
Layer: 5
Plug From: 6.5
Plug To: 7.599999904632568
Plug Depth UOM: m

**Annular Space/Abandonment
Sealing Record**

Plug ID: 1009061074
Layer: 2
Plug From: 2.0
Plug To: 2.200000047683716
Plug Depth UOM: m

**Annular Space/Abandonment
Sealing Record**

Plug ID: 1009061075
Layer: 3
Plug From: 2.200000047683716
Plug To: 5.5
Plug Depth UOM: m

**Annular Space/Abandonment
Sealing Record**

Plug ID: 1009061076
Layer: 4
Plug From: 5.5
Plug To: 6.5
Plug Depth UOM: m

**Method of Construction & Well
Use**

Method Construction ID: 1009060922
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 1009060889
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1009061010
Layer: 1
Material: 3
Open Hole or Material: CONCRETE
Depth From: 0.0
Depth To: 7.599999904632568
Casing Diameter: 76.19999694824219
Casing Diameter UOM: cm
Casing Depth UOM: m

Results of Well Yield Testing

Pumping Test Method Desc:
Pump Test ID: 1009060890

Pump Set At:
Static Level: 3.0
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM: m
Rate UOM: LPM
Water State After Test Code:
Water State After Test:
Pumping Test Method:
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. **Note:** Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.

Abandoned Aggregate Inventory:

Provincial

[AAGR](#)

The MAAP Program maintains a database of abandoned pits and quarries. Please note that the database is only referenced by lot and concession and city/town location. The database provides information regarding the location, type, size, land use, status and general comments.*

Government Publication Date: Sept 2002*

Aggregate Inventory:

Provincial

[AGR](#)

The Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry (ONDMNRF) maintains this database of pits and quarries. The database provides information regarding the registered owner/operator, location name, operation type, approval type, and maximum annual tonnage.

Government Publication Date: Up to Oct 2022

Abandoned Mine Information System:

Provincial

[AMIS](#)

The Abandoned Mines Information System contains data on known abandoned and inactive mines located on both Crown and privately held lands. The information was provided by the Ministry of Northern Development and Mines (MNDM), with the following disclaimer: "the database provided has been compiled from various sources, and the Ministry of Northern Development and Mines makes no representation and takes no responsibility that such information is accurate, current or complete". Reported information includes official mine name, status, background information, mine start/end date, primary commodity, mine features, hazards and remediation.

Government Publication Date: 1800-Mar 2022

Anderson's Waste Disposal Sites:

Private

[ANDR](#)

The information provided in this database was collected by examining various historical documents which aimed to characterize the likely position of former waste disposal sites from 1860 to present. The research initiative behind the creation of this database was to identify those sites that are missing from the Ontario MOE Waste Disposal Site Inventory, as well as to provide revisions and corrections to the positions and descriptions of sites currently listed in the MOE inventory. In addition to historic waste disposal facilities, the database also identifies certain auto wreckers and scrap yards that have been extrapolated from documentary sources. Please note that the data is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1860s-Present

Aboveground Storage Tanks:

Provincial

[AST](#)

Historical listing of aboveground storage tanks made available by the Department of Natural Resources and Forestry. Includes tanks used to hold water or petroleum. This dataset has been retired as of September 25, 2014 and will no longer be updated.

Government Publication Date: May 31, 2014

Automobile Wrecking & Supplies:

Private

[AUWR](#)

This database provides an inventory of known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

Government Publication Date: 1999-Feb 28, 2022

Borehole:

Provincial

[BORE](#)

A borehole is the generalized term for any narrow shaft drilled in the ground, either vertically or horizontally. The information here includes geotechnical investigations or environmental site assessments, mineral exploration, or as a pilot hole for installing piers or underground utilities. Information is from many sources such as the Ministry of Transportation (MTO) boreholes from engineering reports and projects from the 1950 to 1990's in Southern Ontario. Boreholes from the Ontario Geological Survey (OGS) including The Urban Geology Analysis Information System (UGAIS) and the York Peel Durham Toronto (YPDT) database of the Conservation Authority Moraine Coalition. This database will include fields such as location, stratigraphy, depth, elevation, year drilled, etc. For all water well data or oil and gas well data for Ontario please refer to WWIS and OOGW.

Government Publication Date: 1875-Jul 2018

Certificates of Approval:

Provincial CA

This database contains the following types of approvals: Air & Noise, Industrial Sewage, Municipal & Private Sewage, Waste Management Systems and Renewable Energy Approvals. The MOE in Ontario states that any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste, must have a Certificate of Approval before it can operate lawfully. Fields include approval number, business name, address, approval date, approval type and status. This database will no longer be updated, as CofA's have been replaced by either Environmental Activity and Sector Registry (EASR) or Environmental Compliance Approval (ECA). Please refer to those individual databases for any information after Oct.31, 2011.

Government Publication Date: 1985-Oct 30, 2011*

Dry Cleaning Facilities:

Federal CDRY

List of dry cleaning facilities made available by Environment and Climate Change Canada. Environment and Climate Change Canada's Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations (SOR/2003-79) are intended to reduce releases of tetrachloroethylene to the environment from dry cleaning facilities.

Government Publication Date: Jan 2004-Dec 2021

Commercial Fuel Oil Tanks:

Provincial CFOT

Locations of commercial underground fuel oil tanks. This is not a comprehensive or complete inventory of commercial fuel tanks in the province; this listing is a copy of records of registered commercial underground fuel oil tanks obtained under Access to Public Information.

Note that the following types of tanks do not require registration: waste oil tanks in apartments, office buildings, residences, etc.; aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.

Government Publication Date: Feb 28, 2022

Chemical Manufacturers and Distributors:

Private CHEM

This database includes information from both a one time study conducted in 1992 and private source and is a listing of facilities that manufacture or distribute chemicals. The production of these chemical substances may involve one or more chemical reactions and/or chemical separation processes (i.e. fractionation, solvent extraction, crystallization, etc.).

