PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

PART 1 ON THE SURVEY AND BEING PART OF BLOCK G REGISTERED PLAN M-81
1600 KERNS ROAD
BURLINGTON, ONTARIO

WATTERS ENVIRONMENTAL GROUP INC.

CONFIDENTIAL

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

PART 1 ON THE SURVEY AND BEING PART OF BLOCK G REGISTERED PLAN M-81 1600 KERNS ROAD BURLINGTON, ONTARIO

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1.0 EXECUTIVE SUMMARY

Watters Environmental Group Inc. (Watters Environmental) was retained by FGL Kerns Inc. (FGL) to conduct a Phase Two Environmental Site Assessment (ESA) of a parcel of land designated as Part 1 on the Plan of Survey Prepared by J.D. Barnes Limited and dated April 2, 2020, and being part of Block G Registered Plan M-81, which is part of the larger property located at 1600 Kerns Road, in Burlington, Ontario (hereafter the "Phase Two Property").

The Phase Two Property currently consists of a multi-tenant commercial plaza (i.e., with the exception of a small portion of the northwest corner of the Site building), an asphalt-paved parking lot, and the majority of an outdoor children's play area located on the larger 1600 Kerns Road property which includes the Phase Two Property. The current tenants include a kitchen/bathroom renovation store, a fitness centre, a bakery, a hair salon, and a children's daycare.

Watters Environmental understands that the Phase Two Property is planned to be redeveloped to a residential retirement property and a Record of Site Condition (RSC) is required as per Ontario Regulation (O. Reg.) 153/04 (i.e., Records of Site Condition – Part XV.1 of the Act, made under the Ontario Environmental Protection Act, R.S.O. 1990), as amended.

According to information provided by Gardiner Roberts LLP to Watters Environmental, the legal description for the Phase One Property is summarized as follows:

- Part 1 on the Plan of Survey Prepared by J.D. Barnes Limited and dated April 2, 2020, and being part of Block G Registered Plan M-81.

As a result, Watters Environmental completed a Phase One ESA on the Phase Two Property (referred to as the Phase One Property in the Phase One ESA report). The findings were summarized in Watters Environmental's report entitled, "*1600 Kerns Road, Part 1 on the Plan of Survey and being Part of Block G Registered Plan M-81, 1600 Kerns Road, Burlington, Ontario*", November 2020. The Phase One ESA identified 2 potentially contaminating activities (PCAs) on the Phase One Property, and 1 PCA in the Phase One Study Area. This resulted in 3 areas of potential environmental concern (APEC) on the Phase One Property (with two of them covering the same area).

The PCAs and APECs are summarized as follows:

PCA	APEC	Location of Activity	Table 2 PCA No. & Description*	Discussion
1A	1A	On-Site, located on the north-central portion of the Phase One Property	#58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use biosoils as soil conditioners	A closed landfill is present on the north-central portion of the Phase One Property. The fill material consists of re-worked clayey silt soil with solid waste debris, such as glass, brick, ceramics and ash. No visual or olfactory evidence of hydrocarbon or solvent impacts or decomposable organic wastes were identified in Exp's boreholes drilled within the landfill area. The presence of a landfill is considered a PCA that represents an APEC on the north-central portion of the Phase One Property.
1B	1B	Off-Site, located north of the Phase One Property (across Four Seasons Drive)	#58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use biosoils as soil conditioners	A closed landfill is present north of the Phase One Property (across Four Seasons Drive), in an inferred transgradient direction. This is part of the landfill on the Phase One Property. The presence of a landfill is considered a PCA that represents an APEC on the north-central portion of the Phase One Property. Note that the landfill document provided by the MECP indicated that methane gas testing conducted in boreholes and within residential homes confirmed that methane was not detected.

PCA	APEC	Location of Activity	Table 2 PCA No. & Description*	Discussion
2	2	On-Site, located on the south-central portion of the Phase One Property	#55 – Transformer Manufacturing, Processing and Use	A pad-mounted transformer is located on the south-central portion of the Phase One Property. The appearance and relatively good condition of this transformer suggests that it may have been installed at some point after 1980, when PCBs were banned from electrical equipment. However, the original transformer installed when the 1600 Kerns Road property was developed in 1975 may have contained PCBs. The presence of a pad-mounted transformer is considered a PCA that represents an APEC on the south-central portion of the Phase One Property.

* Ontario Regulation 153/04, as amended, Records of Site Condition – Part XV.1 of the Act, Schedule D, Table 2: Potentially Contaminating Activities

As a result, Watters Environmental recommended that a Phase Two ESA be conducted to address the above-noted issues, as it is a mandatory requirement of O. Reg. 153/04, as amended, to conduct a subsurface assessment if there are current or historical PCAs on the Phase One Property, or if there are PCAs on properties within the Phase One Study Area that are considered to have the potential to be APECs on the Phase One Property.

The Phase Two ESA consisted of drilling boreholes, installing monitoring wells, digging shallow test pits, and submitting soil and groundwater samples for analysis.

The analytical results for soil and groundwater were compared to the Table 1 Full Depth Background Site Condition Standards (SCS) contained in the document by the Ontario Ministry of the Environment [MOE – now MECP] entitled, "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*" (dated April 15, 2011). These generic standards are hereafter referred to as the "Table 1 SCS".

Based on the results of this Phase Two ESA, Watters Environmental presents the following findings:

- The former landfill in the north-central portion of Phase Two Property (APECs 1A/1B) contain solid waste debris, such as glass, brick, ceramics and ash mingled with clayey silt soil. This material contains concentrations of PHCs, metals, and PAHs that exceeded the Table 1 SCS; and

- The groundwater in the landfill contains metals that exceed the Table 1 SCS.

A Risk Assessment will need to be conducted to confirm the risks (if any) to human health and the environment, and what Risk Management Measures are needed (if required) to manage the risks.

2.0 INTRODUCTION

Watters Environmental Group Inc. (Watters Environmental) was retained by FGL Kerns Inc. (FGL) to conduct a Phase Two Environmental Site Assessment (ESA) of a parcel of land designated as Part 1 on the Survey Prepared and being part of Block G Registered Plan M-81 (hereafter the "Phase Two Property" or the "Site"; see Figure 1), which is part of the larger property located at 1600 Kerns Road, in Burlington, Ontario.

Watters Environmental understands that the Phase Two Property is planned to be redeveloped to a residential retirement property and a Record of Site Condition (RSC) is required as per Ontario Regulation (O. Reg.) 153/04 (i.e., Records of Site Condition – Part XV.1 of the Act, made under the Ontario Environmental Protection Act, R.S.O. 1990), as amended (hereafter "O. Reg. 15/04").

A Phase One ESA completed by Watters Environmental (report dated November 2020) identified two potentially contaminating activities (PCAs) on the Phase Two Property and one off-site PCA within the Phase One Study Area, which resulted in three areas of potential environmental concern (APEC) on the Phase Two Property. These PCAs resulting in APECs included: the historic presence of a closed landfill located on the north-central portion of the Phase Two Property and north of the Phase Two Property across Four Seasons Drive (i.e., off-Site), and the presence of a potential historic polychlorinated biphenyl (PCB)-containing pad-mounted transformer located on the south-central portion of the Phase Two Property. Therefore, a Phase Two ESA was considered necessary, as it is required when PCAs are present on a Phase Two Property, as per O. Reg. 153/04.

In order to adequately assess the APECs, a sampling and analysis plan was prepared for the investigation (see Appendix A). The Phase Two ESA was conducted in accordance with the requirements of O. Reg. 153/04.

2.1 Site Description

For the purpose of this report, the section of Kerns Road that is located adjacent to the east of the Phase One Property is assumed to be aligned in a north-south direction (relative to "Project North"), although it is actually aligned in a northwest-to-southeast direction (relative to "True North"). Unless otherwise noted, descriptions in this report are relative to Project North.

The Phase Two Property is located on the southwest corner of the intersection of Kerns Road and Four Seasons Drive, in an area of mixed commercial, institutional, and residential land uses (see Figure 2).

The Phase Two Property was first used as rural agricultural lands in the late 18th century when it was transferred from the Crown to Joseph Brant as part of a 1,396-hectare (3,450-acre) block of land on February 14, 1798. The Phase Two Property consisted of forested and/or agricultural lands until development in the 1970s. Since development, the Phase Two Property has been comprised of a multi-tenant commercial building (hereafter the "Site building"), an asphalt-paved parking lot, and an outdoor children's play area. A small portion of the northwest corner of the Site building and the western portion of the outdoor children's play area extends off of the Phase Two Property (but within the overall 1600 Kerns Road property). The Site building is currently occupied by a kitchen/bathroom renovation store, a fitness centre, a bakery, a hair salon, and a children's daycare. The layout of the entire Phase Two Property is shown on Figure 3.

Watters Environmental notes that the remainder of the larger 1600 Kerns Road property (i.e., the western portion) is not included as part of the Phase Two Property and not subject of the Phase Two ESA. The remainder of the 1600 Kerns Road property includes a wooded ravine, which includes a portion of Hager Creek. Watters Environmental understands that the ravine up to the top-of-bank will be dedicated to Conservation Halton as part of the proposed redevelopment. In addition, Watters Environmental understands that no development can be conducted on a 7.5-metre setback from the top-of-bank to the west property line of the Phase Two Property (see Figure 3).

A signed Plan of Survey of the Phase Two Property is provided in Appendix B.

The property information of the Phase Two Property is summarized in the following table.

Table 1: Phase Two Property Information

Municipal Addresses	The Phase Two Property is located within a larger property with a municipal address of 1600 Kerns Road, Burlington, Ontario.
Property Identifier Numbers (PINs)	PIN 07127-0305 (LT)
Size of the Property	0.55 hectares (1.36 acres)
Legal Description	Part 1 on the Plan of Survey Prepared by J.D. Barnes Limited and dated April 2, 2020, and being part of Block G Registered Plan M-81.

Table 1: Phase Two Property Information (Continued)

Geo-Referencing Coordinates	Latitude/Longitude: 43˚20′26.34″North, 79˚50′17.63” West GIS Map Datum: NAD83 Universal Transverse Mercator (UTM) Coordinates: Zone 17T, 594169.61m E, 4799299.69m N ± 3 metres Topographic Map Sheet Number: 030/M13

2.2 Property Ownership

The Phase Two Property is owned by FGL Kerns Inc. Contact information for the property owner who commissioned this Phase Two ESA is provided below:

Table 2: Phase Two Property Contact Information

Name and Address of Current Owner of The Phase Two Property	FGL Kerns Inc. 5400 Yonge Street, Suite 300, Toronto, Ontario, M2N 5R5
Property Owner Contact Information who Engaged the Qualified Person (QP) to Conduct the Phase Two ESA	Company Name: FGL Kerns Inc. Name: Mr. Noam Jakubovic Address: 5400 Yonge Street, Suite 300, Toronto, Ontario, M2N 5R5 Tel: (416) 221-3335 Email: noamj@fieldgateproperties.com
QP_{ESA} from Watters Environmental Group Inc. that Supervised the Phase Two ESA	Name: Basil Wong, M.Eng., P.Eng., QP_{ESA} Title: Vice President, Technical Services Address: 9135 Keele Street, Unit A1, Concord, Ontario L4K 0J4 Tel: 416-361-2407 ext. 237 Fax: 416-361-2410 Email: bwong@wattersenvironmental.com

2.3 Current and Proposed Future Uses

The Phase Two Property currently consists of a multi-tenant commercial plaza, an asphalt-paved parking lot, and an outdoor children’s play area. The current tenants include a kitchen/bathroom renovation store, a fitness centre, a bakery, a hair salon, and a children’s daycare.

Watters Environmental understands that FGL is planning to redevelop the Phase Two Property into a multi-unit residential retirement property.

Table 3: Phase Two Property Current and Proposed Future Land Use

Current Property Use	Commercial
Proposed Property Use	Residential
If the proposed use is undertaken, would section 168.3.1 of the *Environmental Protection Act* prohibit the new use unless a Record of Site Condition is filed?	Yes

2.4 Applicable Site Condition Standard

The results of the soil and groundwater chemical analyses were evaluated using the Standards prescribed in the Ministry of the Environment [MOE – now the Ministry of the Environment, Conservation and Parks (MECP)] document entitled, *"Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act"* (dated April 15, 2011). These Standards were used to evaluate soil and groundwater quality based on the samples collected and tested, to determine whether soil and groundwater quality complied with the MECP Standards and to determine whether additional investigations, or remedial actions to reduce the concentrations, are required or warranted. These Standards are applied as per O. Reg. 153/04. O. Reg. 153/04 was amended by O. Reg. 511/09 as of December 9, 2009. These amendments came into effect on July 1, 2011.

The Phase Two Property is currently used for commercial purposes, and the proposed future use is residential. The existing Site building will be demolished, and the remainder of the Phase Two Property will be graded in preparation of future development, as required. The use of the Table 1 Full Depth Background Site Condition Standards (SCS) for Residential / Parkland / Institutional / Industrial / Commercial / Community Property Use, was considered appropriate by Watters Environmental based on the following:

- There are no water supply wells used for potable purposes on the Phase Two Property or within the Phase One Study Area. Water is supplied to the Site from the City of Burlington, which obtains its potable water from a surface water source (i.e., Lake Ontario). Watters Environmental submitted a notification to the Clerks at the City of Burlington (lower tier government) and Halton Region (upper tier government) of its intention to use to non-potable groundwater standards in a letter both dated April 1, 2020. The Halton Region provided a letter to Watters Environmental, dated April 16, 2020, indicating that potable groundwater standards must be used due to the Site being

within 30 metres of an environmentally sensitive area. However, the presence of an environmentally sensitive site within 30 metres of a Phase Two Property automatically necessitates the use of the Table 1 SCS (Full Depth Background SCS), as per O. Reg. Section 41 of 153/40. In other words, this section states that if the Phase Two Property is within, adjacent to, or within 30 metres of an area of natural significance, the full depth generic site condition standards and stratified site condition standards shall not be used (i.e., these applicable site condition standards being dependent on whether groundwater is potable or non-potable). For potable groundwater, the available site conditions to use are Table 2 SCS, Table 4, Table 6, or Table 8. As such, Halton Region's directive to use "potable groundwater standards" is not valid (i.e., it should have stated that the Table 1 SCS is to be used). Watters Environmental notes that figures included in the Halton Region Official Plan does not clearly show this "environmentally sensitive area". Map 1G of the Region's Official Plan only shows an area identified as "key features" (i.e., not "environmentally sensitive area"). Through further correspondence, Halton Region provided Watters Environmental a screen grab of a zoomed-in GIS layer showing the Regional Natural Heritage System, which is not available in the public domain. The City of Burlington provided has not yet provided a response letter to Watters Environmental. Regardless, due to Halton Region's position, the land within 30 metres of the Phase Two Property is considered an "environmentally sensitive area";

- The soil samples analyzed at the Phase Two Property were within a pH range of 5 to 9 for surface soils (i.e., soils that are no more than 1.5 metres below the soil surface) and 5 to 11 for subsurface soils (i.e., soils that are more than 1.5 metres below the soil surface);

- The Phase Two Property is located within 30 metres of a water body;

- The Phase Two Property is not located within areas where the Niagara Escarpment Planning and Development Act or Oak Ridge's Moraine Conservation Act, 2001 applies;

- The depth to in-situ groundwater is generally greater than 3.0 metres below ground surface (mbgs);

- The Phase Two Property is not a "shallow soil property", as defined in O. Reg. 153/04 as bedrock was encountered at a depth greater than 2 metres below beneath the soil surface, excluding any non-soil surface treatment [i.e., bedrock was encountered at approximately 11.29 to 11.79 metres below ground surface (mbgs)]; and

- Grain size analysis indicated that the soil is predominantly fine-to-medium texture (see Section 6.4 of this report).

Based on the above, Watters Environmental compared the soil and groundwater sample analytical data from the Phase Two Property to the stated Table 1 Full Depth Background SCS for Residential / Parkland / Institutional / Industrial / Commercial / Community property use as contained in the MECP publication "Soil, Ground Water and Sediment Standards for *Use Under Part XV.1 of the Environmental Protection Act*", April 15, 2011. These soil and groundwater quality standards are hereafter referred to as the "Table 1 SCS".

3.0 BACKGROUND INFORMATION

3.1 Physical Setting

Based on a review of the online topographic map from the Natural Resources Canada (NRC), the Phase Two Property is situated at an elevation of approximately 130 metres above mean seal level (mamsl) on average, and slopes down towards Hager Creek approximately 20 metres west of the western boundary of the Phase Two Property. The Phase Two Property is relatively flat with surface drainage to catch basins located within the Phase Two Property or to catch basins along Four Seasons Drive and Kerns Road.

The surrounding properties to the east and west (with the exception of the ravine located further west and within the larger 1600 Kerns Road property) were at a relatively similar grade with the Phase Two Property. The land to the west of the Phase Two Property (i.e., the ravine on the larger part of the 1600 Kerns Road property) is at a much lower elevation, as it slopes down into Hager Creek. Properties to the north of the Phase Two Property are generally at a higher elevation than the Phase Two Property, and properties to the south of the Phase Two Property are generally at a lower elevation than the Phase Two Property. The topography of the Phase Two Property, Phase One Study Area, and beyond is shown on Figure 4.

Based on the general topography of the Phase One Property and surrounding area, Watters Environmental infers that the near-surface groundwater at the Phase One Property flows to the west, following the local topographic gradient towards Hager Creek located approximately 20 metres to the west of the western boundary of the Phase One Property.

As noted in Section 2.4, Halton Region notified Watters Environmental that there is an apparent "environmentally sensitive area" within 30 metres of the Phase Two Property.

Surficial geology in the vicinity of the Phase Two Property is expected to be clay to silt-textured till (derived from glaciolacustrine deposits or shale) (Ontario Ministry of Northern Development and Mines Surficial Geology Google Earth Database, 2010).

Bedrock in the vicinity of the Phase Two Property is expected to be shale, limestone, dolostone, and siltstone of the Queenston Formation (Ontario Ministry of Northern Development and Mines Bedrock Geology Google Earth Database, 2011).

3.2 Past Investigations

The following previous environmental reports prepared for the Phase Two Property were reviewed by Watters Environmental:

- "*DRAFT Phase I Environmental Site Assessment, 1600 Kerns Road, Burlington, ON",* prepared by Exp Services Inc. (Exp) for Fieldgate Properties Limited (Fieldgate), dated September 7, 2018 (the "September 2018 Exp Phase I ESA Report");

- "*Slope Stability Analysis, Proposed Residential Redevelopment, 1600 Kerns Road, City of Burlington, Ontario*", prepared by Exp for Fieldgate, dated October 18, 2018 (the "October 2018 Exp Slope Stability Report");

- *"Chemical Testing, 1600 Kerns Road, Burlington, Ontario",* prepared by Exp for Fieldgate, dated November 2, 2018 (the "November 2018 Exp Chemical Testing Report");

- *"DRAFT Environmental Subsurface Investigation, 1600 Kerns Road, Burlington, Ontario",* prepared by Exp for Fieldgate, dated December 12, 2018 (the "December 2018 Exp ESI Report"); and

- "*Phase One Environmental Site Assessment, Part 1 on the Plan of Survey Prepared by J.D. Barnes Limited and dated April 2, 2020, and being part of Block G Registered Plan M-81, 1600 Kerns Road, Burlington, Ontario*", prepared by Watters Environmental for FGL, dated November 2020 (the "November 2020 Watters Environmental Phase One ESA Report").

<u>September 2018 Exp Phase I ESA Report</u>

Based on a review of this report, Watters Environmental notes the following:

- Exp was retained by Fieldgate to conduct a Phase I ESA of the entire property at 1600 Kerns Road, which included the Phase One Property;

- The 1600 Kerns Road property was noted to be located at the southwest corner of the intersection of Kerns Road and Four Seasons Drive;

- The 1600 Kerns Road property consisted of an irregular-shaped parcel of land, which was developed with one multi-tenant commercial building approximately 1,985 square metres (m^2) in area, and an associated asphalt-paved parking lot. *Watters Environmental notes that the central and eastern portions of this building is situated within the Phase One Property*;

- Aerial photographs reviewed for the 1600 Kerns Road property indicates that this property consisted of vacant and/or agricultural land, with a ravine on the western portion (i.e., property adjacent to the west the Phase One Property) from 1934 to 1951. A rectangular-shaped building similar in configuration to the present-day multi-tenant commercial building on 1600 Kerns Road was developed in 1974;

- Hager Creek, a tributary of Indian Creek, was located west of the Phase One Property;

- Inferred groundwater flow was noted to be south/southwest towards Hager Creek;

- Information provided by the Technical Standards and Safety Authority (TSSA) indicated that the Phase One Property was registered for one active (propane) cylinder exchange;

- Exp noted that the multi-tenant commercial building was occupied by five tenants, namely Evolve Fitness, Kids & Company, Cakes Sweets & Treats, Burlington Premier School of Dance & Music, and a vacant unit (formerly a convenience store). Exp was advised that the convenience store contained a drop-off only dry-cleaning service (i.e., no on-the-premises dry cleaning activities);

- No evidence of aboveground storage tanks (ASTs) or underground storage tanks (USTs) were noted;

- Exp indicated that a significant amount of fill material was not expected to be present in the Phase One Property. *Watters Environmental notes that Exp did not identify the closed landfill on the Site in this report*; and

- Exp concluded that there were potential environmental concerns associated with regulated building materials [i.e., asbestos, lead, mercury, and PCBs], and recommended a designated substances survey be conducted.