Government Publication Date: 1999-Jan 31, 2020

Chemical Register:

Private CHM

This database includes a listing of locations of facilities within the Province or Territory that either manufacture and/or distributes chemicals.

Government Publication Date: 1999-Feb 28, 2023

Compressed Natural Gas Stations:

Private CNG

Canada has a network of public access compressed natural gas (CNG) refuelling stations. These stations dispense natural gas in compressed form at 3,000 pounds per square inch (psi), the pressure which is allowed within the current Canadian codes and standards. The majority of natural gas refuelling is located at existing retail gasoline that have a separate refuelling island for natural gas. This list of stations is made available by the Canadian Natural Gas Vehicle Alliance.

Government Publication Date: Dec 2012 -May 2023

Inventory of Coal Gasification Plants and Coal Tar Sites:

Provincial COAL

This inventory includes both the "Inventory of Coal Gasification Plant Waste Sites in Ontario-April 1987" and the Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario-November 1988) collected by the MOE. It identifies industrial sites that produced and continue to produce or use coal tar and other related tars. Detailed information is available and includes: facility type, size, land use, information on adjoining properties, soil condition, site operators/occupants, site description, potential environmental impacts and historic maps available. This was a one-time inventory.*

Government Publication Date: Apr 1987 and Nov 1988*

Compliance and Convictions:

Provincial CONV

This database summarizes the fines and convictions handed down by the Ontario courts beginning in 1989. Companies and individuals named here have been found guilty of environmental offenses in Ontario courts of law.

Government Publication Date: 1989-Apr 2023

Certificates of Property Use:

Provincial CPU

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include CPU's on the registry such as (EPA s. 168.6) - Certificate of Property Use.

Government Publication Date: 1994 - Apr 30, 2023

Drill Hole Database:

Provincial [DRL](#)

The Ontario Drill Hole Database contains information on more than 113,000 percussion, overburden, sonic and diamond drill holes from assessment files on record with the department of Mines and Minerals. Please note that limited data is available for southern Ontario, as it was the last area to be completed. The database was created when surveys submitted to the Ministry were converted in the Assessment File Research Image Database (AFRI) project. However, the degree of accuracy (coordinates) as to the exact location of drill holes is dependent upon the source document submitted to the MNDM. Levels of accuracy used to locate holes are: centering on the mining claim; a sketch of the mining claim; a 1:50,000 map; a detailed company map; or from submitted a "Report of Work".

Government Publication Date: 1886 - Oct 2022

Delisted Fuel Tanks:

Provincial [DTNK](#)

List of fuel storage tank sites that were once found in - and have since been removed from - the list of fuel storage tanks made available by the regulatory agency under Access to Public Information.

Government Publication Date: Feb 28, 2022

Environmental Activity and Sector Registry:

Provincial [EASR](#)

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. The EASR allows businesses to register certain activities with the ministry, rather than apply for an approval. The registry is available for common systems and processes, to which preset rules of operation can be applied. The EASR is currently available for: heating systems, standby power systems and automotive refinishing. Businesses whose activities aren't subject to the EASR may apply for an ECA (Environmental Compliance Approval), Please see our ECA database.

Government Publication Date: Oct 2011- Apr 30, 2023

Environmental Registry:

Provincial [EBR](#)

The Environmental Registry lists proposals, decisions and exceptions regarding policies, Acts, instruments, or regulations that could significantly affect the environment. Through the Registry, thirteen provincial ministries notify the public of upcoming proposals and invite their comments. For example, if a local business is requesting a permit, license, or certificate of approval to release substances into the air or water; these are notified on the registry. Data includes: Approval for discharge into the natural environment other than water (i.e. Air) - EPA s. 9, Approval for sewage works - OWRA s. 53(1), and EPA s. 27 - Approval for a waste disposal site. For information regarding Permit to Take Water (PTTW), Certificate of Property Use (CPU) and (ORD) Orders please refer to those individual databases.

Government Publication Date: 1994 - Apr 30, 2023

Environmental Compliance Approval:

Provincial [ECA](#)

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. In the past, a business had to apply for multiple approvals (known as certificates of approval) for individual processes and pieces of equipment. Today, a business either registers itself, or applies for a single approval, depending on the types of activities it conducts. Businesses whose activities aren't subject to the EASR may apply for an ECA. A single ECA addresses all of a business's emissions, discharges and wastes. Separate approvals for air, noise and waste are no longer required. This database will also include Renewable Energy Approvals. For certificates of approval prior to Nov 1st, 2011, please refer to the CA database. For all Waste Disposal Sites please refer to the WDS database.

Government Publication Date: Oct 2011- Apr 30, 2023

Environmental Effects Monitoring:

Federal [EEM](#)

The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

Government Publication Date: 1992-2007*

ERIS Historical Searches:

Private [EHS](#)

ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Government Publication Date: 1999-Mar 31, 2023

Environmental Issues Inventory System:

Federal [EIIS](#)

The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Government Publication Date: 1992-2001*

Emergency Management Historical Event:

Provincial **EMHE**

List of locations of historical occurrences of emergency events, including those assigned to the Ministry of Natural Resources by Order-In-Council (OIC) under the Emergency Management and Civil Protection Act, as well as events where MNR provided requested emergency response assistance. Many of these events will have involved community evacuations, significant structural loss, and/or involvement of MNR emergency response staff. These events fall into one of ten (10) type categories: Dam Failure; Drought / Low Water; Erosion; Flood; Forest Fire; Soil and Bedrock Instability; Petroleum Resource Center Event, EMO Requested Assistance, Continuity of Operations Event, Other Requested Assistance. EMHE record details are reproduced by ERIS under License with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2017.

Government Publication Date: Apr 30, 2022

Environmental Penalty Annual Report:

Provincial **EPAR**

This database contains data from Ontario's annual environmental penalty report published by the Ministry of the Environment and Climate Change. These reports provide information on environmental penalties for land / water violations issued to companies in one of the nine industrial sectors covered by the Municipal Industrial Strategy for Abatement (MISA) regulations.

Government Publication Date: Jan 1, 2011 - Dec 31, 2022

List of Expired Fuels Safety Facilities:

Provincial **EXP**

List of facilities and tanks for which there was once a fuel registration. This is not a comprehensive or complete inventory of expired tanks/tank facilities in the province; this listing is a copy of previously registered tanks and facilities obtained under Access to Public Information. Includes private fuel outlets, bulk plants, fuel oil tanks, gasoline stations, marinas, propane filling stations, liquid fuel tanks, piping systems, etc; includes tanks which have been removed from the ground.

Notes: registration was not required for private fuel underground/aboveground storage tanks prior to January 1990, nor for furnace oil tanks prior to May 1, 2002; registration is not required for waste oil tanks in apartments, office buildings, residences, etc., or aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.

Government Publication Date: Feb 28, 2022

Federal Convictions:

Federal **FCON**

Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Government Publication Date: 1988-Jun 2007*

Contaminated Sites on Federal Land:

Federal **FCS**

The Federal Contaminated Sites Inventory includes information on known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government. Includes fire training sites and sites at which Per- and Polyfluoroalkyl Substances (PFAS) are a concern.

Government Publication Date: Jun 2000-Mar 2023

Fisheries & Oceans Fuel Tanks:

Federal **FOFT**

Fisheries & Oceans Canada maintains an inventory of aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

Government Publication Date: 1964-Sep 2019

Federal Identification Registry for Storage Tank Systems (FIRSTS):

Federal **FRST**

A list of federally regulated Storage tanks from the Federal Identification Registry for Storage Tank Systems (FIRSTS). FIRSTS is Environment and Climate Change Canada's database of storage tank systems subject to the Storage Tank for Petroleum Products and Allied Petroleum Products Regulations. The main objective of the Regulations is to prevent soil and groundwater contamination from storage tank systems located on federal and aboriginal lands. Storage tank systems that do not have a valid identification number displayed in a readily visible location on or near the storage tank system may be refused product delivery.

Government Publication Date: May 31, 2018

Fuel Storage Tank:

Provincial **FST**

List of registered private and retail fuel storage tanks. This is not a comprehensive or complete inventory of private and retail fuel storage tanks in the province; this listing is a copy of registered private and retail fuel storage tanks, obtained under Access to Public Information.

Notes: registration was not required for private fuel underground/aboveground storage tanks prior to January 1990, nor for furnace oil tanks prior to May 1, 2002; registration is not required for waste oil tanks in apartments, office buildings, residences, etc., or aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.

Government Publication Date: Feb 28, 2022

Fuel Storage Tank - Historic:

Provincial

[FSTH](#)

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks. Public records of private fuel storage tanks are only available since the registration became effective in September 1989. This information is now collected by the Technical Standards and Safety Authority.

Government Publication Date: Pre-Jan 2010*

Ontario Regulation 347 Waste Generators Summary:

Provincial

[GEN](#)

Regulation 347 of the Ontario EPA defines a waste generation site as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number, company name and address of registered generators including the types of hazardous wastes generated. It includes data on waste generating facilities such as: drycleaners, waste treatment and disposal facilities, machine shops, electric power distribution etc. This information is a summary of all years from 1986 including the most currently available data. Some records may contain, within the company name, the phrase "See & Use..." followed by a series of letters and numbers. This occurs when one company is amalgamated with or taken over by another registered company. The number listed as "See & Use", refers to the new ownership and the other identification number refers to the original ownership. This phrase serves as a link between the 2 companies until operations have been fully transferred.

Government Publication Date: 1986-Oct 31, 2022

Greenhouse Gas Emissions from Large Facilities:

Federal

[GHG](#)

List of greenhouse gas emissions from large facilities made available by Environment Canada. Greenhouse gas emissions in kilotonnes of carbon dioxide equivalents (kt CO2 eq).

Government Publication Date: 2013-Dec 2019

TSSA Historic Incidents:

Provincial

[HINC](#)

List of historic incidences of spills and leaks of diesel, fuel oil, gasoline, natural gas, propane, and hydrogen recorded by the TSSA in their previous incident tracking system. The TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, the TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. Records are not verified for accuracy or completeness. This is not a comprehensive or complete inventory of historical fuel spills and leaks in the province. This listing is a copy of the data captured at one moment in time and is hence limited by the record date provided here.

Government Publication Date: 2006-June 2009*

Indian & Northern Affairs Fuel Tanks:

Federal

[IAFT](#)

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Government Publication Date: 1950-Aug 2003*

Fuel Oil Spills and Leaks:

Provincial

[INC](#)

Listing of spills and leaks of diesel, fuel oil, gasoline, natural gas, propane, and hydrogen reported to the Spills Action Centre (SAC). This is not a comprehensive or complete inventory of fuel-related leaks, spills, and incidents in the province; this listing is a copy of incidents reported to the SAC, obtained under Access to Public Information. Includes incidents from fuel-related hazards such as spills, fires, and explosions. Records are not verified for accuracy or completeness.

Government Publication Date: Feb 28, 2022

Landfill Inventory Management Ontario:

Provincial

[LIMO](#)

The Landfill Inventory Management Ontario (LIMO) database is updated every year, as the Ministry of the Environment, Conservation and Parks compiles new and updated information. Includes small and large landfills currently operating as well as those which are closed and historic. Operators of larger landfills provide landfill information for the previous operating year to the ministry for LIMO including: estimated amount of total waste received, landfill capacity, estimated total remaining landfill capacity, fill rates, engineering designs, reporting and monitoring details, size of location, service area, approved waste types, leachate of site treatment, contaminant attenuation zone and more. The small landfills include information such as site owner, site location and certificate of approval # and status.

Government Publication Date: Mar 21, 2022

Canadian Mine Locations:

Private

[MINE](#)

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Government Publication Date: 1998-2009*

Mineral Occurrences:

Provincial [MNR](#)

In the early 70's, the Ministry of Northern Development and Mines created an inventory of approximately 19,000 mineral occurrences in Ontario, in regard to metallic and industrial minerals, as well as some information on building stones and aggregate deposits. Please note that the "Horizontal Positional Accuracy" is approximately +/- 200 m. Many reference elements for each record were derived from field sketches using pace or chain/tape measurements against claim posts or topographic features in the area. The primary limiting factor for the level of positional accuracy is the scale of the source material. The testing of horizontal accuracy of the source materials was accomplished by comparing the plan metric (X and Y) coordinates of that point with the coordinates of the same point as defined from a source of higher accuracy.