October 2018 Exp Slope Stability Report

Based on a review of this report, Watters Environmental notes the following:

- Exp conducted the assessment to verify the potential impact on the existing slope along the west property boundary due to construction of a proposed residential redevelopment at the Site;

- Exp drilled 6 boreholes (i.e., BH1 to BH6) in the parking lot area on October 11 and 12, 2018 with a CME 55 drilling rig equipped with solid-stemmed augers. Monitoring wells were installed in BH5 (located on the eastern boundary of the Phase One Property) and BH6 (located west of the Phase One Property and within the non-developable 7.5-metre setback). Exp also advanced 1 borehole at the bottom of the slope within the 1600 Kerns Road property, west of the Phase One Property . *Watters Environmental notes that Boreholes BH1 to BH5 are located within the Phase One Property;*

- With respect to the boreholes drilled within the Phase One Property, fill consisting of reworked clayey silt, some gravel and sand pockets (with glass, brick, and ceramic fragments) was observed in BH1 to a depth of approximately 10.17 metres below ground surface (mbgs). A clayey silt deposit was encountered underneath the fill material in BH1 to a depth of approximately 11.77 mbgs. Shale bedrock was encountered below the clayey silt. Exp encountered groundwater at a depth of 4.82 mbgs in the open hole upon completion of the drilling activities (i.e., no monitoring well was installed in this borehole);

- Boreholes BH2 to BH5 consisted of a clayey still till with sand seams and trace amount of gravel below the asphaltic concrete and granular base to the borehole termination depths of 9.72 to 9.76 mbgs. No indication of waste or deleterious materials were observed in BH2 to BH5. Exp did not observe groundwater in the open holes of BH2, BH4 and BH5 upon completion of the drilling activities. Groundwater was encountered in BH3 at a depth of 8.58 mbgs in the open hole completion of the drilling activities; however, no monitoring well was installed in BH3. Only BH5 was instrumented as a groundwater monitoring well; and

- Exp encountered groundwater in the monitoring well in BH5 at depths 8.47, 7.82 and 6.31 mbgs one day, 4 days, and 5 days later, respectively.

November 2018 Exp Chemical Testing Report

Based on a review of this report, Watters Environmental notes the following:

- Exp was requested to conduct limited chemical testing of the fill and native soils on the Phase One Property;
- The purpose of the soil chemical testing was to determine the quality of the fill and native soils in terms of suitability for re-use and for off-Site disposal;
- The soil testing was conducted as a supplemental program to the above-noted slope stability analysis drilling program;
- Three soil samples were collected from the fill material from boreholes BH1 and BH6 (i.e., samples BH1 SS3, BH1 SS4 and BH6 SS3). *Watters Environmental notes that of these two boreholes, only BH1 was located on the Phase One Property*;
- Five soil samples were collected from the clayey silt till native soils from boreholes BH1, BH2 and BH5 (i.e., samples BH1 SS4 and SS12, BH2 SS3, BH5 SS2 and BH6 SS3). *Watters Environmental notes that only BH1, BH2, and BH5 are located on the Phase One Property*;
- The soil samples were submitted for analysis of the following parameters:
    1. Metals and other regulated parameters (ORPs);
    2. Benzene, toluene, ethylbenzene, and xylenes (collectively "BTEX");
    3. Petroleum hydrocarbons (PHCs); and
    4. Toxicity Characteristic Leaching Procedure (TCLP) for inorganic parameters and (PCBs).

- The soil samples were compared to the Ministry of the Environment [now MECP] 2011 Table 3 Full Depth Generic Site Condition Standards (SCS) in a Non-Potable Groundwater Condition for Residential / Parkland / Institutional Property Use for Medium to Fine-grained Soils as listed in O. Reg. 153/04 (the "Table 3 SCS"), and the 2011 Table 9 Generic SCS for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition (the "Table 9 SCS"). Exp compared the soil analytical data from BH2 and BH5 to the Table 3 SCS, and compared the data from BH1 (which is within the Phase One Property) and BH6 to the Table 9 SCS;

- The soil results for BH5 SS2 indicated a marginal exceedance of the Table 3 SCS for Electrical Conductivity (EC). All remaining samples and parameters in BH2 and BH5 met the Table 3 SCS;

- The soil results for the fill materials in BH1 (SS3 and SS4) indicated exceedances of the Table 9 SCS for several metals and inorganic parameters, and an EC exceedance in BH6 SS3. All remaining samples and parameters met the Table 9 SCS;

- The results of the soil TCLP analysis met the criteria listed in Schedule 4 of Ontario Regulation 558/00, and the soils were therefore classified as non-hazardous;

- Exp concluded that the soil fill material was not suitable for re-use on the Phase One Property and would require disposal at a registered landfill site licensed to accept such soils; and

- Exp concluded that, subject to additional testing for the EC exceedance to determine if it was an anomaly, the native soils were suitable for re-use on the Phase One Property.

<u>December 2018 Exp ESI Report</u>

Based on a review of this report, Watters Environmental notes the following:

- Exp was retained by Fieldgate to conduct an environmental subsurface investigation (ESI) of the Phase One Property. The ESI was conducted for due diligence purposes. The ESI incorporated laboratory soil testing results from the November 2018 Exp Chemical Testing Report;

- Exp noted that a review of drawings prepared for Chalfonte Investments Ltd., that an area of land filling extended onto the north portion of the 1600 Kerns Road property. The extent of the land was depicted on a plan and profile for Kerns Road, dated November 1971. *Watters Environmental notes that the location of the land filling is located in the north-central portion of the Phase One Property. Watters Environmental reviewed this plan and profile and confirmed Exp's conclusion of the presence of land filling. This landfill would be considered an on-Site PCA on the Phase One Property, which would result in an APEC on the Phase One Property. In addition, this landfill extended to the north of the Phase One Property. This would be considered an off-Site PCA resulting in an APEC on the Phase One Property (i.e., same APEC areas);*

- The scope of work included advancing two boreholes (BH101 and BH102) to approximately 10 mbgs, hand auguring three boreholes (HA1 to HA3) to a maximum depth of 3 mbgs, collecting groundwater samples from two existing monitoring wells (i.e., BH5 and BH6), and collecting three sediment samples (SED1 to SED3) from Upper Hager Creek. In addition, Exp submitted two soil samples from BH1, which was drilled in the geotechnical investigation program (i.e., slope stability analysis). *Watters Environmental notes that BH5 and BH6 were installed as part of a previous Exp geotechnical investigation. Also, as previously noted, the creek is not within the Phase One Property and is west and inferred downgradient of the Phase One Property)*;

- All three of the hand augured boreholes (HA1 to HA3) and sediment samples (SED1 to SED3) were located within the larger 1600 Kerns Road property that is not included as part of the Phase One Property. BH6 was located just west of the Phase One Property, within the non-developable 7.5-metre setback. BH101, BH102, and BH5 were located in the parking lot of the Phase One Property;

- Exp noted that the stratigraphy of BH101 and BH102 consisted of a layer of asphalt (0.1 metres thick) underlain by a clayey silt (re-worked) fill to approximately 0.5 to 0.8 mbgs. Landfill material consisting of sand, gravel, glass, brick, ceramics and ash was encountered below the fill in both BH101 and BH102 to a maximum depth of 3.1 mbgs and 5.9 mbgs, respectively. Native material consisting of a clayey silt was encountered beneath the landfill material in both BH101 and BH102. Weathered shale was encountered in BH102, beneath the native clayey silt layer, at approximately 9.4 mbgs; and

- Exp noted the stratigraphy of all three hand augured samples (HA1 to HA3), which were located on the embankment, consisted of a layer of topsoil to a maximum depth of 0.3 mbgs, underlain by clayey silt fill (likely re-worked soil) between 0.5 to 0.8 mbgs. The fill was underlain by the native clayey silt (unit). No landfill materials were encountered in HA1 to HA3. Land fill materials were not encountered in BH6. *Watters Environmental notes that HA1 to HA3 and BH6 were not located within the Phase One Property;*

- Groundwater in BH5 and BH6 were encountered at depths of approximately 3.04 mbgs and 3.55 mbgs, respectively;

- Soil samples from BH101 and BH102 were submitted for analysis of pH, metals and ORPs, polycyclic aromatic hydrocarbons (PAHs), PHCs and BTEX parameters;

- All sediment samples were submitted for analysis of metal and ORPs, and PAHs;

- Groundwater samples from BH5 and BH6 were submitted for analysis of metals and ORPs, PHCs and BTEX, and PAHs;

- The soil, groundwater, and sediment samples were compared to the Table 9 SCS;

- The soil results indicated exceedances of various metal and ORPs in samples BH101 SS3 and BH102 SS4; and exceedances of various PAHs in BH102 SS4 above the Table 9 SCS. All remaining soil sample parameters met the Table 9 SCS;

- The soil results indicated a marginal exceedance of sodium adsorption ratio (SAR) in soil sample HA2 above the Table 9 SCS. All remaining parameters tested for from HA1 to HA3 met the Table 9 SCS;

- The sediment results indicated exceedance of various metal and inorganic parameters in all three sediment samples (SED1 to SED3). All remaining sediment sample parameters met the Table 9 SCS. Watters Environmental notes that the creek is not part of, and is inferred downgradient, of the Phase One Property;

- All groundwater samples parameters met the Table 9 SCS; and

- Exp recommended that a risk assessment be conducted to address the soil and sediment impacts.

November 2020 Watters Environmental Phase One ESA Report

Based on a review of this report, Watters Environmental notes the following:

Two on-Site PCAs were identified on the Phase One Property, and one off-Site PCA was identified within the Phase One Study Area. These PCAs result in APECs are on the Phase One Property and are summarized as follows:

PCA	APEC	Location of Activity	Table 2 PCA No. & Description*	Discussion
1A	1A	On-Site, located on the north-central portion of the Phase One Property	#58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use biosoils as soil conditioners	A closed landfill is present on the north-central portion of the Phase One Property. The fill material consists of re-worked clayey silt soil with solid waste debris, such as glass, brick, ceramics and ash. No visual or olfactory evidence of hydrocarbon or solvent impacts or decomposable organic wastes were identified in Exp's boreholes drilled within the landfill area. The presence of a landfill is considered a PCA that represents an APEC on the north-central portion of the Phase One Property.
1B	1B	Off-Site, located north of the Phase One Property (across Four Seasons Drive)	#58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use biosoils as soil conditioners	A closed landfill is present north of the Phase One Property (across Four Seasons Drive), in an inferred transgradient direction. This is part of the landfill on the Phase One Property. The presence of a landfill is considered a PCA that represents an APEC on the north-central portion of the Phase One Property. Note that the landfill document provided by the MECP indicated that methane gas testing conducted in boreholes and within residential homes confirmed that methane was not detected.

PCA	APEC	Location of Activity	Table 2 PCA No. & Description*	Discussion
2	2	On-Site, located on the south-central portion of the Phase One Property	#55 – Transformer Manufacturing, Processing and Use	A pad-mounted transformer is located on the south-central portion of the Phase One Property. The appearance and relatively good condition of this transformer suggests that it may have been installed at some point after 1980, when PCBs were banned from electrical equipment. However, the original transformer installed when the 1600 Kerns Road property was developed in 1975 may have contained PCBs. The presence of a pad-mounted transformer is considered a PCA that represents an APEC on the south-central portion of the Phase One Property.

* Ontario Regulation 153/04, as amended, Records of Site Condition – Part XV.1 of the Act, Schedule D, Table 2: Potentially Contaminating Activities

Based on the PCAs identified in current and historical activities at the Phase One Property and on nearby neighbouring properties within the Phase One Study Area, and the APECs that they represent, completion of a Phase Two ESA, including soil and groundwater sampling and analyses, will be required before a Record of Site Condition can be submitted, as per O. Reg. 153/04.

Reports Summary

The Watters Environmental Phase One ESA was conducted in accordance with O. Reg. 153/04, as amended, under the supervision of Watters Environmental's Vice President of Technical Services, who has been an environmental consultant for over 27 years. As such, the information used from this investigation was considered adequate and can be relied upon to develop the Phase Two ESA program.

4.0 SCOPE OF THE INVESTIGATION

4.1 Overview of Site Investigation

In order to address the APECs, subsurface investigations were conducted for the purpose of characterization and contamination identification on the Phase Two Property. This work included the preparation of the formal Phase One and Two ESA reports for the Phase Two Property.

The objective of the Phase Two ESA was to evaluate the environmental condition of the soil and groundwater at the Phase Two Property and address the potential environmental issues identified in the Phase One ESA conducted by Watters Environmental. The tasks carried out are summarized below:

- Development of a sampling and analysis plan, including quality assurance/quality control (QA/QC) measures to be followed during this investigation;
- Clearance of the proposed borehole locations of any public or private underground or above ground utility lines;
- Advancement of seven boreholes and two test pits on the Phase Two Property in the three APECs identified in the Phase One ESA (two of which covered the same area), as required by O. Reg. 153/04 [i.e., BH19-01(MW), BH19-02(MW), BH19-03, BH19-04(MW), BH19-05, BH19-06, BH19-07, TP19-101, and TP20-201]. The boreholes were advanced to depths ranging between 3.66 and 11.79 mbgs within the parking lot on the northern portion of the Phase Two Property. The test pits were advanced to a depth of 0.15 mbgs on the south-central portion of the Phase Two Property;
- Installation of monitoring wells [i.e., BH19-01(MW), BH19-02(MW), and BH19-04(MW)] in three of the seven borehole locations. BH19-01(MW) was offset and installed within 1 metre of BH19-01;
- Collection of soil and groundwater samples for chemical analyses of the contaminants of concern (COCs); and
- Comparison of the results of the chemical analyses of soil and groundwater samples to the MECP Table 1 SCS for the Phase Two Property.

4.2 Media Investigated

The Phase One ESA identified potential impacts to the soil and groundwater at the Phase Two Property and therefore, the media that was planned to be sampled as part of the Phase Two ESA included both soil and groundwater. No sediment sampling was conducted as part of this investigation as there are no water bodies on the Phase Two Property, as defined by O. Reg. 153/04, on the Phase Two Property.

A total of 7 boreholes and 2 test pits were advanced on the Phase Two Property to address the APECs identified in the Phase One ESA. The boreholes were advanced to a minimum depth of 3.66 mbgs (i.e., BH19-07) and to a maximum depth of 11.79 mbgs (i.e., BH19-01). The test pits were advanced to depths of 0.15 mbgs (i.e., TP19-101 and TP20-201). Three of the 7 boreholes drilled, were completed as groundwater monitoring wells. Twenty-six soil samples collected from the 7 boreholes and 2 test pits were submitted for chemical analyses.

Watters Environmental completed one groundwater sampling event for the monitoring wells installed on the Phase Two Property. Watters Environmental conducted the groundwater sampling on October 22, 2019. During the groundwater sampling on October 22, 2019, a total of 3 groundwater samples, plus 1 blind field duplicate, and one trip blank [volatile organic compounds (VOCs), benzene, toluene, ethylbenzene and xylenes (BTEX), and trihalomethanes (THMs) only] for QA/QC purposes, were collected from BH19-01(MW) BH19-02(MW), and BH19-04(MW) and submitted for chemical analyses.

4.3 Phase One Conceptual Site Model

The Phase One Property consists of a parcel of land within the property located at 1600 Kerns Road, in Burlington, Ontario. The property at 1600 Kerns Road consists of a ravine, a portion of Hager Creek, and the Phase One Property, which is comprised of a multi-tenant commercial plaza. The legal description for the Phase One Property is Part 1 on the Survey and being part of Block G Registered Plan M-81.

For the purpose of this report, the section of Kerns Road that is located east of the Phase One Property is assumed to be aligned in a north-south direction (relative to “Project North”), although it is actually aligned in a northwest-to-southeast direction (relative to “True North”). Unless otherwise noted, descriptions in this report are relative to Project North.

The Phase One Property is located on the southwest corner of the intersection of Four Seasons Drive and Kerns Road, in an area of mixed commercial, institutional, and residential land uses.

The Phase One Property is currently owned by FGL Kerns Inc. and covers an area of approximately 0.55 hectares (1.36 acres). The Phase One Property consists of: a multi-tenant commercial building (with a small portion of the northwest corner of the building extending off the Phase One Property); an asphalt-paved parking lot; and the majority of an outdoor children's play area.

The Phase One property is accessed from the north via Four Seasons Drive, and through the east via Kerns Road. The remainder of the 1600 Kerns Road, which is not considered a part of the Phase One Property or subject to the Phase One ESA, includes a ravine, a portion of Hager Creek, and a 7.5-metre setback from the top-of-bank to the west property line of the Phase One Property.

Based on the data provided, the Phase One Property was first used as rural agricultural lands in the late 18th century when it was transferred from the Crown to Joseph Brant as part of a 1,396-hectare (3,450-acre) block of land on February 14, 1798. The Phase One Property consisted of agricultural lands until development in the 1970s. Since development, the Phase One Property has been comprised of a multi-tenant commercial plaza, which includes a one-storey slab-on-grade building, an asphalt-paved parking lot, and the majority of an outdoor children's play area located within the larger 1600 Kerns Road property. The Site building is currently occupied by a kitchen/bathroom renovation store, a fitness centre, a bakery, a hair salon, and a children's daycare.

As part of the Phase One ESA completed on the Phase One Property, Watters Environmental reviewed and utilized previous environmental reports, including soil and groundwater data on and adjacent to the Phase One Property, prepared by Exp Services Inc. (Exp) in 2018.

The Phase One Conceptual Site Model (CSM) is presented in the following sections and shown graphically in Figures 5 and 6 of the Phase One ESA report. Figures 1 to 4 in the Phase One ESA report show features on the Phase One Property and Phase One Study Area.

1. Provide one or more figures of the phase one study area that,

i. show any existing building and structures,

Figures attached to the Phase One ESA report include:

- Figure 1 – Phase One Property Location Map;
- Figure 2 – Phase One Study Area Land Use Map;
- Figure 3 – Phase One Property Layout Plan;

- Figure 4 – Topographic Map;
- Figure 5 – Phase One Conceptual Site Model; and
- Figure 6 – Phase One Conceptual Site Model – Expanded View.

As shown on Figure 3, structures on the Phase One Property include the Site building with a small portion of the northwest corner extending off the Phase One Property.

ii. identify and locate water bodies located in whole or in part on the phase one study area;

Figure 4 is a Topographical Map showing the topography and water bodies in the Phase One Study Area and beyond. A portion of Hager Creek is located approximately 20 metres to the west of the Phase One Property and eventually empties into Lake Ontario approximately 4 kilometres south of the Phase One Property.

iii. identify and locate any areas of natural significance located in whole in whole or in part on the phase one study area;

The Region of Halton indicated that there is a Regional Natural Heritage System within 30 metres of the Phase One Property (i.e., the ravine on the west side of the larger 1600 Kerns Road property), and stated that this is an environmentally sensitive area.

iv. locate any drinking water wells at the phase one property;

Watters Environmental obtained database information provided in the EcoLog ERIS report and conducted a search of the Ontario Ministry of the Environment, Conservation and Parks (MECP) Well Records database to determine the presence of current and former wells on the Phase One Property or Phase One Study Area.

No current or former wells were noted to be present on the Phase One Property or within the Phase One Study Area.

v. show roads, including names, within the phase one study area;

Roads within the Phase One Study Area are shown in Figure 2. As shown on Figure 2, access to the Phase One Property is provided by Four Seasons Drive which borders the north side of the Phase One Property, and via Kerns Road which borders the east side of the Phase One Property.

vi. show uses of properties adjacent to the phase one property;

As shown on Figure 2, Four Seasons Road borders the Phase One Property to the north, with residential properties further to the north. Kerns Road borders the Phase One Property to the east, with residential properties further to the east. A residential townhouse complex borders the Phase One Property to the south, and the remainder of the 1600 Kerns Road property (i.e., a ravine, Hager Creek, and a piece of land dedicated to Conservation Halton) borders the Phase One Property to the west, with residential properties further west.

vii. identify and locate areas where any potentially contaminating activity has occurred, and show tanks in such areas; and

As shown on the Phase One Conceptual Site Model (Figures 5 and 6), PCAs located on the Phase One Property and on surrounding properties are as follows:

- #55: Transformer Manufacturing, Processing and Use (a pad-mounted transformer is located on the south-central portion of the Phase One Property);
- #58: Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners (a closed landfill is located in the north-central portion of the Phase One Property); and
- #58: Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners (the above-noted landfill extends north of the Phase One Property across Four Seasons Drive).

viii. identify and locate any areas of potential environmental concern

As shown, on Figures 5 and 6, APECs on the Phase One Property are as follows:

- **APEC 1A**: Closed landfill located on the north-central portion of the Phase One Property;
- **APEC 1B**: The off-Site portion of the landfill to the north results in an APEC on the north-central portion of the Phase One Property (i.e., same as APEC 1A); and
- **APEC 2**: Pad-mounted transformer located on the south-central portion of the Phase One Property.

2. Provided a description of and assessment of,

i. any areas where potentially contaminating activity on or potentially affecting the phase one property has occurred;

A closed landfill is present on the north-central portion of the Phase One Property (i.e., PCA 1 – APEC 1A). The landfill extends off-Site north of the Phase One Property, under the residential homes across Four Seasons Drive (i.e., PCA 1B – APEC 1B). The fill material consists of re-worked clayey silt soil with solid waste debris, such as glass, brick, ceramics and ash. No visual or olfactory evidence of hydrocarbon or solvent impacts or decomposable organic wastes were identified in Exp's boreholes drilled within the landfill area. Also, the landfill document provided by the MECP indicated that methane gas testing conducted in boreholes and within residential homes confirmed that methane was not detected.

A pad-mounted transformer is located on the south-central portion of Phase One Property (i.e., PCA 2 – APEC 2). The appearance and relatively good condition of this transformer suggests that it may have been installed at some point after 1980, when PCBs were banned from electrical equipment. However, the original transformer installed when the 1600 Kerns Road property was developed in 1975 may have contained PCBs.

ii. any contaminants of potential concern;

Contaminants of potential concern are summarized as follows:

- PCA 1A (APEC 1A) – Soil and Groundwater – PHCs F1 to F4, PAHs, VOCs, THMs, BTEX, Metals, As, Sb, Se, B(HWS), Cr(VI), Hg, CN-, EC, SAR, Na and Cl-;
- PCA 1B (APEC 1B) – Soil and Groundwater – PHCs F1 to F4, PAHs, VOCs, THMs, BTEX, Metals, As, Sb, Se, B(HWS), Cr(VI), Hg, CN-, EC, SAR, Na and Cl-; and
- PCA 2 – Soil – PCBs and PHCs.

iii. the potential for underground utilities, if any present, to affect contaminant distribution and transport;

Watters Environmental anticipates that the underground utilities at the Phase One Property would be no greater than about 2 to 3 metres below ground surface and the shallow groundwater is anticipated to be at a greater depth, based on the water conditions encountered by Exp. As such, Watters Environmental does not anticipate that subsurface utilities on the Phase One Property would act as a preferential pathway for the migration of contaminated groundwater.

iv. available regional or site specific geological and hydrogeological information; and

Based on a review of the online topographic map from the NRC, the Phase One Property is situated at an elevation of approximately 130 mamsl, and is relatively flat with surface drainage to catch basins located within the Phase One Property or to catch basins along Four Seasons Drive and Kerns Road. The surrounding properties to the east were at a relatively similar grade with the Phase One Property. Properties to the north of the Phase One Property are generally at a higher elevation than the Phase One Property, and properties to the south the Phase One Property are generally at a lower elevation than the Phase One Property. The land to the west of the Phase One Property (i.e., the ravine on the larger part of the 1600 Kerns Road property) is at a much lower elevation, as it slopes down into Hager Creek.