Government Publication Date: 1846-Feb 2023

National Analysis of Trends in Emergencies System (NATES):

Federal [NATE](#)

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Government Publication Date: 1974-1994*

Non-Compliance Reports:

Provincial [NCPL](#)

The Ministry of the Environment provides information about non-compliant discharges of contaminants to air and water that exceed legal allowable limits, from regulated industrial and municipal facilities. A reported non-compliance failure may be in regard to a Control Order, Certificate of Approval, Sectoral Regulation or specific regulation/act.

Government Publication Date: Dec 31, 2021

National Defense & Canadian Forces Fuel Tanks:

Federal [NDFT](#)

The Department of National Defense and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

Government Publication Date: Up to May 2001*

National Defense & Canadian Forces Spills:

Federal [NDSP](#)

The Department of National Defense and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

Government Publication Date: Mar 1999-Apr 2018

National Defence & Canadian Forces Waste Disposal Sites:

Federal [NDWD](#)

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

Government Publication Date: 2001-Apr 2007*

National Energy Board Pipeline Incidents:

Federal [NEBI](#)

Locations of pipeline incidents from 2008 to present, made available by the Canada Energy Regulator (CER) - previously the National Energy Board (NEB). Includes incidents reported under the Onshore Pipeline Regulations and the Processing Plant Regulations related to pipelines under federal jurisdiction, does not include incident data related to pipelines under provincial or territorial jurisdiction.

Government Publication Date: 2008-Jun 30, 2021

National Energy Board Wells:

Federal [NEBP](#)

The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

Government Publication Date: 1920-Feb 2003*

National Environmental Emergencies System (NEES):

Federal

NEES

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for previous Environment Canada spill datasets. NEES is composed of the historic datasets ' or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

Government Publication Date: 1974-2003*

National PCB Inventory:

Federal

NPCB

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. Federal out-of-service PCB containing equipment and PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites. Some addresses provided may be Head Office addresses and are not necessarily the location of where the waste is being used or stored.

Government Publication Date: 1988-2008*

National Pollutant Release Inventory:

Federal

NPRI

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Government Publication Date: 1993-May 2017

Oil and Gas Wells:

Private

OGWE

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Government Publication Date: 1988-May 31, 2023

Ontario Oil and Gas Wells:

Provincial

OOGW

In 1998, the MNR handed over to the Ontario Oil, Gas and Salt Resources Corporation, the responsibility of maintaining a database of oil and gas wells drilled in Ontario. The OGSR Library has over 20,000+ wells in their database. Information available for all wells in the ERIS database include well owner/operator, location, permit issue date, and well cap date, license No., status, depth and the primary target (rock unit) of the well being drilled. All geology/stratigraphy table information, plus all water table information is also provide for each well record.

Government Publication Date: 1800-Aug 2021

Inventory of PCB Storage Sites:

Provincial

OPCB

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of PCB storage sites within the province. Ontario Regulation 11/82 (Waste Management - PCB) and Regulation 347 (Generator Waste Management) under the Ontario EPA requires the registration of inactive PCB storage equipment and/or disposal sites of PCB waste with the Ontario Ministry of Environment. This database contains information on: 1) waste quantities; 2) major and minor sites storing liquid or solid waste; and 3) a waste storage inventory.

Government Publication Date: 1987-Oct 2004; 2012-Dec 2013

Orders:

Provincial

ORD

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include Orders on the registry such as (EPA s. 17) - Order for remedial work, (EPA s. 18) - Order for preventative measures, (EPA s. 43) - Order for removal of waste and restoration of site, (EPA s. 44) - Order for conformity with Act for waste disposal sites, (EPA s. 136) - Order for performance of environmental measures.

Government Publication Date: 1994 - Apr 30, 2023

Canadian Pulp and Paper:

Private

PAP

This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Government Publication Date: 1999, 2002, 2004, 2005, 2009-2014

Parks Canada Fuel Storage Tanks:

Federal

PCFT

Canadian Heritage maintains an inventory of known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Government Publication Date: 1920-Jan 2005*

Pesticide Register:

Provincial PES

The Ontario Ministry of the Environment and Climate Change maintains a database of licensed operators and vendors of registered pesticides.

Government Publication Date: Oct 2011- Apr 30, 2023

Pipeline Incidents:

Provincial PINC

List of pipeline incidents (strikes, leaks, spills). This is not a comprehensive or complete inventory of pipeline incidents in the province; this listing in an historical copy of records previously obtained under Access to Public Information. Records are not verified for accuracy or completeness.

Government Publication Date: Feb 28, 2021

Private and Retail Fuel Storage Tanks:

Provincial PRT

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks and licensed retail fuel outlets. This database includes an inventory of locations that have gasoline, oil, waste oil, natural gas and/or propane storage tanks on their property. The MCCR no longer collects this information. This information is now collected by the Technical Standards and Safety Authority (TSSA).

Government Publication Date: 1989-1996*

Permit to Take Water:

Provincial PTTW

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include PTTW's on the registry such as OWRA s. 34 - Permit to take water.

Government Publication Date: 1994 - Apr 30, 2023

Ontario Regulation 347 Waste Receivers Summary:

Provincial REC

Part V of the Ontario Environmental Protection Act ("EPA") regulates the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. Regulation 347 of the Ontario EPA defines a waste receiving site as any site or facility to which waste is transferred by a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address, and includes receivers of waste such as: landfills, incinerators, transfer stations, PCB storage sites, sludge farms and water pollution control plants. This information is a summary of all years from 1986 including the most currently available data.