Based on the general topography of the Phase One Property and surrounding area, Watters Environmental infers that the near-surface groundwater at the Phase One Property flows to the west, following the local topographic gradient towards Hager Creek located approximately 20 metres to the west of the western boundary of the Phase One Property.

A review of the MNDM Surficial Geology map on the Google Earth Database indicates that the overburden in the area of the Phase One Property consists of clay to silt-textured till (derived from glaciolacustrine deposits or shale).

Bedrock in the vicinity of the Phase One Property is expected to be shale, limestone, dolostone, and siltstone of the Queenston Formation. As noted in Section 4.1.5, Exp encountered bedrock in some of their boreholes drilled on the Phase One Property at depths ranging from approximately 8.77 to 11.77 mbgs.

v. how any uncertainty or absence of information obtained in each of the components of the phase one environmental site assessment could affect the validity of the model.

There are no uncertainties or absence of information in the completion of this Phase One Environmental Site Assessment that could affect the validity of the Phase One CSM.

4.4 Deviations from Sampling and Analysis Plan

The sampling and analysis plan is provided in Appendix A. The sampling and analysis of soil and groundwater samples were generally completed according to the sampling and analysis plan developed for this investigation. No deviations from the sampling and analysis plan were noted during the completion of the Phase Two ESA.

4.5 Impediments

No physical impediments or denial of access were encountered during the investigation.

5.0 INVESTIGATION METHOD

5.1 General Method of Investigation

The Phase Two ESA was carried out using Pontil Drilling Services Inc. (Pontil) of Mount Albert, Ontario (a MECP-licenced well drilling contractor). A track-mounted drilling rig was used to collect surface and subsurface soil samples. The same rig was also used to install monitoring wells in order to collect groundwater samples for chemical analysis. Watters Environmental used a hand shovel to manually collect soil samples from the one test pit location. The soil and groundwater sampling and analysis plan is provided in Appendix A.

5.2 Drilling and Excavating

The investigation consisted of advancing boreholes using continuous flight hollow stem augers. Soil samples were retrieved at regular intervals with a 50 mm outside diameter (O.D.) split-spoon sampler driven in accordance with the Standard Penetration Test (SPT) method.

Boreholes were advanced using a CME 75 track-mounted auger drill rig operated by Pontil (MECP well license #7644). Additional details of the drilling are provided in the table below and on the borehole logs in Appendix C of this report

Table 4: Summary of the Drilling Investigation Method

Contractor	Equipment	Boreholes Drilled	Frequency of Samples
Pontil Drilling Services Inc. MECP Well Licence #7644	Track-Mounted CME75	BH19-01(MW) BH19-02(MW) BH19-03 BH19-04(MW) BH19-05 BH19-06 BH19-07	Typically at 0.76-metre intervals
Watters Environmental	Manual Hand Shovel	TP19-101 TP20-201	Continuous sampling

The borehole drilling program for the Phase Two ESA was carried out on October 15 to 17, 2019. Following the clearance of underground services by public utility agencies and a private utility locating contractor, All Clear Locates of Mississauga, Ontario at the Phase Two Property, a total of 7 boreholes and 2 test pits were advanced to allow soil samples to be collected during the drilling period.

The locations of the boreholes/groundwater monitoring wells drilled/installed and test pits at the Phase Two Property are shown on Figure 7. The location of the boreholes and monitoring wells installed by Exp in 2018 are also shown on Figure 7.

The following table summarizes the sampling plan and rationale for the borehole/groundwater monitoring wells drilled and installed at the Phase Two Property as part of the Phase Two ESA. A detailed sampling and analysis plan for this assessment is presented in Appendix A and the rationale is summarized in Table 5 below.

Table 5: Boreholes/Test Pit Soil Sampling Rationale

Sample Collection Location	Sample Type	Rationale
BH19-01/BH19-01(MW)	Borehole / Monitoring Well	To assess the soil and groundwater quality and provide vertical delineation with respect to the presence of the historic (closed) landfill on the north-central portion of the Phase Two Property (i.e., APECs 1A and 1B). Soil and groundwater samples were analyzed for PHCs (F1 to F4), VOCs, BTEX, THMs, Metals and ORPs, and PAHs.
BH19-02(MW)	Borehole / Monitoring Well	To assess the soil and groundwater quality and provide lateral delineation with respect to the presence of the historic (closed) landfill on the north-central portion of the Phase Two Property (i.e., APECs 1A and 1B). Soil and groundwater samples were analyzed for PHCs (F1 to F4), VOCs, BTEX,THMs, Metals and ORPs, and PAHs.
BH19-03	Borehole	To assess the soil quality and provide lateral and vertical delineation with respect to the presence of the historic (closed) landfill on the north-central portion of the Phase Two Property (i.e., APECs 1A and 1B). Soil samples were analyzed for PHCs (F1 to F4), VOCs, BTEX, THMs, Metals and ORPs, and PAHs.

Table 5: Boreholes/Test Pit Soil Sampling Rationale (Continued)

Sample Collection Location	Sample Type	Rationale
BH19-04(MW)	Borehole / Monitoring Well	To assess the soil quality and groundwater quality and provide lateral and vertical delineation with respect to the presence of the historic (closed) landfill on the north-central portion of the Phase Two Property (i.e., APECs 1A and 1B). Soil samples were analyzed for PHCs (F1 to F4), VOCs, BTEX, THMs, Metals and ORPs, and PAHs.
BH19-05	Borehole	To assess the soil quality and provide lateral and vertical delineation with respect to the presence of the historic (closed) landfill on the north-central portion of the Phase Two Property (i.e., APECs 1A and 1B). Soil samples were analyzed for PHCs (F1 to F4), VOCs, BTEX, THMs, Metals and ORPs, and PAHs.
BH19-06	Borehole	To assess the soil quality and provide lateral and vertical delineation with respect to the presence of the historic (closed) landfill on the north-central portion of the Phase Two Property (i.e., APECs 1A and 1B). Soil samples were analyzed for PHCs (F1 to F4), VOCs, BTEX, THMs, Metals and ORPs, and PAHs.
BH19-07	Borehole	To assess the soil quality and provide lateral and vertical delineation with respect to the presence of the historic (closed) landfill on the north-central portion of the Phase Two Property (i.e., APECs 1A and 1B). Soil samples were analyzed for PHCs (F1 to F4), VOCs, BTEX, THMs, Metals and ORPs, and PAHs.
TP19-101	Test Pit	To assess the shallow soil quality on the south-central portion of the Phase Two Property, within the extent of the former potential PCB-containing pad-mounted transformer (i.e., APEC 2). Soil samples were analyzed for PCBs.
TP20-201	Test Pit	To assess the soil in the area of APEC 2 for PHCs.

Drilling supervision and field sampling activities were conducted by Watters Environmental personnel following the requirements of the O. Reg. 153/04, as amended. A description of the stratigraphy encountered in the boreholes is presented in the borehole logs in Appendix C, and summarized in Section 6.1.

Standard field drilling and sampling protocols for environmental sampling programmes were undertaken during the Phase Two ESA to prevent the potential of cross-contamination of the soil and groundwater samples obtained from the Phase Two Property. These measures included the following:

- Decontaminating split-spoon samplers, hand auger, and shovel using potable water and laboratory-grade non-phosphate detergent in between each soil sampling interval and between borehole locations while drilling and soil sampling;
- Using clean augers between each borehole location;
- The wearing of new, sterile nitrile gloves during the collection of each soil and groundwater sample;
- Using dedicated methanol preservation kits for the collection of soil samples using a disposable Terra Core® Soil Sampler for each sample set;
- Construction of groundwater monitoring wells using new, sterile, pre-wrapped polyvinyl chloride (PVC) well screens, risers and caps, and commercially-available silica sand and bentonite pellets;
- Decontaminating of the water level meter using potable water, laboratory-grade non-phosphate detergent and VOC-free de-ionized distilled water rinses in between each groundwater monitoring well;
- Using dedicated down-hole groundwater sampling equipment at each groundwater monitoring well location;
- Collecting each groundwater sample in new, sterile sampling containers supplied by the analytical laboratory;
- Cross-contamination of the groundwater from surface water was avoided by using watertight J-plugs and flush-mount casings at each groundwater monitoring well location; and

- Representative soil samples were collected at regular intervals (approximately every 0.76 metres) in each of the boreholes, and groundwater samples were collected from all 3 monitoring well locations installed during the Phase Two ESA. One groundwater monitoring well (i.e., BH5) installed by Exp in 2018 is present in the east-central portion of the Phase Two Property; however, was not sampled as part of the Phase Two ESA, as it was previously sampled and analyzed by Exp.

5.3 Soil: Sampling

Soil samples collected during the investigation were obtained using a 50 mm O.D. split-spoon sampler driven in accordance with the SPT method. The sampler was generally driven 610 mm but when the number of blows per 150 mm interval reached 50, the test was terminated. As a result, a smaller sample volume was typically obtained at these intervals/sampling depths. The SPT and blow count information is included in the borehole logs (Appendix C). Soil samples from the test pits were collected using a manual hand shovel and hand auger.

In accordance with MECP sample container requirements, soil samples for potential environmental analysis were placed directly into laboratory-supplied glass jars and vials at the time of sampling. Soil samples collected for potential volatile organic analysis were packed in jars with minimal headspace to reduce the volatilization of organic compounds. Soil samples for potential analysis of VOCs, BTEX, THMs, and PHCs (F1 fraction) were collected using a laboratory-supplied Terra Core® Soil Sampler and placed directly into vials pre-charged with methanol preservative. The sample containers were kept in a cooler with ice during field storage and transportation to the laboratory. The samples were kept out of direct sunlight during field storage.

Field screening for total organic vapours (TOVs) in the collected soil samples was completed utilizing a RKI Eagle 2 portable gas detection instrument, which includes both a catalytic combustible gas (CCG) sensor and a photoionization detector (PID). The RKI Eagle 2 used is capable of detecting vapours typically emitted by fuels, oils and solvents (i.e., including chlorinated solvents). The instrument was operated with the methane elimination mode on.

The soil samples were also examined in the field for visual and/or olfactory indications of potential environmental impact. Selected soil samples were retained for potential laboratory analyses. Additional details regarding the field screening measurements are provided below in Section 5.4.

The soil samples selected for laboratory analysis by Watters Environmental generally represented the "worst-case" samples. Worst-case samples were those that appeared most likely to be environmentally impacted, based on field visual and olfactory observations, TOV readings and/or sampling location/depth. A summary of the field observations recorded for soil samples collected from the Phase Two Property is presented in the borehole logs attached in Appendix C.

The soil samples collected from the Phase Two Property for laboratory analyses were recorded on Chain-of-Custody forms, copies of which were retained within Watters Environmental's files upon sample submission. The samples were packed in ice-chilled coolers, with the Chain-of-Custody forms inside, and picked up by the laboratory.

5.4 Field Screening Measurements

Field screening of collected soil samples was undertaken from the boreholes advanced. TOV measurements were taken inside plastic bags on the day of the drilling and sampling using an RKI Eagle 2 PID. Details of the instrument are provided below.

i. RKI Eagle 2 is manufactured by RKI Instruments;

ii. RKI Eagle 2 is a portable gas-detector which includes a PID, and operates by photoionization and ion current measurement of VOC gases such as hydrocarbon fuels, solvents and semiconductor gases;

iii. The RKI Eagle 2 is capable of detecting combustible soil vapours and was operated in methane elimination mode;

iv. The detection limit of the apparatus was between 0 to 50,000 parts per million by volume (ppm_v), with an accuracy of ±50 ppm_v or 5% of the reading, whichever is greater. The RKI Eagle 2 is also capable of detecting vapours typically emitted by chlorinated solvents, with a detection limit of between 0 to 4,000 ppm_v with an accuracy of ± 15% of the reading;

v. The RKI Eagle 2 is calibrated to 100 ppm isobutylene (for the PID) and 1,650 ppm hexane (for the CCG sensor). During Watters Environmental investigation calibration of the unit to isobutylene was +/- 1 ppm; and

vi. The RKI Eagle 2 was calibrated according to the manufacturer's instructions and Watters Environmental's Standard Operating Procedures, prior to collecting field measurements.

In accordance with Watters Environmental's sampling protocols, the samples were kept out of direct sunlight during field storage and the headspace measurements were made after bags reached approximately 15 degrees Celsius to allow for volatilization. To measure the combustible vapours, the tip of the probe was inserted into the sealable plastic bag containing the soil and the maximum reading registered by the PID and CCG sensor during the first 15 seconds of measurement was recorded. This procedure is consistent with the recommended field screening procedures contained in the MECP publication "*Guidance on sampling and Analytical Methods for Use at Contaminated Sites in Ontario*", dated December 1996.

A summary of the field observations (i.e., soil stratigraphy, staining and odours, if any, etc.) and CCG/PID readings recorded for soil samples collected from the Phase Two Property is presented in the borehole logs attached in Appendix C. The geological profile is summarized in Section 6.1.

The TOV measurements, along with field observations (e.g., visual or olfactory evidence of impacts) and sample depth, were used to determine worst-case soil samples for laboratory analysis. A second soil sample in each borehole was also analyzed for vertical delineation, where applicable.

5.5 Ground Water: Monitoring Well Installation

All monitoring wells as part of Watters Environmental's Phase Two ESA were installed by Pontil. Monitoring wells were installed in three of the seven boreholes drilled [i.e., installed in BH19-01(MW), BH19-02(MW), and BH19-04(MW)]. As noted, there were two monitoring wells installed in 2018 by Exp as part of a previous investigation of the Phase Two Property (i.e., BH5 and BH6). Watters Environmental notes that only BH5 is located on the Phase Two Property. Watters Environmental was not involved with these well installations but utilized BH5 to obtain water level measurements (no groundwater samples were collected by Watters Environmental).

The monitoring wells as part of Watters Environmental's current investigation were installed by advancing boreholes using a CME-75 truck-mounted drilling rig with hollow-stem augers. Representative soil samples were collected at regular intervals (typically at 0.76-metre intervals) in each of the boreholes (prior to the installation of the monitoring wells). Between sampling depths, the split-spoon sampler was brushed clean of soil, washed in water containing phosphate-free detergent and rinsed in potable water. Clean augers were used between each borehole location.

The wells were constructed with 50-mm diameter Schedule 40 PVC pipes, including a 3.05-metre long screened section with a factory machined slot width of 0.25 mm. The well screens were approximately 3.05 metres in length. All solid pipe and screen sections were wrapped in plastic prior to being installed in order to minimize the potential for contamination. At the base of the monitoring well, a PVC slip cap was attached to prevent the influx of sediment.
Clean silica sand and bentonite were supplied by the driller and placed in the annular space between the pipe and the sides of the borehole. The monitoring wells were constructed by extending the sand filter pack approximately 0.3 metres above the top of the well screen and then placing a layer of bentonite on top of the sand filter pack to approximately 0.3 mbgs. Flushmount protective steel casings were installed for all three monitoring wells. Table 6 below provides the details of the monitoring well installation and construction.

Table 6: Summary of Monitoring Well Construction

MW ID	Bottom Depth (mbgs)	Well Construction								
		Screen Length (m)	Depth of Screen (mbgs)		Sand Filter Pack (mbgs)		Bentonite (mbgs)		Cement (mbgs)	
BH19-01(MW)	6.10	3.05	3.05	6.10	2.44	6.10	0.30	2.44	0.30	Surface
BH19-02(MW)	8.22	3.05	5.17	8.22	4.58	8.22	0.30	4.58	0.30	Surface
BH19-04(MW)	9.75	3.05	6.71	9.75	6.10	9.75	0.30	6.10	0.30	Surface

The monitoring wells were developed using dedicated low-density polyethylene tubing and a Waterra® foot valve sampling device, to allow for the influx of representative groundwater into the well. The volume of water in the well, including the borehole annulus, was calculated and then a minimum of three well volumes of groundwater was purged from the monitoring well (or the well was purged until dry two consecutive times).

5.6 Ground Water: Field Measurement of Water Quality Parameters

During development and before collecting the groundwater samples, the ground water temperature, pH, oxidation-reduction potential, conductivity, turbidity and dissolved oxygen (DO) were measured and recorded from monitoring wells BH19-01(MW), BH19-02(MW), and BH19-04(MW) using a Hanna HI9828 multi-parameter instrument, to ensure that representative groundwater samples were collected from each of the monitoring well locations (i.e., after three consecutive stabilized readings were measured).

5.7 Ground Water: Sampling

One round of groundwater sampling was conducted. Monitoring wells BH19-01(MW), BH19-02(MW), and BH19-04(MW) were initially purged/developed on October 18, 2019, and then sampled on October 22, 2019.

Groundwater sampling was conducted using a low flow peristaltic pump on all of the groundwater monitoring wells. During purging and before collecting the groundwater samples (where sufficient groundwater was present), the groundwater temperature, pH, oxidation-reduction potential, conductivity, turbidity, and DO were measured and recorded using a multi-parameter probe (i.e., Hanna HI9828), to ensure that representative groundwater samples were collected (i.e., after three consecutive stabilized readings were measured).

The groundwater samples collected at the Phase Two Property were placed directly into the appropriate laboratory-prepared sterile sample containers for the parameters of interest and the laboratory supplied pre-charged sample containers with preservatives for the required parameters. New nitrile disposable gloves were used for each monitoring well to prevent cross-contamination.

The groundwater samples collected at the Phase Two Property were recorded on Chain-of-Custody forms, copies of which were retained within Watters Environmental's files upon sample submission. The samples were packed by Watters Environmental in ice-chilled coolers, with the Chain-of-Custody forms, and transported directly to the laboratory.

Table 7 below summarizes the sampling plan and rationale for groundwater monitoring of all monitoring wells at the Phase Two Property as part of the Phase Two ESA. A detailed sampling and analysis plan for this assessment is presented in Appendix A.

Table 7: Groundwater Monitoring Wells Sampling Rationale

Sample Collection Location	Sample Type	Rationale
BH19-01(MW)	Monitoring Well	To assess the groundwater quality in the north-central portion of the Phase Two Property, within the historic closed landfill (i.e., APECs 1A / 1B).
BH19-02(MW)	Monitoring Well	To assess the groundwater quality on the central portion of the Phase Two Property, down/transgradient of the historic closed landfill (i.e., APECs 1A and 1B) for lateral coverage.

Table 7: Groundwater Monitoring Wells Sampling Rationale (Continued)

Sample Collection Location	Sample Type	Rationale
BH19-04(MW)	Monitoring Well	To assess the groundwater quality on the northeastern portion of the Phase Two Property, upgradient of the historic closed landfill (i.e., APECs 1A and 1B) for lateral coverage.

5.8 Sediment: Sampling

No sediment sampling was completed as part of this investigation, as there are no water bodies or sediment on the Phase Two Property.

5.9 Analytical Testing

The soil and groundwater samples were analyzed by SGS Canada Inc. (SGS) of Lakefield, Ontario. SGS is accredited by the Canadian Association of Laboratory Accreditation Inc. (CALA) (Accreditation No. A1999) and meets the requirements of Section 47 of O. Reg. 153/04 certifying that the analytical laboratory be accredited in accordance with the International Standard ISO/IEC 17025 and with standards developed by CALA. The laboratory certificates-of-analysis are provided in Appendix D.

SGS's contact information is provided as follows:

SGS Canada Inc.
185 Concession Street
Lakefield, Ontario
K0L 2H0
Contact Person During the Phase Two ESA:
Brad Moore
brad.moore@sgs.com
(705) 652-2143

5.10 Residue Management Procedures

Soil cuttings were contained in 205-litre drums. Groundwater purged from the monitoring wells, and water used to wash the split-spoons and clean the groundwater monitoring and sampling equipment were stored in the same drums due to the low volume generated. Pontil used new clean augers for each of the monitoring well locations, and cleaned the augers back at their facilities. No free product or sheen was observed in the groundwater at the time of purging and sampling.

A representative soil sample was collected from the soil excavation/disposal activities for TCLP analysis for soil classification to determine disposal methods. The leachate from the TCLP sample was analyzed for metals, ORPs, VOCs, PCBs and benzo(a)pyrene. The laboratory certificate-of-analyses is provided in Appendix D. The concentrations were less than the standards in Schedule 4 of O. Reg. 558/00. Therefore, the waste cuttings were considered to be a non-hazardous solid waste.

Watters Environmental retained APEX Environmental Services Inc. (APEX) to remove and dispose of the drums off-Site. APEX collected the drums on November 13, 2019. A copy of the waste disposal document is provided in Appendix E.

5.11 Elevation Surveying

The land surveying of the lateral locations and elevations of all boreholes and monitoring wells installed in the current Phase Two ESA, and the boreholes and monitoring wells installed by Exp on the Phase Two Property, was completed by J.D. Barnes Limited, located in Milton, Ontario, on November 6, 2019, using a geodetic benchmark. J.D. Barnes Limited completed the survey of the boreholes and monitoring wells by referencing a City of Burlington benchmark No 1081 and 1082 (elevation 157.586 metres and 139.47 metres, respectively). Elevations of the boreholes and monitoring wells are presented in the borehole logs in Appendix C.