Government Publication Date: 1986-1990, 1992-2021

Record of Site Condition:

Provincial RSC

The Record of Site Condition (RSC) is part of the Ministry of the Environment's Brownfields Environmental Site Registry. Protection from environmental cleanup orders for property owners is contingent upon documentation known as a record of site condition (RSC) being filed in the Environmental Site Registry. In order to file an RSC, the property must have been properly assessed and shown to meet the soil, sediment and groundwater standards appropriate for the use (such as residential) proposed to take place on the property. The Record of Site Condition Regulation (O. Reg. 153/04) details requirements related to site assessment and clean up.

RSCs filed after July 1, 2011 will also be included as part of the new (O.Reg. 511/09).

Government Publication Date: 1997-Sept 2001, Oct 2004-Apr 2023

Retail Fuel Storage Tanks:

Private RST

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Government Publication Date: 1999-Feb 28, 2023

Scott's Manufacturing Directory:

Private SCT

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Government Publication Date: 1992-Mar 2011*

Ontario Spills:

Provincial SPL

List of spills and incidents made available the Ministry of the Environment, Conservation and Parks. This database identifies information such as location (approximate), type and quantity of contaminant, date of spill, environmental impact, cause, nature of impact, etc. Information from 1988-2002 was part of the ORIS (Occurrence Reporting Information System). The SAC (Spills Action Centre) handles all spills reported in Ontario. Regulations for spills in Ontario are part of the MOE's Environmental Protection Act, Part X. The Ministry of the Environment, Conservation and Parks cites the coronavirus pandemic as an explanation for delays in releasing data pursuant to requests.

Government Publication Date: 1988-Oct 2021

Wastewater Discharger Registration Database:

Provincial

[SRDS](#)

Facilities that report either municipal treated wastewater effluent or industrial wastewater discharges under the Effluent Monitoring and Effluent Limits (EMEL) and Municipal/Industrial Strategy for Abatement Regulations. The Municipal/Industrial Strategy for Abatement (MISA) division of the Ontario Ministry of Environment keeps record of direct dischargers of toxic pollutants within nine sectors including: Electric Power Generation, Mining, Petroleum Refining, Organic Chemicals, Inorganic Chemicals, Pulp & Paper, Metal Casting, Iron & Steel, and Quarries.

Government Publication Date: 1990-Dec 31, 2020

Anderson's Storage Tanks:

Private

[TANK](#)

The information provided in this database was collected by examining various historical documents, which identified the location of former storage tanks, containing substances such as fuel, water, gas, oil, and other various types of miscellaneous products. Information is available in regard to business operating at tank site, tank location, permit year, permit & installation type, no. of tanks installed & configuration and tank capacity. Data contained within this database pertains only to the city of Toronto and is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1915-1953*

Transport Canada Fuel Storage Tanks:

Federal

[TCFT](#)

List of fuel storage tanks currently or previously owned or operated by Transport Canada. This inventory also includes tanks on The Pickering Lands, which refers to 7,530 hectares (18,600 acres) of land in Pickering, Markham, and Uxbridge owned by the Government of Canada since 1972; properties on this land has been leased by the government since 1975, and falls under the Site Management Policy of Transport Canada, but is administered by Public Works and Government Services Canada. This inventory provides information on the site name, location, tank age, capacity and fuel type.

Government Publication Date: 1970 - Apr 2020

Variances for Abandonment of Underground Storage Tanks:

Provincial

[VAR](#)

Listing of variances granted for storage tank abandonment. This is not a comprehensive or complete inventory of tank abandonment variances in the province; this listing is a copy of tank abandonment variance records previously obtained under Access to Public Information. In Ontario, registered underground storage tanks must be removed within two years of disuse; if removal of a tank is not feasible, an application may be sought for a variance from this code requirement.

Records are not verified for accuracy or completeness.

Government Publication Date: Feb 28, 2022

Waste Disposal Sites - MOE CA Inventory:

Provincial

[WDS](#)

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of known open (active or inactive) and closed disposal sites in the Province of Ontario. Active sites maintain a Certificate of Approval, are approved to receive and are receiving waste. Inactive sites maintain Certificate(s) of Approval but are not receiving waste. Closed sites are not receiving waste. The data contained within this database was compiled from the MOE's Certificate of Approval database. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number. All new Environmental Compliance Approvals handed out after Oct 31, 2011 for Waste Disposal Sites will still be found in this database.

Government Publication Date: Oct 2011- Apr 30, 2023

Waste Disposal Sites - MOE 1991 Historical Approval Inventory:

Provincial

[WDSH](#)

In June 1991, the Ontario Ministry of Environment, Waste Management Branch, published the "June 1991 Waste Disposal Site Inventory", of all known active and closed waste disposal sites as of October 30st, 1990. For each "active" site as of October 31st 1990, information is provided on site location, site/CA number, waste type, site status and site classification. For each "closed" site as of October 31st 1990, information is provided on site location, site/CA number, closure date and site classification. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number.

Government Publication Date: Up to Oct 1990*

Water Well Information System:

Provincial

[WWIS](#)

This database describes locations and characteristics of water wells found within Ontario in accordance with Regulation 903. It includes such information as coordinates, construction date, well depth, primary and secondary use, pump rate, static water level, well status, etc. Also included are detailed stratigraphy information, approximate depth to bedrock and the approximate depth to the water table.