5.12 Quality Assurance and Quality Control Measures (QA/QC)

Watters Environmental collected soil and groundwater samples and transferred them immediately into laboratory-supplied sampling containers. Details of the QA/QC measures for the sampling containers are summarized below:

Table 8: QA/QC Measures for Soil and Groundwater Sampling

Parameter	Sample Bottle	Preservative	Handling & Custody of Samples
Soil			
Metals & ORPs, PHCs (F2-F4), PCBs, PAHs, Reg. 347/558 TCLP	Amber glass Teflon lined lid	No Preservative	Field staff collected soil samples and placed them directly into labelled jars, prior to transferring them to SGS. All soil samples were kept in a cooler with ice from the time of collection until the time they were transferred to the laboratory's control under Chain of Custody procedures.
VOCs, BTEX, THMs, PHCs (F1)	Vial	Methanol	
Groundwater			
PHCs (F2-F4)	Amber Glass Bottle	HCl	Field staff collected groundwater samples and placed them directly into labelled jars, prior to transferring them to SGS. All groundwater samples were kept in a cooler with ice from the time of collection until the time they were transferred to the laboratory's control under Chain of Custody procedures.
PAH	Amber Glass Bottle	No Preservative	
Dissolved Metals	Plastic Bottle	Nitric Acid	
Mercury	Amber Glass	HCl	
Cr VI	Plastic Bottle	Ammonium sulphate/hydroxide	
General Analysis	Plastic Bottle	No Preservative	
VOCs, BTEX, THMs, PHCs (F1)	Vials	$NaHSO_4$	

Field investigations and sample handling procedures were conducted in accordance with Watters Environmental's Standard Operating Procedures for Phase Two ESAs. To minimize the potential for cross-contamination of samples at differing locations, the following procedures were used by Watters Environmental field staff:

- New disposable gloves were used for each sample collected;
- Non-dedicated tools and equipment were cleaned between sample collections using distilled water and phosphate-free detergent;
- Soil and groundwater samples were placed in laboratory-supplied containers suitable for the analysis;
- Wells were purged with dedicated, Waterra® tubing, for each well; and
- Water samples were retrieved with dedicated, low flow tubing, for each well.

Samples were labelled and stored in a cooler with ice while in the field and during transportation to the office and/or laboratory.

All soil samples submitted for chemical analysis were contained in laboratory-supplied glass containers. Samples to be analyzed for metals and ORPs, PAHs, PCBs, and PHCs in the F2 to F4 fractions were submitted in glass jars with Teflon-lined lids. Soil samples submitted for analysis of VOCs, BTEX, THMs, and PHCs in the F1 fraction were collected using TerraCore® samplers and placed in vials containing a pre-measured amount of methanol, both of which were provided by the laboratory. A new TerraCore® sampler was used each soil sample collected for potential analysis of VOCs, BTEX, THMs, and PHCs in the F1 fraction.

The field instruments used in the Phase Two ESA, including the RKI Eagle 2, were calibrated before using in the field to ensure that they were operating properly.

O. Reg. 153/04 requires at least one field duplicate sample to be collected for every 10 soil samples submitted for laboratory analysis. The Phase Two ESA sampling program followed these requirements. Note that the duplicate sampling program is in reference to the samples collected by Watters Environmental, as Watters Environmental QP_{ESA} did not supervise the Phase II ESA conducted by Exp. The Exp data is included in this report for presentation purposes only.

Watters Environmental did not note any deviations from the procedures set out in the quality assurance and quality control program set out in the sampling and analysis plan.

6.0 REVIEW AND EVALUATION

6.1 Geology

A total of 7 boreholes and 2 test pits were drilled on the Phase Two Property. All boreholes were advanced within the asphalt-paved parking lot. The asphalt thickness ranged between 0.10 to 0.14 metres, and was underlain by a granular base that ranged between 0.07 to 0.18 metres in thickness. As noted in Section 3.2, in 2018 Exp advanced five boreholes (i.e., BH1 to BH5) as part of a geotechnical investigation, and two boreholes (i.e., BH101 and BH102) as part of an environmental soil investigation on the Phase Two Property. Exp noted the asphalt to be between 0.09 to 0.145 metres in thickness and granular based between 0.10 and 0.29 metres in thickness.

Fill material was encountered in 2 of 7 the boreholes advanced as part of the Phase Two ESA [i.e., BH19-01 and BH19-03] and in three of the boreholes (i.e., BH1, BH101 and BH102) advanced by Exp in 2018. The fill material encountered in BH19-01 and BH19-03 consisted of clayey silt with some sand, silt and gravel, brick, and glass and ceramic fragments, but no evidence of aesthetic impacts (i.e., no staining or odours) or decomposable wastes. The fill extended to a depth of 11.29 mbgs in BH19-01 and 5.33 mbgs in BH19-03. The fill was underlain by a thin layer of silty clay and weather shale in BH19-01, and by clayey silt in BH19-03. The fill was encountered only within the landfill portion of the Phase Two Property.

No fill material was encountered in boreholes BH19-02(MW), BH19-04(MW), and BH19-05 to BH19-07, all of which were located beyond the limits of the landfill. Native soils under the asphalt and granular base encountered in these boreholes consisted of a clayey silt unit with trace sand and gravel to termination depths. No evidence of aesthetic impacts (i.e., no staining or odours) was present.

For the 2018 Exp boreholes, fill consisting of reworked clayey silt, some gravel and sand pockets (with glass, brick, and ceramic fragments) was observed in BH1 to a depth of approximately 10.17 mbgs. Exp did also did not observe any decomposable organic wastes. A clayey silt deposit was encountered underneath the fill material in BH1 to a depth of approximately 11.77 mbgs. Shale bedrock was encountered below the clayey silt. Boreholes BH2 to BH5 consisted of a clayey still till with sand seams and trace amount of gravel below the asphaltic concrete and granular base to the borehole termination depths of 9.72 to 9.76 mbgs. No indication of waste or deleterious materials were observed in BH2 to BH5.

Exp noted that the stratigraphy of BH101 and BH102 (below the asphalt and granular) consisted of a clayey silt (re-worked) fill to approximately 0.5 to 0.8 mbgs. Land fill material consisting of sand, gravel, glass, brick, ceramics and ash was encountered below the fill in both BH101 and BH102 to a maximum depth of 3.1 mbgs and 5.9 mbgs, respectively. Native material consisting of a clayey silt was encountered beneath the landfill material in both BH101 and BH102. A weathered shale was encountered in BH102, beneath the native clayey silt layer, at approximately 9.4 mbgs.

Weathered shale bedrock or fragments of weathered shale was encountered in borehole BH19-01(MW) at a depth of between approximately 11.29 and 11.79 mbgs. Details of the boreholes are provided in the borehole logs in Appendix C.

6.2 Ground Water: Elevations and Flow Direction

Groundwater monitoring wells were installed in boreholes BH19-01(MW), BH19-02(MW) and BH19-04(MW). The well screens in the monitoring wells were 3.05 metres in length. The well screen intervals were situated based on soil conditions observed (i.e., visual evidence of saturation) during the drilling activities, as well as groundwater level data collected from the existing groundwater monitoring wells on the Phase Two Property. The screens in the monitoring wells were generally located within the native silty clay layer, with the exception of BH19-01(MW) which was installed within the landfilled material. As noted, one groundwater monitoring well previously installed by Exp in 2018 (i.e., BH5) was located on the east-central portion of the Phase Two Property; however, it was not sampled as part of Watters Environmental's Phase Two ESA, as it was previously sampled by Exp. Watters Environmental is not aware of any other previously installed groundwater monitoring wells on the Phase Two Property.

Groundwater levels were monitored on the following dates: October 18, 2019 (prior to purging); and October 22, 2019 (following purging prior to low-flow sampling). Groundwater levels were then measured again on November 6, 2019. Water level observations were recorded in the field as referenced from the depth below the top of the pipe.

The geodetic groundwater elevation was then calculated based on the geodetic elevations obtained during the borehole elevation survey by J.D. Barnes Limited. All measured water levels are summarized in Table 9 below.

Table 9: Groundwater Level Monitoring Data

Monitoring Well	Ground Surface Elevation (masl)	Top of Pipe Elevation (masl)	Oct 18/19	Oct 22/19	Nov 6/19
			Groundwater Depth from Top of Pipe (mbtp)		
BH19-01(MW)	138.57	138.42	4.56	4.65	4.53
BH19-02(MW)	137.31	137.14	7.40	6.05	3.02
BH19-04(MW)	138.74	138.63	4.58	3.22	2.35
BH5	138.19	138.10	N/A	N/A	0.62

Notes: masl – metres above sea level, mbtp – metres below top of pipe, N/A – Not Applicable (well not measured)

As shown on the above table, water level measurements were collected at various times, as the monitoring wells were not all installed at the same time. In the most recent measurements on November 6, 2019, the groundwater level elevations in the wells monitored ranged from 133.89 masl to 137.57 masl. Note that the water levels measured in monitoring wells BH19-02(MW), BH19-04(MW), and BH5 were at a higher elevation than where evidence of groundwater was observed in-situ (i.e., where the well screens were installed, which was deeper than 3.05 mbgs) due to hydrostatic pressure in the clayey silt unit.

Watters Environmental did not detect the presence of free phase product during the measurements of water levels in the monitoring wells or during the purging and sampling activities. Given that no visual evidence of free phase product was observed during drilling, monitoring and sampling activities, Watters Environmental did not utilize an oil-water interface probe to determine the water levels, to avoid potential cross-contamination (even though Watters Environmental cleans its probe after every usage).

The shallow groundwater flow direction is shown on Figure 8. Based on the topography and Hager Creek located approximately 20 metres west of the Phase Two Property, groundwater was inferred to flow in a westerly direction. Based on groundwater elevation measurements on November 6, 2019, shallow groundwater on the Phase Two Property was determined to flow in an south-southwest direction.

Given the known conditions in the area of the Phase Two Property, topography and location of the Hager Creek (i.e., steep slope to the west), no significant temporal variation in flow direction is anticipated. Regardless of the time of year (i.e., season), the shallow groundwater is expected to generally flow in a south-southwesterly direction.

6.3 Ground Water: Hydraulic Gradients and Conductivity

The horizontal hydraulic gradients were calculated based on the groundwater levels measured on November 6, 2019. Based on the data obtained, the horizontal gradient for the shallow groundwater level was calculated to range between approximately 0.023 to 0.045, with an average of 0.034.

As noted, the upper soil is comprised of medium to fine grained clayey silt fill with and is underlain by a saturated native clayey silt unit. The grain size analysis of two soil samples confirmed that the soil underlying the Phase Two Property is primarily comprised of fine-textured soils. Based on published literature (Freeze and Cherry, 1979), the clayey silt soil is expected to have a hydraulic conductivity ranging between 10^{-7} and 10^{-9} metres/second.

As described below in Section 6.7, metals-impacted groundwater was identified in one monitoring well inside the landfill, and uranium in one monitoring well outside, and up/transgradient, of the landfill contained a uranium exceedance. As described in Section 6.10, it is the QP's opinion that drilling into the vertical bedrock to vertically delineate the metals-impacted groundwater is not warranted, as per the Non-Standard Delineation allowance in Section 7.1 of Schedule E in O. Reg. 153/04. As such, the vertical hydraulic gradient was not determined, as there was no deeper monitoring well installed in the underlying bedrock.

6.4 Fine – Medium Soil Texture

According to O. Reg. 153/04, as amended, Section 42(2), a soil is classified as coarse-textured if more than 50% of the soil particles that compose the sample are 75 micrometres (µm) or larger in mean diameter. Conversely, a soil is classified as medium to fine-textured if more than 50% of the soil particles is smaller than 75 µm in mean diameter. Section 42 (1) in O. Reg. 153/04 states:

- If, in respect of a contaminant, a cell in a table in the Soil, Ground Water and Sediment Standards sets one standard for coarse textured soil and another standard for medium and fine textured soil for the contaminant, the qualified person shall apply the following rules in determining which standard applies to a property for that contaminant:

    1. If the qualified person determines that at least 1/3 of the soil at the **property**, measured by volume, consists of coarse textured soil, the qualified person shall apply the standard for coarse textured soil.

    2. In any other case, the qualified person may apply the standard for medium and fine textured soil. O. Reg. 153/04, s. 42 (1).

Grain size distribution (GSD) analyses was conducted on 2 representative soil samples collected from 2 boreholes drilled at the Phase Two Property. The grain size analysis results for the soil samples collected from the Phase Two Property are provided in the table below.

Table 10: Soil Particle Size and Classification

Soil Sample Identification	Particle Size (% < 75 µm Diameter)	Particle Size Classification
BH19-02(MW)-3	83.6	Medium and fine textured soil
BH19-04(MW)-13	71.8	Medium and fine textured soil

The soil samples for grain size analysis were collected from BH19-02(MW)-3 and BH19-04(MW)-13, as they were representative of the predominant soil type on the **Phase Two Property** (i.e., clayey silt). In all five boreholes drilled by Watters Environmental that were beyond the boundaries of the landfill, native clayey silt was present directly below the asphalt and granular base. The lab analyses confirmed that the native clayey silt is fine to medium textured. The soil in the landfill was also predominantly clayey silt, mixed in with the inert waste. Even if the soil in the landfill was conservatively assumed to be coarse-grained, it represents less than 10% of the

soil by volume on the Phase Two Property [i.e., **less than 1/3 of the property, not the APEC, as per Section 42(1)**]. As such, it is the QP_{ESA}'s opinion that the grain size assessment was appropriate. Regardless, the Table 1 Site Condition Standards have only one set of standards (i.e., they are not dependent on grain size).

6.5 Soil: Field Screening

The soil samples from each borehole were examined in the field for lithology as well as for aesthetic evidence of impacts (debris, staining and odours). No evidence of odours or staining was noted in the soil samples collected from any of the boreholes drilled.

The headspace (TOV) measurements are shown in the table presented below. The maximum reading recorded on the CCG sensor during this investigation was 25 ppm in sample BH19-05 SS8, which was obtained from a depth of between 5.33 – 5.94 mbgs. The maximum reading recorded on the PID during this investigation was 32 ppm in soil sample TP1-101, obtained from a depth of between 0.15 – 0.30 mbgs. The low CCG and PID readings confirmed the observations made in the soil samples during the drilling and test pitting activities (i.e., no visual or olfactory evidence of petroleum or solvent impacts was detected).

In general, all headspace screening measurements were found to be low with no obvious evidence of a significant presence of hydrocarbons or other volatile compounds (see Table 11 for a Summary of the TOV Readings collected at the Phase Two Property below).

Table 11: Summary of the Total Organic Vapour Readings

Borehole/Test Pit ID	Sample ID	Depth (mbgs)	Total Organic Vapour (TOV) Reading (ppm)	
			CCG	PID
BH19-01(MW)	SS1	0.0 – 0.61	0	1
	SS2	0.76 – 1.37	0	1
	SS3	1.52 – 2.13	0	1
	SS4	2.29 – 2.89	0	1
	SS5	3.05 – 3.66	0	1
	SS6	3.81 – 4.42	0	1
	SS7	4.57 – 5.18	0	1
	SS8	5.33 – 5.94	0	1
	SS9	6.10 – 6.71	0	1
	SS10	6.86 – 7.47	0	1
	SS11	7.62 – 8.23	0	1
	SS12	8.38 – 8.99	0	1
	SS13	9.14 – 9.75	0	1
	SS14	9.91 – 10.52	0	1
	SS15	10.67 – 11.28	0	1
	SS16	11.43 – 12.04	0	1
BH19-02(MW)	SS1	0.0 – 0.61	0	0
	SS2	0.76 – 1.37	0	1
	SS3	1.52 – 2.13	0	1
	SS4	2.29 – 2.89	0	0
	SS5	3.05 – 3.66	0	1
	SS6	3.81 – 4.42	0	1
	SS7	4.57 – 5.18	0	1
	SS8	5.33 – 5.94	0	1
	SS9	6.10 – 6.71	0	1
	SS10	6.86 – 7.47	0	1
	SS11	7.62 – 8.23	0	1
	SS12	8.38 – 8.99	0	1

Table 11: Summary of the Total Organic Vapour Readings (Continued)

Borehole/Test Pit ID	Sample ID	Depth (mbgs)	Total Organic Vapour (TOV) Reading (ppm)	
			CCG	PID
BH19-03	SS1	0.0 – 0.61	0	1
	SS2	0.76 – 1.37	0	1
	SS3	1.52 – 2.13	0	1
	SS4	2.29 – 2.89	0	1
	SS5	3.05 – 3.66	0	1
	SS6	3.81 – 4.42	0	1
	SS7	4.57 – 5.18	0	1
	SS8	5.33 – 5.94	0	1
	SS9	6.10 – 6.71	0	1
	SS10	6.86 – 7.47	0	1
BH19-04(MW)	SS1	0.0 – 0.61	0	1
	SS2	0.76 – 1.37	0	0
	SS3	1.52 – 2.13	0	0
	SS4	2.29 – 2.89	0	1
	SS5	3.05 – 3.66	0	1
	SS6	3.81 – 4.42	0	1
	SS7	4.57 – 5.18	0	1
	SS8	5.33 – 5.94	0	1
	SS9	6.10 – 6.71	0	1
	SS10	6.86 – 7.47	0	1
	SS11	7.62 – 8.23	0	1
	SS12	8.38 – 8.99	0	1
	SS13	9.14 – 9.75	0	1
BH19-05	SS1	0.0 – 0.61	5	0
	SS2	0.76 – 1.37	5	0
	SS3	1.52 – 2.13	5	0
	SS4	2.29 – 2.89	5	0
	SS5	3.05 – 3.66	5	0
	SS6	3.81 – 4.42	5	0
	SS7	4.57 – 5.18	5	0
	SS8	5.33 – 5.94	25	0
	SS9	6.10 – 6.71	5	0
	SS10	6.86 – 7.47	5	0

Table 11: Summary of the Total Organic Vapour Readings (Continued)

Borehole/Test Pit ID	Sample ID	Depth (mbgs)	Total Organic Vapour (TOV) Reading (ppm)	
			CCG	PID
BH19-06	SS1	0.0 – 0.61	0	1
	SS2	0.76 – 1.37	0	1
	SS3	1.52 – 2.13	0	1
	SS4	2.29 – 2.89	0	1
	SS5	3.05 – 3.66	0	1
	SS6	3.81 – 4.42	0	1
	SS7	4.57 – 5.18	0	0
	SS8	5.33 – 5.94	0	0
	SS9	6.10 – 6.71	0	0
BH19-07	SS1	0.0 – 0.61	0	1
	SS2	0.76 – 1.37	0	1
	SS3	1.52 – 2.13	0	1
	SS4	2.29 – 2.89	0	1
	SS5	3.05 – 3.66	0	1
TP19-101	S1	0.0 – 0.15	0	32
TP20-201	S1	0.0 – 0.15	0	0

mbgs – metres below ground surface
TOV readings were not taken where there was insufficient soil volume after jarring

6.6 Soil Quality

The COCs in soil associated with APECs 1A and 1B included metals, ORPs (including EC and SAR), PAHs, VOCs, BTEX. ,THMs, and PHCs (F1 to F4). The COC in soil associated with APEC 2 included PCBs and PHCs. As such, soil samples were analyzed for these COCs. The environmental quality of the soil at the Phase Two Property was assessed using the Table 1 SCS. The following table provides a summary of all soil samples collected from each of the boreholes drilled at the Phase Two Property that were submitted for laboratory analysis as part of the Phase Two ESA.

Table 12: Soil Sample Submission for Laboratory Analytical Testing

Borehole	Sample ID	Approx. Depth (m)	Date Sampled	Chemical Analysis				
				Metals & ORPs*	PHCs	VOCs**	PAHs	PCBs
BH19-01	BH19-01 (MW)-2	0.76 – 1.37	October 17, 2019	✓	-	-	✓	-
	BH19-102 [duplicate of BH19-01 (MW)-2]			✓	-	-	✓	-
	BH19-01 (MW)-7	4.57 – 5.18		-	✓	✓	-	-
	BH19-01 (MW)-14	9.91 – 10.52		✓	-	-	-	-
	BH19-01 (MW)-16	11.43 – 12.04		-	✓	✓	✓	-
BH19-02 (MW)	BH19-02 (MW)-1	0.0 – 0.61	October 15, 2019	✓	-	-	✓	-
	BH19-02 (MW)-3	1.52 – 2.13		grain size only	-	-	-	-
	BH19-02 (MW)-5	3.05 – 3.66		✓	✓	✓	✓	-

Table 12: Soil Sample Submission for Laboratory Analytical Testing (Continued)

Borehole	Sample ID	Approx. Depth (m)	Date Sampled	Chemical Analysis				
				Metals & ORPs*	PHCs	VOCs**	PAHs	PCBs
BH19-03	BH19-03-2	0.76 – 1.37	October 16, 2019	✓	-	-	-	-
	BH19-302 [duplicate of BH19-03-2]			✓	-	-	-	-
	BH19-03-4	2.29 – 2.89		-	-	-	✓	-
	BH19-304 [duplicate of BH19-03-4]			-	-	-	✓	-
	BH19-03-6	3.81 – 4.42		-	✓	✓	-	-
	BH19-03-8	5.33 – 5.94		-	✓	✓	-	-
	BH19-03-9	6.10 – 6.71		-	✓	✓	-	-
BH19-04 (MW)	BH19-04 (MW)-1	0.0 – 0.61	October 16, 2019	✓	-	-	✓	-
	BH19-04 (MW)-6	3.81 – 4.42		✓	-	-	✓	-
	BH19-04 (MW)-10	6.86 – 7.47		-	✓	✓	-	-
	BH19-400 [duplicate of BH19-04(MW)-10]			-	✓	✓	-	-
	BH19-04 (MW)-13	9.14 – 9.75		grain size only	-	-	-	-

Table 12: Soil Sample Submission for Laboratory Analytical Testing (Continued)

Borehole	Sample ID	Approx. Depth (m)	Date Sampled	Chemical Analysis				
				Metals & ORPs*	PHCs	VOCs**	PAHs	PCBs
BH19-05	BH19-05-1	0.0 – 0.61	October 17, 2019	✓	-	-	✓	-
	BH19-05-3	1.52 – 2.13		-	✓	✓	-	-
	BH19-05-4	2.29 – 2.89		✓	-	-	✓	-
	BH19-05-8	5.33 – 5.94		-	✓	✓	-	-
	BH19-508 (duplicate of BH19-05-8)			-	✓	✓	-	-
BH19-06	BH19-06-5	3.05 – 3.66	October 15, 2019	✓	✓	✓	✓	-
	BH19-06-9	6.10 – 6.71	October 16, 2019	✓	✓	✓	✓	-
BH19-07	BH19-07-2	0.76 – 1.37	October 17, 2019	✓	-	-	✓	-
	BH19-07-5	3.05 – 3.66		-	✓	✓	-	-
TP19-101	TP19-101-1	0.0 – 0.15	October 15, 2019	-	-	-	-	✓
	TP19-100-1 (duplicate of TP19-100-1)			-	-	-	-	✓
TP20-201	TP20-201-1	0.0 – 0.15	Nov 4, 2019	pH only	✓	-	-	-
	TP20-2000 (duplicate of TP20-201-1)	0.0 – 0.15	Nov 4, 2019	pH only	-	-	-	-

Notes: *ORPs include pH, arsenic (As), antimony (Sb), selenium (Se), boron-hot water soluble (B-HWS), hexavalent chromium (Cr VI), mercury (Hg), cyanide (CN-), electrical conductivity (EC) and sodium adsorption ratio (SAR)
** VOCs include BTEX, and THMs

A total of 26 soil samples (excluding soil samples collected and analyzed for grain size) from the 7 boreholes and 2 test pit locations were submitted for chemical analysis of the COCs. In addition, duplicate sets of samples were submitted for analyses for QA/QC purposes. As summarized in the table above, the following chemical analyses were conducted:

- 12 samples plus 2 duplicate samples analyzed for Metals;
- 12 samples plus 2 duplicate samples analyzed for ORPs (other than pH);
- 13 samples plus 3 duplicate samples analyzed for pH;
- 13 samples plus 2 duplicate samples analyzed for PHCs (Fractions F1 to F4);
- 12 samples plus 2 duplicate samples analyzed for VOCs, BTEX, and THMs;
- 12 samples plus 2 duplicate samples analyzed for PAHs; and
- 1 sample plus 1 duplicate sample analyzed for PCBs.