Government Publication Date: Mar 31 2023

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

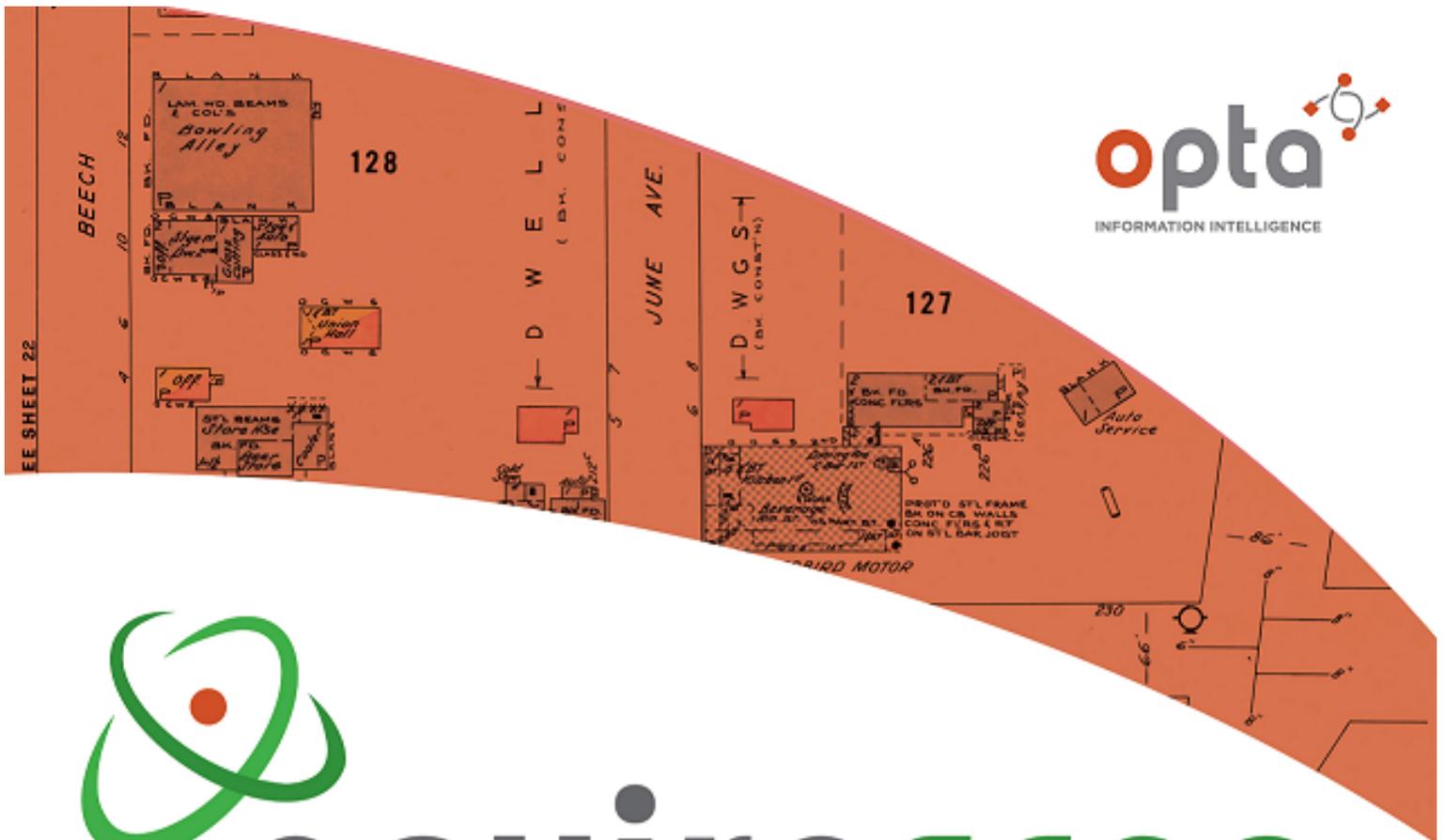
Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.



Appendix F
Opta Report



enviroscan



An SCM Company

175 Commerce Valley Drive W
Markham, Ontario L3T 7Z3

T: 905-882-6300
W: www.optaintel.ca

Report Completed By:

Nate

Site Address:

953 Mapleview Drive East Innisfil ON

Project No:

23062600439

Opta Order ID:

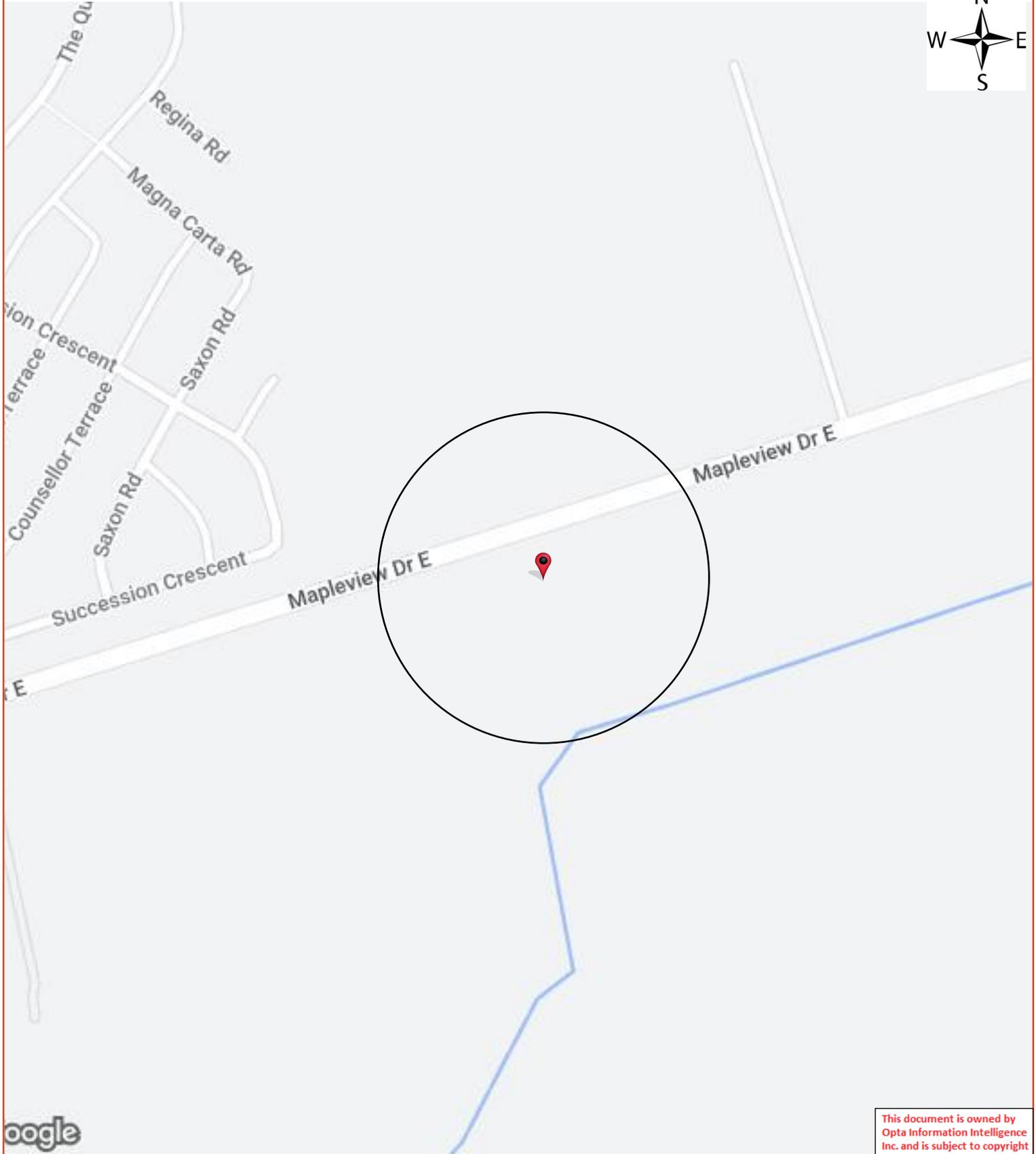
129751

Requested by:

Eleanor Goolab
ERIS

Date Completed:

7/4/2023 10:13:22 AM



Opta Historical Environmental Services EnviroscanTM Terms and Conditions

Report

The documents (hereinafter referred to as the "Documents") to be released as part of the report (hereinafter referred to as the "Report") to be delivered to the purchaser as set out above are documents in Opta's records relating to the described property (hereinafter referred to as the "Property"). Opta makes no representations or warranties respecting the Documents whatsoever, including, without limitation, with respect to the completeness, accuracy or usefulness of the Documents, and does not represent or warrant that these are the only plans and reports prepared in association with the Property or in Opta's possession at the time of Report delivery to the purchaser. The Documents are current as of the date(s) indicated on them. Interpretation of the Documents, if any, is by inference based upon the information which is apparent and obvious on the face of the Documents only. Opta does not represent, warrant or guarantee that interpretations other than those referred to do not exist from other sources. The Report will be prepared for use by the purchaser of the services as shown above hereof only.

Disclaimer

Opta disclaims responsibility for any losses or damages of any kind whatsoever, whether consequential or other, however caused, incurred or suffered, arising directly or indirectly as a result of the services (which services include, but are not limited to, the preparation of the Report provided hereunder), including but not limited to, any losses or damages arising directly or indirectly from any breach of contract, fundamental or otherwise, from reliance on Opta Reports or from any tortious acts or omissions of Opta's agents, employees or representatives.

Entire Agreement

The parties hereto acknowledge and agree to be bound by the terms and conditions hereof. The request form constitutes the entire agreement between the parties pertaining to the subject matter hereof and supersedes all prior and contemporaneous agreements, negotiations and discussions, whether oral or written, and there are no representations or warranties, or other agreements between the parties in connection with the subject matter hereof except as specifically set forth herein. No supplement, modification, waiver, or termination of the request shall be binding, unless confirmed in writing by the parties hereto.

Governing Document

In the event of any conflicts or inconsistencies between the provisions hereof and the Reports, the rights and obligations of the parties shall be deemed to be governed by the request form, which shall be the paramount document.

Law

This agreement shall be governed by and construed in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein.

No Records Found

Requested by:
Eleanor Goolab

Date Completed: 07/04/2023 10:13:22



OPTA INFORMATION INTELLIGENCE

No Records Found





Appendix G

Aerial Imagery Review



Year	Source	Notes
1946	NAPL	The Site appears to be developed as an agricultural farm with a residence and a barn present on the northern property boundary. Surrounding properties appear to be developed as agricultural farms with similar residences and barns.
1954	Simcoe	No noteworthy changes to the Site and surrounding properties.
1978	Simcoe	No noteworthy changes to the Site – the neighbouring property to the north appears to have been developed with a large barn structure, and what appears to be an oval horse track.
1989	Simcoe	A new residential house has been developed on the north portion of the Site, and the original house and barn structures appear to have been demolished. The Site appears to have undergone some upgrades to the on-site drainage as the on-site creek appears on-site, perhaps in an original state as an agricultural drainage canal – the neighbouring property to the east appears to have been developed with a more intensive agricultural collection of barn structures.
1997	Simcoe	A new barn structure is present on the northwest corner of the Site. No noteworthy changes to surrounding properties.
2008	Simcoe	No noteworthy changes to the Site. A large residential neighbourhood development is now present on the land parcel northwest of the Site, and the large intensive agricultural barn development on the neighbouring property to east of the Site has been demolished.
2016	Simcoe	No noteworthy changes to the Site. The large barn structure on the neighbouring property to the north has been demolished.
2022	Simcoe	The Site appears as it exists today – a significant volume of imported engineering fill is present on the northern half of the Site, and all on-site structures have been demolished. Neighbouring properties to the east and west appear to be undergoing similar development preparation from their former use as agricultural farms to residential neighbourhoods. The neighbouring property to the north has begun development as a residential neighbourhood.

Sources: NAPL – National Air Photo Library
 Simcoe – Simcoe Online GIS database



Appendix H Curriculum Vitae



Christine Wilson, B.A. (Hons)

Senior Project Manager

Ms. Wilson holds a Bachelor of Arts Honours degree in Environmental Studies from Carleton University. With 15 years of environmental consulting experience, Ms. Wilson has provided both project management and technical support to numerous private Clients on various environmental projects across Canada. Her roles and responsibilities have been at all phases of a project, which include proposal generation, fieldwork, project supervision, report preparation and/or senior reviewing Environmental Site Assessments.