As shown, the number of duplicate samples meet the O. Reg. 153/04, as amended requirement of one field duplicate sample for every ten soil samples submitted for laboratory analysis. The MECP commented that the original 2 duplicates for "26" pH samples were not sufficient. Note that of these soil samples referenced by the MECP, only 14 were collected by Watters Environmental under the supervision of the QP_{ESA}. For these 14 samples collected by Watters Environmental, 2 duplicates were submitted for pH analysis, which meets the O. Reg. 153/04 requirements of 1 duplicate for every 10 samples (i.e., 12 original soil samples and 2 duplicates). The QP_{ESA} did not supervise the Exp investigation, and their data is included in this Phase Two ESA report for presentation purposes only. Regardless, Watters Environmental collected another soil sample with a duplicate on November 4, 2020 for pH analysis. As such, the 3 duplicate soil samples for the 13 original samples for pH analysis is more than what is required by O. Reg. 153/04.

Analysis of pH was conducted on 16 soil samples and was found to be within the acceptable range of 5 and 9 for surface soils and between 5 and 11 for sub-surface soils for all samples analyzed. In addition, 11 soil samples were analyzed for pH as part of the 2018 Exp investigation and were also found to be within the acceptable range for sub-surface soils. Therefore, the Phase Two Property would not be considered an environmentally sensitive area, with respect to pH (although there is an environmentally sensitive area within 30 metres of the Phase Two Property).

The laboratory certificates-of-analysis are provided in Appendix D, while all soil analytical data, including the maximum values for each parameter tested, are summarized in a table in Appendix F.

PHCs

The rationale and results for the selected soil samples submitted for PHCs laboratory analysis are shown in Table 13A below.

Table 13A: Soil Analytical Results for PHC Parameters

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-01 (MW)	BH19-01(MW)-7	To assess the soil quality and provide vertical delineation on the north-central portion of the Phase Two Property within the historic (closed) landfill, and to install a monitoring well for triangulation to determine the shallow groundwater flow direction.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH19-01(MW)-16			None	All parameter concentrations met the Table 1 SCS.
BH19-02(MW)	BH19-02(MW)-5	To assess the soil quality and provide lateral delineation on the central portion of the Phase Two Property down/transgradient of the historic (closed) landfill, and to install a monitoring well for triangulation to determine the shallow groundwater flow direction.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.

Table 13A: Soil Analytical Results for PHC Parameters (Continued)

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-04(MW)	BH19-04(MW)-10	To assess the soil quality and provide vertical and lateral delineation on the northeast portion of the Phase Two Property up/transgradient of the historic (closed) landfill, and to install a monitoring well for triangulation to determine the shallow groundwater flow direction.	1A / 1B	None	**Exceedance of PHC F2 (13 µg/g), at a depth of 6.86 – 7.47 mbgs.**
	BH19-400 (duplicate of BH19-04(MW)-10		1A / 1B	None	**Exceedance of PHC F2 (18 µg/g), at a depth of 6.86 – 7.47 mbgs.**
BH19-03	BH19-03-6	To assess the soil quality and provide vertical and lateral delineation on the north-central portion of the Phase Two Property within the historic (closed) landfill.	1A / 1B	None	**Exceedance of PHC F3 (452 µg/g) and PHC F4 (2,810 µg/g), at a depth of 3.81 – 4.42 mbgs.**
	BH19-03-8		1A / 1B	None	All parameter concentrations met the Table 1 SCS.
BH19-04(MW)	BH19-400 (duplicate of BH19-04(MW)-10	To assess the soil quality and provide vertical and lateral delineation on the northeast portion of the Phase Two Property up/transgradient of the historic (closed) landfill, and to install a monitoring well for triangulation to determine the shallow groundwater flow direction.	1A / 1B	None	**Exceedance of PHC F2 (18 µg/g), at a depth of 6.86 – 7.47 mbgs.**
BH19-04(MW)	BH19-400 (duplicate of BH19-04(MW)-10		1A / 1B	None	**Exceedance of PHC F2 (18 µg/g), at a depth of 6.86 – 7.47 mbgs.**

Table 13A: Soil Analytical Results for PHC Parameters (Continued)

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-05	BH19-05-3	To assess the soil quality and provide vertical and lateral delineation on the north-central portion of the Phase Two Property down/transgradient of the historic (closed) landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH19-05-8				**Exceedance of PHC F2 (19 µg/g), at a depth of 5.33 – 5.94 mbgs.**
	BH19-508 (duplicate of BH19-05-8)				**Exceedance of PHC F2 (19 µg/g), at a depth of 5.33 – 5.94 mbgs.**
BH19-06	BH19-06-5	To assess the soil quality and provide vertical and lateral delineation on the north-central portion of the Phase Two Property down/transgradient of the historic (closed) landfill.	1A / 1B	None	**Exceedance of PHC F2 (14 µg/g), at a depth of 3.05 – 3.66 mbgs.**
	BH19-06-9				**Exceedance of PHC F2 (21 µg/g), at a depth of 6.10 – 6.71 mbgs.**

Table 13A: Soil Analytical Results for PHC Parameters (Continued)

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-07	BH19-07-5	To assess the soil quality and provide lateral delineation on the northeast portion of the Phase Two Property up/transgradient of the historic (closed) landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
*BH1	BH1-SS4	**To assess the quality of the material within the suspected landfill.	1A/ 1B	None	All parameter concentrations met the Table 1 SCS.
*BH5	BH5-SS2	**No rationale provided by Exp but assumed to assess soil quality up/transgradient of the historic (closed) landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
*BH101	BH101-SS5	**To assess the quality and delineate the material within the suspected landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
*BH102	BH102-SS5	**To assess the quality of the material in the suspected landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH102-SS5-DUP 1 (duplicate of BH102-SS5)		1A / 1B	None	All parameter concentrations (F1 only) met the Table 1 SCS.
TP20-201	TP20-201-1	To assess the soil quality in the area of the transformer in the south-central area.	2	None	All parameter concentrations met the Table 1 SCS

Notes:

* Exp boreholes BH1, BH5, BH101 and BH102

** Rationale from December 2018 Exp ESI Report

VOCs, BTEX, and THMs

The rationale and results for the selected soil samples submitted for VOCs, BTEX, and THMs laboratory analysis are shown in Table 13B below.

Table 13B: Soil Analytical Results for VOC, BTEX, and THM Parameters

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-01(MW)	BH19-01(MW)-7	To assess the soil quality and provide vertical delineation on the north-central portion of the Phase Two Property within the historic (closed) landfill, and to install a monitoring well for triangulation to determine the shallow groundwater flow direction.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH19-01(MW)-16			None	All parameter concentrations met the Table 1 SCS.
BH19-02(MW)	BH19-02(MW)-5	To assess the soil quality and provide lateral delineation on the central portion of the Phase Two Property down/transgradient of the historic (closed) landfill, and to install a monitoring well for triangulation to determine the shallow groundwater flow direction.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
BH19-03	BH19-03-6	To assess the soil quality and provide vertical and lateral delineation on the north-central portion of the Phase Two Property within the historic (closed) landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH19-03-8				All parameter concentrations met the Table 1 SCS.

Table 13B: Soil Analytical Results for VOC, BTEX, and THM Parameters (Continued)

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-04(MW)	BH19-04(MW)-10	To assess the soil quality and provide vertical and lateral delineation on the northeast portion of the Phase Two Property up/transgradient of the historic (closed) landfill, and to install a monitoring well for triangulation to determine the shallow groundwater flow direction.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH19-400 (duplicate of BH19-04(MW)-10				All parameter concentrations met the Table 1 SCS.
BH19-05	BH19-05-3	To assess the soil quality and provide vertical and lateral delineation on the north-central portion of the Phase Two Property down/transgradient of the historic (closed) landfill.	1A / 1B	None	All parameter concentrations met the Table 9 SCS.
	BH19-05-8				All parameter concentrations met the Table 1 SCS.
	BH19-508 (duplicate of BH19-05-8)				All parameter concentrations met the Table 1 SCS.
BH19-06	BH19-06-5	To assess the soil quality and provide vertical and lateral delineation on the north-central portion of the Phase Two Property down/transgradient of the historic (closed) landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH19-06-9				All parameter concentrations met the Table 1 SCS.

Table 13B: Soil Analytical Results for VOC, BTEX, and THM Parameters (Continued)

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-07	BH19-07-5	To assess the soil quality and provide lateral delineation on the northeast portion of the Phase Two Property APEC 1 up/transgradient of the former (closed) landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
*BH1	BH1-SS4	**To assess the quality of the material within the suspected landfill.	1A / 1B	None	***All parameter concentrations met the Table 1 SCS.
*BH5	BH5-SS2	**No rationale provided by Exp but assumed to assess soil quality up/transgradient of the historic (closed) landfill.	1A / 1B	None	***All parameter concentrations met the Table 1 SCS.
*BH101	BH101-SS5	**To assess the quality and delineate the quality of the material within the suspected landfill.	1A / 1B	None	***All parameter concentrations met the Table 1 SCS.
*BH102	BH102-SS5	**To assess the quality of the material within the suspected landfill.	1A / 1B	None	***All parameter concentrations met the Table 1 SCS.
	BH102-SS5-DUP 1 (duplicate of BH102-SS5)		1A / 1B	None	***All parameter concentrations met the Table 1 SCS.

Notes:

* Exp boreholes BH1, BH5, BH101 and BH102

** Rationale from December 2018 Exp ESI Report

*** Sample only analyzed for BTEX

Metals and ORPs

The rationale and results for the selected soil samples submitted for metals and ORP laboratory analysis are shown in Table 13C below.

Table 13C: Soil Analytical Results for Metals and ORPs

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-01 (MW)	BH19-01(MW)-2	To assess the soil quality and provide vertical delineation on the north-central portion of the Phase Two Property within the historic (closed) landfill, and to install a monitoring well for triangulation to determine the shallow groundwater flow direction.	1A / 1B	None	**Exceedance of numerous metals, hydride metal parameters, and SAR at a depth of 0.76-1.37 mbgs (refer to Appendix F for parameter concentrations)**
	BH19-102 [duplicate of BH19-01(MW)-2]				**Exceedance of numerous metals, hydride metal parameters, and SAR at a depth of 0.76-1.37 mbgs (refer to Appendix F for parameter concentrations)**

Table 13C: Soil Analytical Results for Metals and ORPs (Continued)

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-01 (MW) (Continued)	BH19-01(MW)-14	To assess the soil quality and provide vertical delineation on the north-central portion of the Phase Two Property within the historic (closed) landfill, and to install a monitoring well for triangulation to determine the shallow groundwater flow direction.	1A / 1B	None	**Exceedance of numerous ORPs (including EC), hydride metals and metal parameters at a depth of 9.90-10.51 mbgs (refer to Appendix F for parameter concentrations)**
BH19-02 (MW)	BH19-02(MW)-1	To assess the soil quality and provide lateral delineation on the central portion of the Phase Two Property down/transgradient of the historic (closed) landfill, and to install a monitoring well for triangulation to determine the shallow groundwater flow direction.	1A / 1B	None	**Exceedance of EC (1.2 mS/cm) and SAR (14.8) at a depth of 0 – 0.61 mbgs**
	BH19-02(MW)-5				All parameter concentrations met the Table 1 SCS.

Table 13C: Soil Analytical Results for Metals and ORPs (Continued)

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-03	BH19-03-2	To assess the soil quality and provide vertical and lateral delineation on the north-central portion of the Phase Two Property within the historic (closed) landfill.	1A / 1B	None	**Exceedance of SAR (7.8) and EC (0.62 mS/cm) at a depth of 0.76 – 1.37 mbgs**
	BH19-302 (duplicate of BH19-03-2)				**Exceedance of SAR (7.2) and EC (0.63 mS/cm) at a depth of 0.76 – 1.37 mbgs**
	BH19-03-9				**Exceedance of SAR (3.9) and EC (0.89 mS/cm) at a depth of 6.10 – 6.71 mbgs**
BH19-04 (MW)	BH19-04(MW)-1	To assess the soil quality and provide vertical and lateral delineation on the northeast portion of the Phase Two Property up/transgradient of the historic (closed) landfill, and to install a monitoring well for triangulation to determine the shallow groundwater flow direction.	1A / 1B	None	**Exceedance of SAR (5.9) at a depth of 0 – 0.61 mbgs**
	BH19-04(MW)-6				All parameter concentrations met the Table 1 SCS.

Table 13C: Soil Analytical Results for Metals and ORPs (Continued)

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-05	BH19-05-1	To assess the soil quality and provide vertical and lateral delineation on the north-central portion of the Phase Two Property down/transgradient of the historic (closed) landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH19-05-4				All parameter concentrations met the Table 1 SCS.
BH19-06	BH19-06-5	To assess the soil quality and provide vertical and lateral delineation on the north-central portion of the Phase Two Property down/transgradient of the historic (closed) landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH19-06-9				All parameter concentrations met the Table 1 SCS.
BH19-07	BH19-07-2	To assess the soil quality and provide lateral delineation on the northeast portion of the Phase Two Property up/transgradient of the historic (closed) landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.

Table 13C: Soil Analytical Results for Metals and ORPs (Continued)

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
*BH1	BH1-SS3	**To assess the quality of the material within the suspected landfill.	1A / 1B	None	**Exceedance of numerous inorganic, hydride metals and metal parameters at a depth of 1.5 – 2.1 mbgs (refer to Appendix F for parameter concentrations)**
	BH1-SS4	**To assess the quality of the material within the suspected landfill.	1A / 1B	None	**Exceedance of numerous inorganic, hydride metals and metal parameters at a depth of 2.3 – 2.9 mbgs (refer to Appendix F for parameter concentrations)**
	BH1-SS11	**To assess the quality of the material within the suspected landfill.	1A / 1B	None	**Exceedance of numerous inorganic, hydride metals and metal parameters at a depth of 10.7 – 11.3 mbgs (refer to Appendix F for parameter concentrations)**

Table 13C: Soil Analytical Results for Metals and ORPs (Continued)

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
*BH1 (Continued)	BH1-SS12	**To assess the quality of the material within the suspected landfill.	1A / 1B	None	**Exceedance of Boron (5 µg/g) at a depth of 12.2-12.3 mbgs**
*BH2	BH2-SS3	**No rationale provided but assumed to assess soil quality up/transgradient of the historic (closed) landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
*BH5	BH5-SS2	**No rationale provided by Exp but assumed to assess soil quality up/transgradient of the historic (closed) landfill.	1A / 1B	None	**Exceedance of EC (0.71 mS/cm) at a depth of 0.8 – 1.4 mbgs**
*BH101	BH101-SS3	**To assess the quality and delineate the material within the suspected landfill.	1A / 1B	None	**Exceedance of numerous inorganic, hydride metals and metal parameters at a depth of 1.5 – 2.1 mbgs (refer to Appendix F for parameter concentrations)**

Table 13C: Soil Analytical Results for Metals and ORPs (Continued)

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
*BH102	BH102-SS4	**To assess the quality and delineate the material within the suspected landfill.	1A / 1B	None	**Exceedance of numerous inorganic, hydride metals and metal parameters at a depth of 2.3 – 2.9 mbgs (refer to Appendix F for parameter concentrations)**
	BH102-SS10	**To assess the quality and delineate the material within the suspected landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
TP20-201	TP20-201-1	To collect another sample and duplicate for pH analysis.	2	None	All parameter concentrations met the Table 1 SCS.

Notes:
* Exp boreholes BH1, BH2, BH5, BH101 and BH102
** Rationale from December 2018 Exp ESI Report

PAHs

The rationale and results for the selected soil samples submitted for PAHs laboratory analysis are shown in Table 13D below.

Table 13D: Soil Analytical Results for PAH Parameters

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication?	Result
BH19-01(MW)	BH19-01(MW)-2	To assess the soil quality and provide vertical delineation on the north-central portion of the Phase Two Property within the historic (closed) landfill, and to install a monitoring well for triangulation to determine the shallow groundwater flow direction.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH19-102 [duplicate of BH19-01(MW)-2]		1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH19-01(MW)-16		1A / 1B	None	All parameter concentrations met the Table 1 SCS.
BH19-02(MW)	BH19-02(MW)-1	To assess the soil quality and provide lateral delineation on the central portion of the Phase Two Property down/transgradient of the historic (closed) landfill, and to install a monitoring well for triangulation to determine the shallow groundwater flow direction.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH19-02(MW)-5		1A / 1B	None	All parameter concentrations met the Table 1 SCS.

Table 13D: Soil Analytical Results for PAH Parameters (Continued)

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication?	Result
BH19-03	BH19-03-4	To assess the soil quality and provide vertical and lateral delineation on the north-central portion of the Phase Two Property within the historic (closed) landfill.	1A / 1B	None	**Exceedance of numerous PAH parameters at a depth of 2.29 – 2.90 mbgs (refer to Appendix F for parameter concentrations)**
	BH19-304 (duplicate of BH19-03-4)		1A / 1B	None	**Exceedance of numerous PAH parameters at a depth of 2.29 – 2.90 mbgs (refer to Appendix F for parameter concentrations)**
	BH19-03-9		1A / 1B	None	All parameter concentrations met the Table 1 SCS.
BH19-04(MW)	BH19-04(MW)-1	To assess the soil quality and provide vertical and lateral delineation on the northeast portion of the Phase Two Property up/transgradient of the historic (closed) landfill, and to install a monitoring well for triangulation to determine the shallow groundwater flow direction.	1A / 1B	None	All parameter concentrations met the Table 9 SCS.
	BH19-04(MW)-6		1A / 1B	None	All parameter concentrations met the Table 1 SCS.

Table 13D: Soil Analytical Results for PAH Parameters (Continued)

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication?	Result
BH19-05	BH19-05-1	To assess the soil quality and provide vertical and lateral delineation on the north-central portion of the Phase Two Property down/transgradient of the historic (closed) landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH19-05-4		1A / 1B	None	All parameter concentrations met the Table 1 SCS.
BH19-06	BH19-06-5	To assess the soil quality and provide vertical and lateral delineation on the north-central portion of the Phase Two Property down/transgradient of the historic (closed) landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH19-06-9		1A / 1B	None	All parameter concentrations met the Table 1 SCS.
BH19-07	BH19-07-2	To assess the soil quality and provide lateral delineation on the northeast portion of the Phase Two Property up/transgradient of the historic (closed) landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
*BH1	BH1-SS12	**To assess the quality of the material with the suspected landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.

Table 13D: Soil Analytical Results for PAH Parameters (Continued)

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication?	Result
*BH101	BH101-SS3	**To assess the quality and delineate the material within the suspected landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
*BH102	BH102-SS4	**To assess the quality of the material within the suspected landfill.	1A / 1B	None	**Exceedance of numerous PAH parameters at a depth of 2.3 – 2.90 mbgs (refer to Appendix F for parameter concentrations)**
	BH102 SS10	**To assess the quality of the material within the suspected landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.

Notes:
* Exp boreholes BH1, BH5, BH101 and BH102
** Rationale from December 2018 Exp ESI Report

PCBs

The rationale and results for the selected soil samples submitted for PCBs laboratory analysis are shown in Table 13E below.

Table 13E: Soil Analytical Results for PCB Parameters

Borehole/Test Pit	Sample ID*	Rationale	APEC No.	LNAPL/ DNAPL indication?	Result
TP19-101	TP19-101-1	To assess the shallow soil quality on the south-central portion of the Phase Two Property, within the extent of the former potential PCB-containing pad-mounted transformer	2	None	All parameter concentrations met the Table 1 SCS.
	TP19-100-1 (duplicate of TP19-101-1)		2	None	All parameter concentrations met the Table 1 SCS.

Summary of Soil Analytical Results

The COCs that exceeded the Table 1 SCS consist of metals & ORPs, PHCs and PAHs. The EC and SAR exceedances can be attributed to municipal road salting activities, and do not result in chemical and/or biological transformation (discussed below). The metal, PHC, and PAH parameters that exceeded the Table 1 SCS can be attributed to the waste material placed in the landfill. These parameters are also not expected to undergo chemical or biological transformation.

No evidence of free product was observed during the borehole drilling, groundwater monitoring and/or sampling activities. The PHC and VOC concentrations do not indicate the presence of light or dense non-aqueous phase liquids. The concentrations measured and locations of the samples collected are presented in Appendix F (Soil Samples Compared to the SCS), and shown in plan view in Figures 9A to 9E, for PHCs, VOCs/BTEX/THM, metals and ORPs, PAHs, and PCBs, respectively. The maximum concentrations in soil are provided in a table in Appendix H.