SUMMARY OF PROFESSIONAL EXPERIENCE

- September 2021 - Present Senior Project Manager. Cambium Inc.
Kingston, Ontario, Canada
Responsible for senior project management on environmental projects, including proposal preparation, client liaison and project delivery.
- March 2021 - September 2021 Project Manager. Paradigm Properties Inc.
Ottawa, Ontario, Canada
Responsibilities included obtaining construction permits for tenant fit-ups and coordinating/supervising commercial construction projects.
- 2017 - 2021 Senior Project Manager. Pinchin Ltd.
Ottawa, Ontario, Canada
Responsibilities included senior project management on national environmental projects, which included budgeting, coordination of multi-disciplinary project staff, liaison with clients, data analysis and interpretation, report preparation, senior technical review and business development.
- 2013 - 2017 Project Manager. Pinchin Ltd.
Ottawa, Ontario, Canada
Responsibilities included proposal preparation, conducting Environmental Site Assessments, report preparation and business development.
- 2011 - 2013 Environmental Technologist. Franz Environmental Inc.
Ottawa, Ontario, Canada
Responsibilities included completing Environmental Site Assessments, groundwater sampling programs and at various properties located across Canada.
- 2008 - 2013 Project Technologist. Pinchin Ltd.
Ottawa, Ontario, Canada
Responsibilities included completing historical research (i.e., city directories and aerial photographs) at the Library and Archives of Canada and the National Air Photo Library, conducting field assessments and reporting on findings.



EDUCATION & TRAINING

Education

2008 Bachelor of Arts Honours in Environmental Studies. Carleton University
Ottawa, Ontario, Canada

Courses

2018 Mini MBA. McGill Executive Institute
Toronto, Ontario, Canada

2013 Leadership/Business Development. Awesome Journey
Ottawa, Ontario, Canada

2013 Asbestos Awareness. Pinchin Ltd.
Toronto, Ontario, Canada

SELECTED EXPERIENCE

Ms. Wilson has completed hundreds of Environmental Site Assessments for due-diligence purposes on residential, commercial, institutional and industrial properties across Canada. Various assessments have also included completing environmental assessments in support of a Site Plan Application for properties located in Ottawa and Toronto.



MATTHEW CUNNINGHAM, C.E.T., T.Ag.

Project Coordinator

SUMMARY OF PROFESSIONAL EXPERIENCE

2015 – Present Project Coordinator, Cambium Inc.
Barrie, Ontario, Canada

Mr. Cunningham's responsibilities include project support, coordination, and field work related to environmental site assessments, soil and groundwater remediation, Feed-In Tariff Land Evaluation Assessments, and environmental monitoring at construction and contaminated sites. Mr. Cunningham has extensive experience with report preparation including project costing, data compilation, interpretation, and completion of final reports.

2012 – 2015 Project Manager, Navus Environmental.
Edmonton, Alberta, Canada

Mr. Cunningham's responsibilities included project coordination and field work related to Pre-Disturbance Assessments, Environmental Oilfield Site Monitoring, Site Remediation, Phase I and Phase II Environmental Site Assessments, Peatland Assessments, Vegetation Assessments, and Long-Term Plot Network Assessments in accordance with applicable provincial and federal standards. Mr. Cunningham was involved with providing project proposals and costing for all aspects of a project, the scheduling of staff and field work, arranging for required sub-contractors, hiring and training new staff, and analyzing and interpreting the field data in order to write the related reports.

PROFESSIONAL ASSOCIATIONS

- Certified Engineering Technologist (CET); Ontario Association of Certified Engineering Technicians and Technologists
- Technical Agrologist (T.Ag); Ontario Institute of Agrologists

EDUCATION

2012 Post Graduate Diploma in Environmental Management and Assessment,
Niagara College, Saint Catharines, Ontario, Canada

2011 Honours Bachelor of Arts in Geography and Environmental Studies,
McMaster University, Hamilton, Ontario, Canada



SELECTED EXPERIENCE

ENVIRONMENTAL SITE ASSESSMENTS – ALBERTA & ONTARIO: 2012 - 2021

Mr. Cunningham has completed multiple Phase I and Phase II Environmental Site Assessments on Brownfield sites, existing commercial and industrial properties, vacant lands, and residential properties to evaluate environmental liability for clients. Phase I assessments typically require a desktop review of historical materials, a site walkover, personnel interviews and report preparation. Phase II assessments typically require a detailed subsurface investigation that includes the excavation of test pits or boreholes, advancement of overburden and bedrock groundwater wells, obtaining overburden soil samples and groundwater samples, and report preparation. These subsurface investigations determine the extent of contamination, if any, and to delineate both horizontally and vertically, the area of impact.

IMPACTED SOIL REMEDIATION

Orillia, Ontario: 2017 to 2018 – Project included the remediation of 16,177 tonnes of contaminated soil impacted by petroleum hydrocarbons at an abandoned industrial yard in Orillia, Ontario. The work involved the delineation and excavating of impacted material, the removal of below-ground piping, the disposal of impacted material at a suitable landfill facility, and backfilling and contouring the excavation.

Camrose, Alberta: 2013 – Project included the remediation of 21,678 tonnes of contaminated soil impacted by produced water and petroleum hydrocarbons at a sour-gas plant near Camrose, Alberta. The work involved the delineation and excavating of impacted material, the removal of five underground storage tanks and associated above-ground and below-ground piping, the disposal of impacted material at a suitable landfill facility, and backfilling and contouring the excavation.

Bonnyville, Alberta: 2012 – Project included the remediation of 40,509 tonnes of contaminated soil caused by a brackish water leak at a sand holding facility near Bonnyville, Alberta. The work involved the delineation and excavating of impacted material, the disposal of impacted material at a suitable landfill facility, and backfilling and contouring the excavation.

ENVIRONMENTAL MONITORING – ORILLIA RECREATION CENTRE – ONTARIO

Environmental Specialist for the construction of Orillia, Ontario's Recreation Centre facility. Within this project, Mr. Cunningham's role included risk management and mitigation, PHC remediation, DNAPL air monitoring system installation and inspections, ongoing sampling for groundwater, sediment, soil vapour, air quality and surface water monitoring, and daily, monthly and annual reporting duties.