A cross-section location plan is presented as Figure 10. The vertical and lateral extent of PHC contaminated soil, as well as the locations where soil samples met the Table 1 SCS are shown on Figures 11A and 11B. The vertical and lateral extent of metals and ORPs contaminated soil, as well as the locations where soil samples met the Table 1 SCS are shown on Figures 12A and 12B.

The vertical and lateral extent of PAH contaminated soil, as well as the locations where soil samples met the Table 1 SCS, are shown on Figures 13A and 13D.

With respect to EC and SAR concentrations present in soil in the Phase Two Property, it is the QP's opinion that these impacts are attributed to road salting activities, for de-icing purposes to keep the adjacent roadways, and within the parking lot and walking paths of the Phase Two Property, safe for automobile traffic and pedestrians under conditions of snow or ice or both. As provided for under Section 49.1 of O. Reg. 153/04, the concentrations of EC and SAR in soil are believed to be present in excess of the Table 1 SCS solely because a substance (e.g., road salt) has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both. The Phase Two Property has never been used for commercial bulk storage of salt for use at multiple properties or used as a municipal snow dump, and these types of facilities are not present within the Phase One Study Area. Therefore, the applicable Table 1 SCS is deemed not to be exceeded for the purpose of Part XV.1 of the Act. As such, all soil samples with elevated EC and SAR concentrations met the applicable Table 1 SCS for the Phase Two Property, and are not considered as contaminants of concern. Thus, no further delineation or investigation is required.

6.7 Ground Water Quality

The following table provides a summary of all groundwater samples submitted for laboratory analysis as part of the Phase Two ESA.

Table 14: Groundwater Sample Submission for Laboratory Analytical Testing

Monitoring Well	Sample Number	Well Screen	Date Sampled	Contaminants of Potential Concern Analyzed			
				VOCs ***	PHCs	M&I **	PAHs
BH19-01(MW)	BH19-01(MW)	3.05 – 6.10	October 22, 2019	✓	✓	✓*	✓
	BH1000-MW [duplicate of BH19-01(MW)]			✓	✓	✓*	✓

Table 14: Groundwater Sample Submission for Laboratory Analytical Testing (Continued)

Monitoring Well	Sample Number	Well Screen	Date Sampled	Contaminants of Potential Concern Analyzed			
				VOCs ***	PHCs	M&I **	PAHs
BH19-02(MW)	BH19-02(MW)	5.17 – 8.22	October 22, 2019	✓	✓	✓*	✓
BH19-04(MW)	BH19-04(MW)	6.71 – 9.75	October 22, 2019	✓	✓	✓*	✓

Notes:
* - Indicates that the groundwater was field filtered prior to collection in the Hexavalent Chromium (CrVI), Mercury, and ICPMS Metals sampling containers.
** - ORPs include pH, As, Sb, Se, Cr(VI), Hg, CN-, sodium and chloride
*** - VOCs include BTEX and THMs

A total of 3 groundwater samples from the 3 monitoring well locations, were submitted for chemical analysis of the COCs. In addition, 1 duplicate set of samples were submitted for analyses for QA/QC purposes. As summarized in the table above, the following chemical analyses were conducted:

- 3 groundwater samples plus 1 duplicate samples analyzed for VOCs, BTEX, and THMs;
- 3 groundwater samples plus 1 duplicate sample analyzed for PHCs Fractions F1-F4;
- 3 groundwater samples plus 1 duplicate sample analyzed for metals and/or ORPs; and
- 3 groundwater samples plus 1 duplicate sample analyzed for PAHs.

As shown, the number of duplicate samples meet the O. Reg. 153/04, as amended requirement of one field duplicate sample for every ten groundwater samples submitted for laboratory analysis.

No groundwater sampling was conducted for PCBs given that no evidence of impacts was identified in the surficial soils, and the soil concentrations met the Table 1 SCS.

The laboratory certificates-of-analysis are provided in Appendix D, while all groundwater analytical data, including the maximum values for each parameter tested, are summarized in a table in Appendix G.

PHCs

The rationale and results for the selected groundwater samples submitted for PHCs laboratory analysis are shown in Table 15A below.

Table 15A: Groundwater Analytical Results for PHC Parameters

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-01(MW)	BH19-01(MW)	To assess the groundwater conditions on the north-central portion of the Phase Two Property, downgradient of the closed historic landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
	BH1000-MW [duplicate of BH19-01(MW)]				
BH19-02(MW)	BH19-02(MW)	To assess the groundwater conditions on the central portion of the Phase Two Property, down/transgradient of the closed historic land fill, and to provide lateral coverage of the property.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
BH19-04(MW)	BH19-04(MW)	To assess the groundwater conditions on the northeastern portion of the Phase Two Property, to provide lateral coverage of the property.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
*BH5	BH5	**To assess groundwater quality in the eastern (up/transgradient) portion of the property.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.

Notes:
* Exp monitoring well BH5
** Rationale from December 2018 Exp ESI Report

VOCs, BTEX, and THMs

The rationale and results for the selected groundwater samples submitted for VOCs, BTEX and THMs laboratory analyses are shown in Table 15B below.

Table 15B: Groundwater Analytical Results for VOC, BTEX, and THM Parameters

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-01(MW)	BH19-01(MW) BH1000-MW [duplicate of BH19-01(MW)]	To assess the groundwater conditions on the north-central portion of the Phase Two Property, downgradient of the closed historic landfill.	1A/ 1B	None	All parameter concentrations met the Table 1 SCS.
BH19-02(MW)	BH19-02(MW)	To assess the groundwater conditions on the central portion of the Phase Two Property, down/transgradient of the closed historic land fill, and to provide lateral coverage of the property.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
BH19-04(MW)	BH19-04(MW)	To assess the groundwater conditions on the northeastern portion of the Phase Two Property, to provide lateral coverage of the property.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
*BH5	BH5	**To assess groundwater quality in the eastern (upgradient) portion of the property.	1A / 1B	None	***All parameter concentrations met the Table 1 SCS. Sample only analyzed for BTEX.

Notes:

* Exp monitoring well BH5

** Rationale from December 2018 Exp ESI Report

*** Sample only analyzed for BTEX

Metals and ORPs

The rationale and results for the selected groundwater samples submitted for metals and ORP laboratory analyses are shown in Table 15C below.

Table 15C: Groundwater Analytical Results for Metals and ORPs

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-01(MW)	BH19-01(MW) BH1000-MW [duplicate of BH19-01(MW)]	To assess the groundwater conditions on the north-central portion of the Phase Two Property, downgradient of the closed historic landfill.	1A / 1B	None	**Exceedance of numerous metal parameters, and sodium and chloride in the original sample and the duplicate (refer to Appendix G for parameter concentrations)**
BH19-02(MW)	BH19-02(MW)	To assess the groundwater conditions on the central portion of the Phase Two Property, down/transgradient of the closed historic land fill, and to provide lateral coverage of the property.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
BH19-04(MW)	BH19-04(MW)	To assess the groundwater conditions on the northeastern portion of the Phase Two Property, to provide lateral coverage of the property.	1A / 1B	None	**Exceedance of uranium (12.3 µg/L)**
*BH5	BH5	**To assess groundwater quality in the eastern (upgradient) portion of the property.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.

Notes:
* Exp monitoring well BH5
** Rationale from December 2018 Exp ESI Report

PAHs

The rationale and results for the selected groundwater samples submitted for PAHs laboratory analyses are shown in Table 15D below.

Table 15D: Groundwater Analytical Results for PAH Parameters

Borehole	Sample ID	Rationale	APEC No.	LNAPL/ DNAPL indication ?	Result
BH19-01(MW)	BH19-01(MW) BH1000-MW [duplicate of BH19-01(MW)]	To assess the groundwater conditions on the north-central portion of the Phase Two Property, downgradient of the closed historic landfill.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
BH19-02(MW)	BH19-02(MW)	To assess the groundwater conditions on the central portion of the Phase Two Property, down/transgradient of the closed historic land fill, and to provide lateral coverage of the property.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
BH19-04(MW)	BH19-04(MW)	To assess the groundwater conditions on the northeastern portion of the Phase Two Property, to provide lateral coverage of the property.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.
*BH5	BH5	**To assess groundwater quality in the eastern (upgradient) portion of the property.	1A / 1B	None	All parameter concentrations met the Table 1 SCS.

Notes:
* Exp monitoring well BH5
** Rationale from December 2018 Exp ESI Report

Summary of Groundwater Analytical Results

The COCs that exceeded the Table 1 SCS consist of metals, sodium and chloride in one monitoring well, and only uranium in a second well. The sodium and chloride exceedances can be attributed to municipal road salting activities, and do not result in chemical and/or biological transformation (discussed above in the soil section). The metal parameters that exceeded the Table 1 SCS can be attributed to the waste material placed in the landfill. These parameters are also not expected to undergo chemical or biological transformation.

There was no visual or olfactory evidence of petroleum or solvent impacts in the groundwater during the purging and sampling activities, and no evidence of free product was observed. In addition, the concentrations did not indicate the presence of light or dense non-aqueous phase liquids.

A summary of the concentrations of the groundwater samples collected from the Phase Two Property are provided in the table in Appendix G. The maximum concentrations in groundwater are provided in a table in Appendix H.

The locations of the samples collected for analysis of PHCs, VOCs/BTEX/THM, metals and ORPs, and PAHs, are presented on Figures 14A, 14B, 14C, and 14D, respectively. Cross-sections of the metals exceedances in groundwater are presented in Figures 15A (cross-section A-A') and 15B (cross-sections B-B').

6.8 Sediment Quality

No sediment sampling was conducted as part of this investigation, as there are no water bodies or sediment on the Phase Two Property.

6.9 Quality Assurance and Quality Control Results

6.9.1 Soil QA/QC Results

A duplicate soil samples collected as part of the Phase Two ESA drilling program are summarized as follows:

- Soil sample BH19-102 was collected as a duplicate soil sample of BH19-01(MW)-2, and was submitted to the laboratory for analysis of metals and ORPs, and PAHs;

- Soil sample BH19-302 was collected as a duplicate soil sample of BH19-03-2, and was submitted to the laboratory for analysis of metals and ORPs;

- Soil sample BH19-304 was collected as a duplicate soil sample of BH19-03-4, and was submitted to the laboratory for analysis of PAHs;

- Soil sample BH19-400 was collected as a duplicate soil sample of BH19-04(MW)-10, and was submitted to the laboratory for analysis of PHCs and VOCs (including BTEX);

- Soil sample BH19-508 was collected as a duplicate soil sample of BH19-05-8, and was submitted to the laboratory for analysis of PHCs and VOCs (including BTEX); and

- Soil sample TP19-100-1 was collected as a duplicate soil sample of TP19-101-1, and was submitted to the laboratory for analysis of PCBs.

Section 3.(3).5 of Schedule E of O. Reg. 153/04 requires at least one field duplicate to be submitted for every ten samples submitted for laboratory analysis. A total of 12 soil samples were submitted to the laboratory for chemical analysis for each of PHCs, VOCs, BTEX, THMs, metals, ORPs, and PAHs; therefore, the submission of 2 duplicate soil samples for analysis for each of these parameter groups met the QA/QC requirements.

Watters Environmental retained SGS, a laboratory that is accredited by CALA, to conduct the analyses on soil samples. All analyses were conducted in accordance with the MECP document entitled, "*Protocol for Analytical Methods Used in the Assessment of Properties Under Part XV.1 of the Environmental Protection Act*", dated July 1, 2011 (the "Analytical Protocol"). There were no instances where the samples were not handled in accordance with the Analytical Protocol with respect to holding time, preservation method and storage requirement or container type. Chain-of-custodies, completed by Watters Environmental's field investigation team, accompanied the sample submission and are included in Appendix D. The certificates-of-analyses issued by SGS (pursuant to clause 47 (2) (b) of the regulation) comply with subsection 47(3) of O. Reg. 153/04, as amended. Certificates-of-analysis have been received for each sample submitted, and are included in Appendix D.

The Relative Percentage Difference (RPD) was calculated for all parameters on samples where a field duplicate was taken and compared with the criteria from the Analytical Protocol. The RPD was determined only for parameters where the concentrations were above the laboratory detection limits (DLs).

The RPD between soil sample BH19-01(MW)-2 and its blind field duplicate, BH19-102 (analyzed for metals and ORPs, and PAHs), ranged between 0% and 66.67%), for parameters where both samples were not less than the laboratory DLs.

The RPD between soil sample BH19-03-2 and its blind field duplicate, BH19-302 (analyzed for metals and ORPs), ranged between 0% and 15.38%), for parameters where both samples were not less than the laboratory DLs.

The RPD between soil sample BH19-03-4 and its blind field duplicate, BH19-304 (analyzed for PAHs), ranged between 0% and 43.20%), for parameters where both samples were not less than the laboratory DLs.

The RPD between soil sample BH19-04(MW)-10 and its blind field duplicate, BH19-400 (analyzed for PHCs and VOCs including BTEX), ranged between 11.76% and 32.26%), for parameters where both samples were not less than the laboratory DLs.

The RPD between soil sample BH19-05-8 and its blind field duplicate, BH19-508 (analyzed for PHCs and VOCs including BTEX), ranged between 0% and 2.27%), for parameters where both samples were not less than the laboratory DLs.

The RPD between soil sample TP19-101-1 and its blind field duplicate, TP19-100-1 (analyzed for PCBs) could not be determined since the concentrations were below the laboratory DLs.

Some parameters were above the laboratory target of between 20% and 40%; however, these variations could be associated with the heterogeneous nature of the soil material analyzed. This information is important in ensuring that the data is useful, appropriate, and accurate in the determination of whether the Phase Two Property meets the SCS.

This information is important in ensuring that the data is useful, appropriate, and accurate in the determination of whether the Phase Two Property meets the SCSs (as well as standards specific in a risk assessment).

SGS conducted its own QA/QC testing, including matrix spike, spiked blank, method blank, laboratory duplicates and surrogates. Comments regarding the QA/QC testing were provided at the end of the certificates of analysis. SGS did not qualify any results presented in the certificates of analyses, based on the collection, handling, submission and testing.

Given the overall quality of the field data (with respect to the data quality objectives) obtained during the Phase Two ESA, Watters Environmental is confident that decision making was not affected, and that the overall objectives of the investigation and the assessment were met.

6.9.2 Groundwater QA/QC Results

One duplicate groundwater sample was collected as part of the Phase Two ESA drilling program, as follows:

- Groundwater sample BH1000(MW) was collected as a duplicate groundwater sample of BH19-01 (MW), and was submitted to the laboratory for analysis of PHCs, VOCs (including BTEX and THMs), metals and ORPs, and PAHs; and

- One trip blank for VOCs.

Watters Environmental retained SGS, a laboratory accredited by CALA, to conduct the analysis of groundwater samples. All analyses were conducted in accordance with Analytical Protocol. There were no instances where the samples were not handled in accordance with the Analytical Protocol with respect to holding time, preservation method, and storage requirement or container type. The certificates-of-analyses issued by SGS (pursuant to clause 47 (2) (b) of the regulation) comply with subsection 47(3) of O. Reg. 153/04, as amended. Certificates-of-analysis are included in Appendix D.

One trip blank was submitted and analyzed as part of the groundwater sampling for VOCs during the sampling event. The trip blank, prepared by SGS, accompanied the sample containers and samples during groundwater sampling and transportation of the samples to the SGS laboratory.

The RPDs were calculated for all parameters on samples where a field duplicate was taken, and for parameters that were detected (i.e., not less than the laboratory DLs). For the duplicates analyzed for VOCs, BTEX, PHCs, and PAHs, the RPD could not be calculated since both the original and duplicate samples were less than the DLs. For metals, the RPDs for all parameters were less than the acceptable difference percentage (i.e., less than 20%), except for one parameter above it (i.e., 89%). For sodium and chloride, the RPD for the duplicate sample was within the acceptable percentage difference (i.e., it was less than 20%). With the exception of only one

parameter, the analytical results of the field duplicate correlates acceptably with the analytical results of the original sample submitted.

The analytical results of the trip blank submitted for analysis of VOCs indicated that all parameters were less than the laboratory's reporting DLs, which met the criteria. This information is important in ensuring that the data is useful, appropriate, and accurate in the determination of whether the Phase Two Property meets the SCSs (as well as standards specific in a risk assessment).

SGS conducted its own QA/QC testing, including matrix spike, spiked blank, method blank, laboratory duplicates and surrogates. Comments regarding the QA/QC testing were provided at the end of the certificates of analysis. SGS did not qualify any results presented in the certificates of analyses, based on the collection, handling and submission and testing.

Given the overall quality of the field data (with respect to the data quality objectives) obtained during the Phase Two ESA, Watters Environmental is confident that decision making was not affected, and that the overall objectives of the investigation and the assessment were met.

6.10 Phase Two Conceptual Site Model

The findings from the Phase Two ESA are summarized in the following Phase Two Conceptual Site Model (CSM).

For the purpose of this report, the section of Kerns Road that is located adjacent to the east of the Phase One Property is assumed to be aligned in a north-south direction (relative to "Project North"), although it is actually aligned in a northwest-to-southeast direction (relative to "True North"). Unless otherwise noted, descriptions in this report are relative to Project North.

The Phase Two Property is located on the southwest corner of the intersection of Kerns Road and Four Seasons Drive, in an area of mixed commercial, institutional, and residential land uses (see Figure 2).

The Phase Two Property was first used as rural agricultural lands in the late 18th century when it was transferred from the Crown to Joseph Brant as part of a 1,396-hectare (3,450-acre) block of land on February 14, 1798. The Phase Two Property consisted of forested and/or agricultural lands until development in the 1970s. Since development, the Phase Two Property has been comprised of a multi-tenant commercial building (hereafter the "Site building"), an asphalt-paved parking lot, and an outdoor children's play area. A small portion of the northwest corner of the Site building and the western portion of the outdoor children's play area extends off of the Phase Two Property (but within the overall 1600 Kerns Road property). The Site building is currently occupied by a

kitchen/bathroom renovation store, a fitness centre, a bakery, a hair salon, and a children's daycare. The layout of the entire Phase Two Property is shown on Figure 3.

Watters Environmental notes that the remainder of the larger 1600 Kerns Road property (i.e., the western portion) is not included as part of the Phase Two Property and not subject of the Phase Two ESA. The remainder of the 1600 Kerns Road property includes a wooded ravine, which includes a portion of Hager Creek. Watters Environmental understands that the ravine up to the top-of-bank will be dedicated to Conservation Halton as part of the proposed redevelopment. In addition, Watters Environmental understands that no development can be conducted on a 7.5-metre setback from the top-of-bank to the west property line of the Phase Two Property (see Figure 3).

This Phase One ESA identified two on-Site PCAs and 1 off-Site PCA, resulting in 3 APECs on the Phase One Property. One of the on-Site PCAs and the off-Site PCA resulted in the same APEC area on the Phase Two Property. A previous Phase II ESA was conducted by Exp Services Inc. (Exp). Based on the findings of the previous Phase II ESA and Watters Environmental's Phase One ESA, a Phase Two ESA was recommended to address the three APECs on the Phase Two Property which consisted of drilling 7 boreholes, 3 of which were completed as monitoring wells. The soil and groundwater samples were submitted for chemical analyses of one or more of the following chemicals of potential concern (COPCs): petroleum hydrocarbons (PHCs, in the F1 to F4 fractions); volatile organic compounds (VOCs); benzene, toluene, ethylbenzene and xylenes (collectively "BTEX"); trihalomethanes (THMs); metals; hydride-forming metals [arsenic (As), antimony (Sb), selenium (Se)]; other regulated parameters (ORPs) [i.e., pH, boron-hot water soluble (B-HWS), hexavalent chromium (CrVI), mercury (Hg), cyanide (CN-), electrical conductivity (EC), sodium adsorption ratio (SAR), and/or chloride]; sodium; polycyclic aromatic hydrocarbons (PAHs); and polychlorinated-biphenyls (PCBs). The details regarding which COPC was applicable in each APEC, for each medium, are provided in the sections below.

Watters Environmental compared the soil and groundwater sample analytical data from the Phase Two Property to the stated Table 1 Full Depth Background Site Condition Standards (SCS) for Residential / Parkland / Institutional / Industrial / Commercial / Community property use as contained in the MECP publication "Soil, Ground Water and Sediment Standards for *Use Under Part XV.1 of the Environmental Protection Act*", April 15, 2011. These soil and groundwater quality standards are hereafter referred to as the "Table 1 SCS".

The following Phase Two CSM consists of the text in the sections below and the attached figures. Figures 1 to 8 present the layout and physical conditions of the Phase Two ESA. Figures 9A to 9E show the soil analytical data in plan view. Figures 11A to 13B are cross-sections showing soil exceedances, in directions parallel and perpendicular to groundwater flow (see Figure 10 for the cross-section layout). The groundwater data is presented in Figures 14A to 14D. Figures 15A and 15B are cross-sections showing groundwater exceedances. Figure 16 shows the Phase Two CSM graphically.

1. Provide a narrative description and assessment of,

i. areas where potentially contaminating activity has occurred,

Areas containing PCAs are summarized as follows:

- **PCA 1A (APEC 1A)** – A closed landfill is present on the north-central portion of the Phase Two Property. The fill material consists of re-worked clayey silt soil with solid waste debris, such as glass, brick, ceramics and ash. No visual or olfactory evidence of hydrocarbon or solvent impacts or decomposable organic wastes were identified in Exp's boreholes drilled within the landfill area. The presence of a landfill is considered a PCA that represents an APEC on the north-central portion of the Phase One Property;

- **PCA 1B (APEC 1B)** – A closed landfill is present north of the Phase Two Property (across Four Seasons Drive), in an inferred transgradient direction. This is part of the landfill on the Phase Two Property. The presence of a landfill is considered a PCA that represents an APEC on the north-central portion of the Phase Two Property. Note that the landfill document provided by the MECP indicated that methane gas testing conducted in boreholes and within residential homes confirmed that methane was not detected; and

- **PCA 2 (APEC 2)** – A pad-mounted transformer is located on the south-central portion of the Phase Two Property. The appearance and relatively good condition of this transformer suggests that it may have been installed at some point after 1980, when PCBs were banned from electrical equipment. However, the original transformer installed when the 1600 Kerns Road property was developed in 1975 may have contained PCBs. The presence of a pad-mounted transformer is considered a PCA that represents an APEC on the south-central portion of the Phase One Property.

These PCAs are presented in Figure 5.

ii. areas of potential environmental concern, and

As noted above in Section 1i., the APECs on the Phase Two Property are as follows:

- **APEC 1A** – This APEC is in the north-central portion of the Phase Two Property due to the historic (closed) landfill. The COPCs for soil were PHCs, VOCs, BTEX, THMs, metals, hydride-forming metals, ORPs, and PAHs. The COPCs for groundwater were PHCs, VOCs, BTEX, THMs, metals, hydride-forming metals, sodium, and PAHs;

- **APEC 1B** – This APEC covers the same area as APEC 1A, so the COPCs for soil and groundwater are the same; and

- **APEC 2** – This APEC is in the south-central portion of the Phase Two Property due to a potential former PCB-containing transformer. The COPCs for soil were PCBs and PHCs.

These APECs are presented in Figures 5 and 6.

iii. any subsurface structures and utilities on, in or under the phase two property that may affect contaminant distribution and transport.

Watters Environmental anticipates that the underground utilities at the Phase Two Property would be no greater than about 2 to 3 metres below ground surface (mbgs). The depth to in-situ groundwater was greater than 4.6 mbgs. As such, Watters Environmental does not anticipate that subsurface utilities on the Phase Two Property would act as preferential pathways for the migration of contaminated groundwater.

2. Provide a narrative description of and, as appropriate, figures illustrating, the physical setting of the phase two property and any areas under it including,

i. stratigraphy from ground surface to the deepest aquifer or aquitard investigated,

Watters Environmental advanced 7 boreholes on the Phase Two Property, 3 of which were completed as monitoring wells (see Figure 7). Two of these boreholes were situated with the historic (closed) landfill. Three of Exp's boreholes were also situated within the landfill. Watters Environmental's other 5 boreholes were situated beyond the boundary of the landfill (i.e., drilled into the native soils). Exp's other three boreholes were also drilled outside of the landfill. The information obtained from these drilling programs were used to interpret the general soil stratigraphy on the Phase Two Property. The soil stratigraphy is presented on cross-sectional Figures 11A and 11B, which is repeated in Figures 12A to 13B, and 15A to 15B (see Figure 10 for the cross-section locations and alignments).

Fill

Fill material was encountered in 2 of 7 the boreholes advanced as part of the Phase Two ESA [i.e., BH19-01 and BH19-03] and in three of the boreholes (i.e., BH1, BH101 and BH102) advanced by Exp in 2018. The fill material encountered in Watters Environmental's BH19-01 and BH19-03 consisted of clayey silt with some sand, silt and gravel, brick, and glass and ceramic fragments, but no evidence of aesthetic impacts (i.e., no staining or odours) or decomposable organic waste. Exp also observed ash and brick fragments in their boreholes, and no evidence of decomposable organic waste. The fill extended to a depth of approximately 11.29 mbgs in BH19-01 and 5.33 mbgs in BH19-03. The fill material was likely less shallow in BH19-03, as this area was likely approaching the outer boundaries of the landfill. Exp observed similar fill conditions within the landfill. The fill was encountered only within the landfill portion of the Phase Two Property. No fill was encountered in the boreholes drilled beyond the limits of the landfill.

Native Clayey Silt (Aquitard)

No fill material was encountered in Watters Environmental boreholes BH19-02(MW), BH19-04(MW), and BH19-05 to BH19-07. Native soils were present directly under the asphalt and granular base encountered in these boreholes, and consisted of a clayey silt unit with trace sand and gravel to termination depths. The bottom of the clayey silt unit (i.e., top of the bedrock) was not encountered in these boreholes. However, native clayey silt (or silty clay in some areas) extends to approximately 11.79 metres based on borehole BH19-01(MW). No evidence of aesthetic impacts (i.e., no staining or odours) was present.

Shale Bedrock

Shale bedrock was encountered below the clayey silt, at a depth of approximately 11.79 mbgs. Drilling was not extended into the bedrock.

ii. hydrogeological characteristics, including aquifers, aquitards and, in each hydrostratigraphic unit where one or more contaminants are present at concentrations above the applicable site condition standards, lateral and vertical hydraulic gradients,

No aquifer was encountered within the depths drilled. As noted above, the first zone of saturation was encountered in the clayey soil unit, which is considered to be an aquitard.

As noted, the shallow groundwater is situated in the clayey silt soil, which covers the majority of the Phase Two Property (i.e., greater than 2/3 of the property by volume). Grain size analysis conducted on two representative clayey silt soil samples collected from the Phase Two Property confirmed that the soil underlying the Phase Two Property is primarily comprised of fine-textured soils. Based on published literature (Freeze and Cherry, 1979), the clayey silt soil is expected to have a hydraulic conductivity ranging between 10^{-7} and 10^{-9} metres/second.

The shallow groundwater flow direction is shown on Figure 8. Based on the topography and Hager Creek located approximately 20 metres west of the Phase Two Property, groundwater was inferred to flow in a westerly direction. Based on groundwater elevation measurements on November 6, 2019, shallow groundwater on the Phase Two Property was determined to flow in an south-southwest direction.

In the groundwater level measurements made on November 6, 2019, the groundwater level elevations in the wells monitored ranged from 134.04 masl to 136.39 masl.

The horizontal hydraulic gradients were calculated based on the groundwater levels measured on November 6, 2019. Based on the data obtained, the horizontal gradient for the shallow groundwater level was calculated to range between approximately 0.023 to 0.045, with an average of 0.034.

As described below, metals-impacted groundwater was identified in one monitoring well inside the landfill, and one monitoring well outside, and up/transgradient, of the landfill contained a uranium exceedance. As described further below, it is the QP's opinion that drilling into the vertical bedrock to vertically delineate the metals-impacted groundwater is not warranted, as per the Non-Standard Delineation allowance in Section 7.1 of Schedule E in O. Reg. 153/04. As such, the vertical hydraulic gradient was not determined, as there was no deeper monitoring well installed in the underlying bedrock.

iii. approximate depth to bedrock,

As noted above, shale bedrock was encountered below the clayey silt, at a depth of approximately 11.79 mbgs.

iv. approximate depth to water table,

The depth to groundwater in the landfill portion, measured on November 6, 2019, was approximately 4.68 mbgs. In the other three monitoring wells, which were installed in the native clayey silt, the water levels ranged from 0.71 to 3.19 mbgs. However, Watters Environmental observed evidence of saturation during drilling at greater depths (i.e., grey and pliable clayey silt at depths greater than approximately 4.6 mbgs, with the well screens deeper than this depth). The groundwater levels were measured in the monitoring wells at higher levels than the in-situ undisturbed depth due to hydrostatic pressure.

v. any respect in which section 35, 41 or 43.1 of the regulation applies to the property,

With respect to Section 35, there are no water wells used for potable purposes on the Phase Two Property or within the Phase One Study Area, as shown on the MECP water well records website. Water is supplied to the Site from the City of Burlington, which obtains its potable water from a surface water source (i.e., Lake Ontario). Halton Region indicated to Watters Environmental that non-potable groundwater standards cannot be used and that "Potable standards must be used for this property" since there is an "environmentally sensitive area" within 30 metres of the Phase Two Property. Watters Environmental notes that Halton Region's directive to use "potable standards" is not valid. The permissible site condition standards for potable groundwater are Table 2 SCS (Full Depth Generic SCS in a Potable Ground Water Condition), Table 4 SCS (Stratified SCS in a Potable Groundwater Condition), Table 6 SCS (Generic SCS for Shallow Soils in a Potable Ground Water Condition), or Table 8 SCS (Generic SCS for Use within 30 m of a Water Body in a Potable Ground Water Condition). As described below, the correct site condition standard that is applicable to the Phase Two Property is the Table 1 SCS, not one of the "potable standards".

With respect to Section 41, the Phase Two Property is considered a sensitive site since, as noted, Halton Region stated that an "environmentally sensitive area", is situated within 30 metres of the Phase Two Property. Therefore, the Table 1 SCS is applicable for the Phase Two Property. With respect to Section 43.1, the Phase Two Property is not a shallow soil property but it is situated within 30 metres of a water body. However, as noted, the Table 1 SCS applies to the Phase Two Property, as it is within 30 metres of an environmentally sensitive area.

vi. areas where soil has been brought from another property and placed on, in or under the phase two property, and

No off-Site imported soil has been brought to the Phase Two Property, as no remediation activities have been conducted on the Site.

vii. approximate locations, if known, of any proposed buildings and other structures.

There is currently one multi-tenant commercial retail building located in the south portion of the Phase Two Property. The proposed redevelopment plan includes the construction of a multi-tenant residential building, which will be situated on the eastern and southern portions of the Phase Two Property.

3. Provide, where a contaminant is present on, in or under the phase two property at a concentration greater than the applicable site condition standard, identification of,

i. each area where a contaminant is present on, in or under the phase two property at a concentration greater than the applicable site condition standard,

Soil Quality

Soil that exceeded the Table 1 SCS was identified in APECs 1A/1B, situated in the north-central portion of the Phase Two Property. This is the location of the historic (closed) landfill. The distribution of each parameter group in exceedance of the Table 1 SCS is discussed further below.

The soil samples collected analyzed from APEC 2 met the Table 1 SCS.

Groundwater Quality

One monitoring well situated within the landfill contained concentrations of metals that exceeded the Table 1 SCS. One monitoring well located outside, and up/transgradient, of the landfill contained a uranium concentration that exceeded the Table 1 SCS. The distribution of metals-impacted groundwater is discussed further below.

ii. the contaminants associated with each of the areas referred to in subparagraph i,

The COPCs analyzed in soil samples that exceeded the Table 1 SCS included PHCs, metals, ORPs, and PAHs.

The COPCs analyzed in groundwater samples that exceeded the Table 1 SCS included metals and ORPs.

iii. each medium in which a contaminant associated with an area referred to in subparagraph i is present,

As noted above, both soil and groundwater in APECs 1A/1B contained concentrations of COPCs that exceed the Table 1 SCS.

iv. a description and assessment of what is known about each of the areas referred to in subparagraph i,

As noted, APECs 1A/1B are comprised of an historic (closed) landfill. The waste material placed in the landfill, as observed in the boreholes drilled, consists of brick, glass and ceramic fragments mixed with clayey silt with some sand, silt and gravel. No visual or olfactory evidence of impacts or decomposable organic material was observed or detected in the soil samples collected.

v. for each parameter group as defined in the Analytical Protocol for which a contaminant has been analysed, the distribution, in each of the areas referred to in subparagraph i, of each contaminant present in the area at a concentration greater than the applicable site condition standard, for each medium in which the contaminant is present, together with figures showing the distribution,

Soil

PHCs

As noted, there was no visual or olfactory evidence of petroleum hydrocarbons in the soil samples within the landfill or the native soils beyond the landfill (i.e., no odours or stains). However, a few soil samples contained concentrations of PHCs (F2, F3 and/or F4) that marginally exceeded the Table 1 SCS. Only 1 of the 8 soil samples from within the landfill contained an exceedance. Three of the boreholes located just beyond (south to southeast of) the landfill boundary [i.e., BH19-04(MW), BH19-05, and BH19-06] also contained marginal PHC exceedances. The boreholes further south to southeast [i.e., BH19-02(MW) and BH5] were clean, and therefore used to delineate the lateral extent of PHC impacts. The lateral extent of PHC impacts in soil are presented in Figure 9A.

The vertical extent of PHC soil impacts are shown on cross-sectional Figures 11A (cross-section A-A') and 11B (cross-section B-B'). A clean soil sample from BH19-01(MW), taken from the bottom of borehole, just above the bedrock, was used for vertical delineation. The PHC exceedances in BH19-05 and BH19-06 were also extended to bedrock, given how close the lower exceeding sample was to the bedrock. Conducting additional drilling a few extra metres to the bedrock in these three locations to obtain more soil samples would not contribute any further meaningful information for vertical delineation (and for use in a Risk Assessment). Given that no evidence of petroleum impacts was observed or detected in the 5 boreholes drilled within the landfill and the 9 boreholes drilled outside of the landfill, it would be reasonable to expect that every reasonable effort has been made to identify the maximum PHC (F2, F3 and F4) concentrations. As such, it is the QP's opinion that it is reasonable to apply Non-Standard Delineation (NSD) for PHC-impacted soil, as per Section 7.1 of Schedule E in O. Reg. 153/04.

Metals and ORPs

EC and/or SAR exceeded the Table 1 SCS in several boreholes. However, it is the QP's opinion that these impacts are attributed to road salting activities, for de-icing purposes to keep the adjacent roadways, and within the parking lot and walking paths of the Phase Two Property, safe for automobile traffic and pedestrians under conditions of snow or ice or both. As provided for under Section 49.1 of O. Reg. 153/04, the concentrations of EC and SAR in soil are believed to be present in excess of the Table 1 SCS solely because a substance (e.g., road salt) has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both. The Phase Two Property has never been used for commercial bulk storage of salt for use at multiple properties or used as a municipal snow dump, and these types of facilities are not present within the Phase One Study Area. Therefore, the applicable Table 1 SCS is deemed not to be exceeded for the purpose of Part XV.1 of the Act. As such, all soil samples with elevated EC and SAR concentrations met the applicable Table 1 SCS for the Phase Two Property, and are not considered as contaminants of concern. Thus, no further delineation or investigation is required.

As expected, soil samples with concentrations of metals that exceeded the Table 1 SCS were located only within the landfill (i.e., due to the solid waste placed in the landfill). All soil samples from the 7 boreholes located outside the landfill, where samples were analyzed, contained concentrations that met the Table 1 SCS. Therefore, the lateral extent of metal impacts in soil are essentially within the landfill boundaries, although the lateral extent line was taken to the next clean boreholes, which were just beyond the landfill.

The lateral extent of metal impacts in soil are presented in Figure 9C, while the vertical extent is shown on Figures 12A and 12B.

PAHs

As expected, soil samples with concentrations of PAHs that exceeded the Table 1 SCS were located only within the landfill (i.e., due to the solid waste placed in the landfill). All soil samples from the 5 boreholes located outside the landfill, where samples were analyzed, contained concentrations that met the Table 1 SCS. Therefore, the lateral extent of PAH impacts in soil are essentially within the landfill boundaries, although the lateral extent line was taken to the next clean boreholes, which were just beyond the landfill.

The lateral extent of PAH impacts in soil are presented in Figure 9D, while the vertical extent is shown on Figures 13A and 13B.

Groundwater

Metals, ORPs and Sodium

Sodium and chloride exceeded the Table 1 SCS in 1 monitoring well within the landfill. However, it is the QP's opinion that these impacts are attributed to road salting activities, for de-icing purposes to keep the adjacent roadways, and within the parking lot and walking paths of the Phase Two Property, safe for automobile traffic and pedestrians under conditions of snow or ice or both. As provided for under Section 49.1 of O. Reg. 153/04, the concentrations of sodium and chloride in groundwater are believed to be present in excess of the Table 1 SCS solely because a substance (e.g., road salt) has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both. The Phase Two Property has never been used for commercial bulk storage of salt for use at multiple properties or used as a municipal snow dump, and these types of facilities are not present within the Phase One Study Area. Therefore, the applicable Table 1 SCS is deemed not to be exceeded for the purpose of Part XV.1 of the Act. As such, the groundwater sample with elevated sodium and chloride concentrations met the applicable Table 1 SCS for the Phase Two Property, and are not considered as contaminants of concern. Thus, no further delineation or investigation is required.

The groundwater from 1 monitoring well within the landfill contained four metals (i.e., antimony, boron, molybdenum, and selenium) that exceeded the Table 1 SCS. All four of these metals were present in the fill material in the landfill at concentrations exceeding the Table 1 SCS, and appears to have leached and dissolved into the groundwater within the landfill. The concentrations of these four metals in the three monitoring wells in the native very stiff clayey silt outside the landfill met the Table 1 SCS. As such, it would be reasonable to expect that the metals-contaminated groundwater is confined to the boundaries of the landfill. Installing more wells outside the landfill,

but closer to the landfill, would not contribute any further meaningful information for lateral delineation (and for use in a Risk Assessment). Therefore, it would be reasonable to expect that every reasonable effort has been made to identify the maximum metal concentrations. As such, it is the QP's opinion that it is reasonable to apply Non-Standard Delineation for metal-impacted groundwater, as per Section 7.1 of Schedule E in O. Reg. 153/04. The lateral extent of impacts were extended to the monitoring wells as per O. Reg. 153/04 (see Figure 14C).

The vertical extent of metals-impacted groundwater is shown on Figures 15A and 15B. It would be reasonable to expect that the maximum metals concentrations in groundwater is confined to the boundaries of the landfill since this is where the waste material was placed. Therefore, drilling deeper into the bedrock to obtain a "clean" vertical groundwater sample underneath the landfill would not contribute any further meaningful information for vertical delineation (and for use in a Risk Assessment). Also, shales, especially those that contain appreciable quantities of organic carbon, are known to be enriched with transition metals, including molybdenum (i.e., one of the metals in exceedance in the groundwater in the landfill). Thus, installing a monitoring well in the bedrock may yield naturally high concentrations of molybdenum and not achieve a "clean bottom".

A total of 14 boreholes were drilled on the Phase Two Property that were used to clearly define the extent of the landfill. Five of these boreholes were situated within the landfill with discernible visual evidence of solid waste material (e.g., brick, ash, glass, ceramics, and ash), while the other 9 boreholes were clearly located beyond the boundaries of the landfill, as native undisturbed clayey silt was present directly beneath the asphalt and granular base of the parking lot. The soil and groundwater samples were analyzed for all reasonable and common contaminants of potential environmental concern to confirm if the landfilled material has caused any contamination, including PHCs, VOCs, PAHs, metals, and ORPs.

The Phase Two ESA has determined that metals from the solid waste material has leached and partitioned into the dissolved phase in groundwater within the landfill. It would be reasonable to expect that the highest concentrations of contaminants would be within the landfill itself since this is where the waste was placed and very stiff native clayey silt surrounds it and a shale bedrock aquitard is below the landfilled material. In other words, it would be reasonable to expect that the groundwater in the bedrock underneath the landfill would not have higher concentrations than the groundwater within the landfill itself.

To confirm this reasonable and logical premise, a monitoring well would need to be installed within the previously undisturbed bedrock. Before installing a well within the bedrock, a steel cased-liner would need to be installed and keyed into the surface of the bedrock to minimize the potential of vertical cross-contamination. However, the soil and waste material in the landfill is very soft and loose, with N-values generally ranging from 1 to 7 through the majority of the profile. As such, a steel cased-liner extending over nearly 12 metres in this soft and loose material could easily shift, in time, in the waste material and break the seal in the keyed-in portion at the top of the bedrock. This would result in the creation of a preferential pathway for contaminant migration into the bedrock, that would have otherwise not existed if a well was not installed within the bedrock.

Given the above, it is the QP_{ESA}'s opinion that the installation of a monitoring well within the bedrock is unlikely to contribute any further significant or meaningful information regarding the vertical extent of the metals contaminants in groundwater within the overlying landfill, to support the completion of a Risk Assessment (i.e., the highest concentrations are in the landfill and not in the underlying bedrock). In doing so, the installation of a monitoring well within the bedrock would create an unnecessary and likely risk of potentially forming a vertical migration pathway into the previously undisturbed bedrock. As such, it is the QP's opinion that it is reasonable to apply Non-Standard Delineation for metals-impacted groundwater, as per Section 7.1 of Schedule E in O. Reg. 153/04.

As shown on Figure 14C, monitoring well BH19-04(MW) contained a single metal (uranium) that marginally exceeded in the Table 1 SCS. This well is located in the native soil beyond the landfill boundaries. Note that of the 25 soil samples analyzed for metals, none contained concentrations of uranium that exceeded the Table 1 SCS (i.e., no source of soil impacts to partition into groundwater). As such, this single marginal exceedance in groundwater may be an anomaly. Regardless, this well was included with the lateral and vertical extent of metal impacts in groundwater.

vi. anything known about the reason for the discharge into the natural environment of the contaminants present on, in or under the phase two property at a concentration greater than the applicable site condition standard,

As noted, the discharge of impacts in soil and groundwater is a result of poor quality solid waste material (i.e., glass, brick, ceramics and ash with no decomposable organic waste) placed in the historic (closed) landfill.

vii. anything known about migration away from any area of potential environmental concern of the contaminants present on, in or under the phase two property at a concentration greater than the applicable site condition standard, including the identification of any preferential pathways,

The contaminants are essentially confined to the landfill with no evidence of migration of contaminated groundwater beyond the boundaries of the landfill.

viii. climatic or meteorological conditions that may have influenced distribution and migration of the contaminants, such as temporal fluctuations in ground water levels, and

Given the known conditions in the area of the Phase Two Property, topography and location of Hager Creek (i.e., steep slope to the west), no significant temporal variation in flow direction is anticipated. Regardless of the time of year (i.e., season), the shallow groundwater is expected to generally flow in a south-southwesterly direction.

ix. if applicable, information concerning soil vapour intrusion of the contaminants into buildings including,

A. Relevant construction features of a building such as a basement or crawl space;

The current building does not contain any basements or crawlspaces (i.e., it is slab-on-grade), and is located at the south end of the Phase Two Property, beyond the limits of the contaminated soil and groundwater.

The future residential building will include one-level of basement for parking purposes. Most of the soil in the landfill will be excavated in order to construct the parking level. Also, the parking level will have fans to exhaust automobile combustible gases, as per the Building Code. Given the above, migration of vapours (i.e., PHC-F2 in soil) is not expected to occur in the future building. However, this will be confirmed by the upcoming Risk Assessment that will be conducted to support the filing of a Record of Site Condition.

B. Building heating, ventilating and air conditioning design and operation; and

The current commercial building contains roof-mounted natural gas-fired heating, ventilating, and air conditioning units.

Watters Environmental has not been provided with details of the heating and air conditioning method for the future multi-tenant residential building, but it will likely be operated by natural gas.

C. Subsurface utilities.

As noted above, there are underground utilities associated with the current building on the Phase Two Property, which is located at the south side of the property, beyond the contaminated soil and groundwater. These utility lines are not expected to act as conduits to vapour migration into the current Site building.

Subsurface utilities will be installed to service the future residential retirement facility. As noted above, the future multi-tenant residential building will contain one level of underground parking with exhaust fans for automobile exhaust. As such, future subsurface utilities are not expected to act a preferential pathway for vapours from impacted soil (if any).

4. Provide, where contaminants on, in or under the phase two property are present at concentrations greater than the applicable site condition standard, two or more cross-sections showing, by parameter group as defined in the Analytical Protocol for which a contaminant has been analysed,

i. the lateral and vertical distribution of each contaminant in each area where the contaminant is present at a concentration greater than the applicable site condition standard in soil, ground water and sediment,

As noted above, the estimated lateral extent of PHC impacts in soil identified in APECs 1A/1B is presented in Figure 9A, while the estimated vertical distribution in this area is shown on Figures 11A and 11B (see Figure 10 for cross-section layouts).

The estimated lateral extent of metal and ORP impacts in soil identified in APECs 1A/1B is presented in Figure 9C, while the estimated vertical distribution in this area is shown on Figures 12A and 12B.

The estimated lateral extent of PAH impacts in soil identified in APECs 1A/1B is presented in Figure 9D, while the estimated vertical distribution in this area is shown on Figures 13A and 13B.

The estimated lateral extent of metal and ORP impacts in groundwater identified in APECs 1A/1B is presented in Figure 14C, while the estimated vertical distribution in this area is shown on Figures 15A and 15B.

ii. approximate depth to water table in each area referred to in subparagraph i,

As noted above, the depth to groundwater in the landfill portion, measured on November 6, 2019, was approximately 4.53 mbgs. In the other three monitoring wells, which were installed in the native clayey silt, the water levels ranged from 0.62 to 3.02 mbgs. However, Watters Environmental observed evidence of saturation during drilling at greater depths (i.e., grey and pliable clayey silt at depths greater than approximately 4.6 mbgs, with the well screens deeper than this depth). The groundwater levels were measured in the monitoring wells at higher levels than the in-situ undisturbed depth due to hydrostatic pressure.

The water levels measured on November 6, 2019 are shown in the cross-sections with an inverted blue triangle.

iii. stratigraphy from ground surface to the deepest aquifer or aquitard investigated, and

The cross-sectional figures referenced above show the stratigraphy from the ground surface to the deepest depths drilled, including the clayey silt aquitard and shale bedrock.

iv. any subsurface structures and utilities that may affect contaminant distribution and transport in each area referred to in subparagraph i.

As noted above, Watters Environmental anticipates that the underground utilities at the Phase Two Property would be no greater than about 2 to 3 metres below ground surface (mbgs). The depth to in-situ groundwater was greater than 4.6 mbgs. As such, Watters Environmental does not anticipate that subsurface utilities on the Phase Two Property would act as preferential pathways for the migration of contaminated groundwater. There are currently no subsurface structures on the Phase Two Property.

5. Provide, for each area where a contaminant is present on, in or under the property at a concentration greater than the applicable site condition standard for the contaminant, a diagram identifying, with narrative explanatory notes,

The potential exposure scenarios described below is in regards to the intended future residential land use, as this Phase Two ESA was conducted to support a Risk Assessment for eventual submission of an RSC application for the redevelopment from the current commercial land use to future residential land use. The potential exposure scenarios, in the absence of Risk Management Measures (RMMs) are presented graphically in Figures 16A to 16C.

i. the release mechanisms,

Under the proposed future residential land use, and in the absence of RMMs such as capping, potential release mechanisms of contaminated soil may consist of dust generation through wind disturbance, surface erosion, and volatilization of volatile compounds. Contaminants in groundwater can migrate and discharge into nearby surface water bodies. Contaminants in soil may also leach into groundwater and migrate to nearby surface water bodies.

ii. contaminant transport pathway,

Under the intended future residential property use, residents, visitors, and outdoor workers may potentially be exposed to contaminants of concern in soil via ingestion of soil/dust, inhalation of soil/dust, and dermal contact with soil/dust while spending time outdoors at the Phase Two Property. Exposure may also occur to residents, visitors, and outdoor workers via the inhalation of vapours migrating from soil to outdoor air at ground surface. Construction workers may also be exposed to vapours migrating from soil to air within a trench/excavation. Residents, visitors, and indoor workers may be exposed to contaminants via the migration of vapours from underlying contamination in soil to indoor air. Given that there are no volatile COCs in groundwater, the inhalation of vapours in indoor and outdoor air does not represent a pathway of concern. The figure below provides the conceptual model for human receptors and pathways in the absence of risk management.

Properties surrounding the Phase Two Property consist of mixed commercial, institutional, and residential land uses. Therefore, receptors on adjacent properties would be similar to those described above for on-Site residents, construction/trench workers, and outdoor maintenance workers. Off-site receptors would also include indoor workers. However, the opportunities for exposure to COCs in soil and groundwater would be limited for off-Site receptors. The re-suspension of on-site soils has the potential to result in wind-blown particulates travelling to off-Site receptor locations. However, given that the deposition of particulates is unlikely to result in the re-distribution of large amounts of impacted soils to off-Site properties, it is not anticipated that inhalation of particulates, incidental ingestion of soil, or dermal contact with soil represents a significant source of exposure for off-site receptors.

Opportunities for exposure to COCs in groundwater would be limited for off-Site human receptors. Given that on-Site groundwater flows to the south/southwest, the potential for off-Site migration of impacted groundwater is primarily a concern for residential/institutional properties to the south and west.

Ecological receptors may be exposed to chemicals via any of several potential exposure pathways, such as ingestion, inhalation, and dermal contact. It is assumed that terrestrial plants would be exposed to COCs in soil via direct contact (i.e., root uptake). Due to the feeding and burrowing habits of soil invertebrates, these receptors may be exposed to contaminants in soil via ingestion and direct contact. Since the habitat of soil organisms and the root structure of most plant species do not typically extend to depths at which on-Site groundwater is found (i.e., a minimum depth of 0.71 mbgs), exposure of groundwater COCs to these receptors is expected to be negligible. In addition, birds and mammals are considered to be unlikely to encounter groundwater found at these depths.

Wildlife, such as urban adapted birds and mammals, may primarily be exposed to contaminants in soil via incidental ingestion and ingestion of food items living or growing in impacted soils. Dermal exposure may occur when contaminants are absorbed through the skin as a result of direct contact with impacted soil. Dermal exposure is generally assumed to be negligible for birds and mammals. This is because feathers on birds and fur on mammals reduce dermal exposure by limiting the contact of skin with contaminants in soil. Exposure may occur via inhalation if contaminants are volatile, or if they are components of fine particulate matter which may be re-suspended in ambient air. However, there is a paucity of available data describing the inhalation toxicity of contaminants to birds, and use of mammalian data is not possible due to the differences in avian and mammalian physiology. Food and soil ingestion tend to be the most significant routes of exposure, contributing the greatest to overall risk.

Off-Site aquatic value ecological components were assumed to be exposed to COCs in soil from the leaching of chemicals from soil to groundwater and subsequent migration through the subsurface to the nearest downgradient surface water body, as well as COCs in groundwater migrating through the subsurface to the nearest downgradient surface water body. Benthic invertebrates were also assumed to be exposed to soil COCs via surface runoff of impacted soils to surface water.

iii. the human and ecological receptors located on, in or under the phase two property,

As noted, on-Site potential human receptors for the intended future residential land use include residents, visitors, outdoor workers, indoor workers, and construction/trench workers. Potential ecological receptors include terrestrial plants (e.g., grass, shrubs, trees), soil invertebrates (e.g., beetles, collembolans, earthworms), wildlife (e.g., urban adapted birds and mammals), and off-Site aquatic organisms and sediment dwelling organisms.

iv. receptor exposure points, and

As noted, potential residents, visitors, and outdoor workers' exposure points may occur in the outdoor environment, and residents, visitors, and indoor workers in the future Site building, at the north end of the Phase Two Property, where the closed landfill is located. Construction workers exposure points would be in the subsurface (e.g., working in trenches).

Ecological receptor exposure points would be in the subsurface for soil invertebrates and terrestrial plants at the north end of the Phase Two Property, where the closed landfill is located. Exposure points for birds and mammals would be at ground level where incidental ingestion of particulates and ingestion of food items living or growing in impacted soils would occur. Exposure points for aquatic organisms and sediment dwelling organisms would be at Hager Creek, located to the west of the Phase Two Property, where impacted groundwater would discharge.

v. routes of exposure.

As noted, potential exposure routes to humans receptors would consist of dermal absorption, incidental ingestion and inhalation of impacted soil particles and vapours in the outdoor environment, and inhalation of vapours inside the future Site building.

Terrestrial plants would be exposed to COCs in soil via direct contact (i.e., root uptake). Soil invertebrates may be exposed to contaminants in soil via ingestion and direct contact. Birds and mammals may primarily be exposed to contaminants in soil via incidental ingestion and ingestion of food items living or growing in impacted soils. As noted, dermal exposure for birds and mammals is generally assumed to be negligible due to their feathers and fur, respectively, reducing dermal exposure by limiting the contact of skin with contaminants in soil. Exposure may occur via inhalation if contaminants are volatile, or if they are components of fine particulate matter which may be re-suspended in ambient air. There is a scarcity of data regarding the inhalation of vapours and particulates in birds and mammals.

6. If a non-standard delineation was conducted in accordance with section 7.1 of this Schedule as part of preparing the phase two environmental site assessment report, provide a narrative description of how the non-standard delineation satisfies the requirements in that section.

As discussed above in Section 3v., it is the QP's opinion that it is reasonable to apply Non-Standard Delineation (NSD) for a number of issues, as per Section 7.1 of Schedule E in O. Reg. 153/04.

APECs 1A/1B are located in the north-central portion of the Phase Two Property, and are the result of an on-Site historic (closed) landfill, which extends off-Site to the north. The approximate location and extent of the landfill (both on-Site and off-Site) were identified in a 1971 design drawing. Between Watters Environmental and Exp, a total of 14 boreholes were drilled in the parking lot on the northern portion of the Site, which confirmed the boundaries of the landfill (see the blue dashed line on Figures 9A to 9E). Five of these boreholes were situated within the landfill and 9 were located beyond the boundaries of the landfill. There was a clear visual indicator regarding which boreholes were in the landfill, as waste materials were observed (e.g., brick, ash, glass, ceramics, etc.). Conversely, in the 9 boreholes located beyond the landfill, native undisturbed clayey silt was present directly below the asphalt and granular base.

It would be reasonable to expect that the highest concentrations of contaminants would be within the landfill since this is where the waste was placed, and very stiff native clayey silt surrounds it.

No visual or olfactory evidence of petroleum hydrocarbon impacts was observed or detected in any of the 14 boreholes. However, one soil sample within the landfill, and soil in three boreholes just beyond the south/southeast sides of the landfill, did contain PHC exceedances. The highest PHC (F3 and F4) concentrations (452 µg/g and 2,810 µg/g, respectively) were detected in the sample within the landfill. The concentrations of PHC (F3 and F4) in the three aforementioned boreholes that were just beyond the landfill decreased significantly to below the Table 1 SCS, although PHC (F2) was detected in these boreholes at concentrations that were marginally above the Table 1 SCS (14 µg/g to 21 µg/g vs. the Standard of 10 µg/g). The concentrations of PHCs (F1 to F4) in the next boreholes to the southwest [BH19-02(MW)] and southeast (BH5) decreased to concentrations below the laboratory detection limits. Therefore, BH19-02(MW) and BH5 were reasonably used to delineate laterally. Given the observations and concentrations in these boreholes, additional drilling between these boreholes would not contribute any further meaningful information for lateral delineation (and for use in a Risk Assessment).

Clean PHC soil samples were not obtained below the ones with the PHC (F2) exceedances. However, there is only approximately 3 to 4 metres of soil below these samples to the bedrock. Given the consistently low PHC (F2) concentrations and no visual or olfactory evidence of petroleum impacts in the 14 boreholes drilled, conducting additional drilling a few extra metres to the bedrock in these three borehole locations to obtain more soil samples would not contribute any further meaningful information for vertical delineation (and for use in a Risk Assessment). Given that no evidence of petroleum impacts was observed or detected in the 5 boreholes drilled within the landfill and the 9 boreholes drilled outside of the landfill, it would be reasonable to expect that every reasonable effort has been made to identify the maximum PHC (F2, F3 and F4)

concentrations. As such, it is the QP's opinion that it is reasonable to apply Non-Standard Delineation (NSD) for PHC-impacted soil, as per Section 7.1 of Schedule E in O. Reg. 153/04.As noted above in Section 3v, the groundwater from 1 monitoring well within the landfill contained four metals (i.e., antimony, boron, molybdenum, and selenium) that exceeded the Table 1 SCS. All four of these metals were present in the fill material in the landfill at concentrations exceeding the Table 1 SCS, and appears to have leached and dissolved into the groundwater within the landfill. The concentrations of these four metals in the three monitoring wells in the native very stiff clayey silt outside the landfill met the Table 1 SCS. As such, it would be reasonable to expect that the metals-contaminated groundwater is confined to the boundaries of the landfill. Installing more wells outside the landfill, but closer to the landfill, would not contribute any further meaningful information for lateral delineation (and for use in a Risk Assessment). Therefore, it would be reasonable to expect that every reasonable effort has been made to identify the maximum metal concentrations. As such, it is the QP's opinion that it is reasonable to apply Non-Standard Delineation for metal-impacted groundwater, as per Section 7.1 of Schedule E in O. Reg. 153/04. The lateral extent of impacts were extended to the monitoring wells as per O. Reg. 153/04 (see Figure 14C).

The vertical extent of metals-impacted groundwater is shown on Figures 15A and 15B. It would be reasonable to expect that the maximum metals concentrations in groundwater is confined to the boundaries of the landfill since this is where the waste material was placed. Therefore, drilling deeper into the bedrock to obtain a "clean" vertical groundwater sample underneath the landfill would not contribute any further meaningful information for vertical delineation (and for use in a Risk Assessment). Also, shales, especially those that contain appreciable quantities of organic carbon, are known to be enriched with transition metals, including molybdenum (i.e., one of the metals in exceedance in the groundwater in the landfill). Thus, installing a monitoring well in the bedrock may yield naturally high concentrations of molybdenum and not achieve a "clean bottom" with respect to metals.

A total of 14 boreholes were drilled on the Phase Two Property that were used to clearly define the extent of the landfill. Five of these boreholes were situated within the landfill with discernible visual evidence of solid waste material (e.g., brick, ash, glass, ceramics, and ash), while the other 9 boreholes were clearly located beyond the boundaries of the landfill, as native undisturbed clayey silt was present directly beneath the asphalt and granular base of the parking lot. The soil and groundwater samples were analyzed for all reasonable and common contaminants of potential environmental concern to confirm if the landfilled material has caused any contamination, including PHCs, VOCs, PAHs, metals, and ORPs.

The Phase Two ESA has determined that metals from the solid waste material has leached and partitioned into the dissolved phase in groundwater within the landfill. It would be reasonable to expect that the highest concentrations of contaminants would be within the landfill itself since this is where the waste was placed and very stiff native clayey silt surrounds it and a shale bedrock aquitard is below the landfilled material. In other words, it would be reasonable to expect that the groundwater in the bedrock underneath the landfill would not have higher concentrations than the groundwater within the landfill itself.

To confirm this reasonable and logical premise, a monitoring well would need to be installed within the previously undisturbed bedrock. Before installing a well within the bedrock, a steel cased-liner would need to be installed and keyed into the surface of the bedrock to minimize the potential of vertical cross-contamination. However, the soil and waste material in the landfill is very soft and loose, with N-values generally ranging from 1 to 7 through the majority of the profile. As such, a steel cased-liner extending overly nearly 12 metres in this soft and loose material could easily shift, in time, in the waste material and break the seal in the keyed-in portion at the top of the bedrock. This would result in the creation of a preferential pathway for contaminant migration into the bedrock, that would have otherwise not existed if a well was not installed within the bedrock.

Given the above, it is the QP_{ESA}'s opinion that the installation of a monitoring well within the bedrock is unlikely to contribute any further significant or meaningful information regarding the vertical extent of the metals contaminants in groundwater within the overlying landfill, to support the completion of a Risk Assessment (i.e., the highest concentrations are in the landfill and not in the underlying bedrock). In doing so, the installation of a monitoring well within the bedrock would create an unnecessary and likely risk of potentially forming a vertical migration pathway into the previously undisturbed bedrock. As such, it is the QP's opinion that it is reasonable to apply Non-Standard Delineation for metals-impacted groundwater, as per Section 7.1 of Schedule E in O. Reg. 153/04.

As shown on Figure 14C, monitoring well BH19-04(MW) contained a single metal (uranium) that marginally exceeded in the Table 1 SCS. This well is located in the native soil beyond the landfill boundaries. Note that of the 25 soil samples analyzed for metals, none contained concentrations of uranium that exceeded the Table 1 SCS (i.e., no source of soil impacts to partition into groundwater). As such, this single marginal exceedance in groundwater may be an anomaly. Regardless, this well was included with the lateral and vertical extent of metal impacts in groundwater.

7. If the exemption set out in paragraph 1 or 2 of section 49.1 of the regulation is being relied upon, provide a statement as to the reliance upon the exemption and a narrative description of the rationale for relying upon the exemption, which may be based on information gathered during the site investigation.

EC and/or SAR in soil exceeded the Table 1 SCS in several boreholes, and sodium and chloride in groundwater exceeded the Table 1 SCS in one monitoring well. However, it is the QP's opinion that these impacts are attributed to road salting activities, for de-icing purposes to keep the adjacent roadways, and within the parking lot and walking paths of the Phase Two Property, safe for automobile traffic and pedestrians under conditions of snow or ice or both. As provided for under Section 49.1 of O. Reg. 153/04, the concentrations of EC and SAR in soil, and sodium and chloride in groundwater, are believed to be present in excess of the Table 1 SCS solely because a substance (e.g., road salt) has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both. The Phase Two Property has never been used for commercial bulk storage of salt for use at multiple properties or used as a municipal snow dump, and these types of facilities are not present within the Phase One Study Area. Therefore, the applicable Table 1 SCS is deemed not to be exceeded for the purpose of Part XV.1 of the Act. As such, all soil samples with elevated EC and SAR concentrations, and groundwater samples with elevated sodium and chloride concentrations, met the applicable Table 1 SCS for the Phase Two Property, and are not considered as contaminants of concern. Thus, no further delineation or investigation is required.

Paragraph 2 is not applicable.

8. If the exemption set out in paragraph 3 of section 49.1 of the regulation is being relied upon, provide,

i. a statement as to the reliance upon the exemption,

Not Applicable.

ii. a narrative description of the rationale for relying upon the exemption, which may be based on information gathered during the site investigation, and

Not Applicable.

iii. one or more cross-sections and one or more figures in plan view of the phase two property that demonstrate, through identification of sample locations, sample depths and contaminant concentrations, the distribution of the contaminant in question laterally and vertically and the range of concentrations of that contaminant on, in or under the phase two property.

Not Applicable.

7.0 CONCLUSIONS

7.1 Summary of Findings

Based on the results of this Phase Two ESA, Watters Environmental presents the following findings:

- The former landfill in the north-central portion of Phase Two Property (APECs 1A/1B) contain solid waste debris, such as glass, brick, ceramics and ash mingled with clayey silt soil. This material contains concentrations of PHCs, metals, and PAHs that exceeded the Table 1 SCS. There was no decomposable organic waste in the fill; and

- The groundwater in the landfill contains metals that exceed the Table 1 SCS.

A Risk Assessment will need to be conducted to confirm the risks (if any) to human health and the environment, and what Risk Management Measures are needed (if required) to manage the risks.

7.2 Signatures

I, Basil Wong, M.Eng., P.Eng., QP_{ESA}, confirm that I supervised the completion of the Phase Two ESA, in accordance with Ontario Regulation 153/04 (as amended). I reviewed all the data and information gathered from the Phase Two ESA, and used it to formulate the findings and conclusions.

For and on behalf of Watters Environmental Group Inc.

Prepared by

Kevin Sue, B.Eng.
Project Manager



Basil Wong, M.Eng., P.Eng., QP$_{ESA}$
Vice President, Technical Services

8.0 REFERENCES

1. *Ontario Environmental Protection Act*, R.S.O. 1990, Chapter E.19.

2. Ontario Regulation 153/04, *Records of Site Condition – Part XV.1 of the Act.*

3. Ministry of the Environment. 2011 "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*", dated April 15, 2011.

4. Ministry of Northern Development and Mines (MNDM), Quaternary Geology on Google Earth Database, 2012.

5. MNDM, Bedrock Geology on Google Earth Database, 2012.

6. Natural Resources Canada, 2014. Toporama – Topographic Maps, The Atlas of Canada, (http://atlas.gc.ca/toporama/en/index.html).

7. Exp Services Inc. (Exp). DRAFT Phase I Environmental Site Assessment, 1600 Kerns Road, Burlington, ON. September 7, 2018.

8. Exp. Slope Stability Analysis, Proposed Residential Redevelopment, 1600 Kerns Road, City of Burlington, Ontario. October 18, 2018.

9. Exp. Chemical Testing, 1600 Kerns Road, Burlington, Ontario. November 2, 2018.

10. Exp. DRAFT Environmental Subsurface Investigation, 1600 Kerns Road, Burlington, Ontario. December 12, 2018.

11. Watters Environmental Group Inc., "1600 Kerns Road, Part 1 on the Plan of Survey and being Part of Block G Registered Plan M-81, 1600 Kerns Road, Burlington, Ontario", November 2020.

9.0 LIMITATIONS

Watters Environmental has prepared this report at the request of, and for the exclusive use of, FGL Kerns Inc. Watters Environmental will not be responsible for the use of this report by any other party, or reliance on or any decision to be made based on it by any such other party without the prior written consent of Watters Environmental. Watters Environmental accepts no responsibility for damages, if any, by any other party as a result of decisions or actions based on this report.

This Phase Two ESA was conducted in accordance with Watters Environmental's proposed scope of work, verbal requests from the client and generally accepted environmental assessment practices in Ontario at the time of the assessment. No other warranty, expressed or implied, is made.

This Phase Two ESA was designed to determine the soil and groundwater quality present in the APECs identified at the Phase Two Property. This report alone should in no way be construed as a definitive representation of any and all environmental impacts that may be present at the Phase Two Property resulting from past or current practices. This assessment was conducted using representative borehole investigation data. Data interpolations between physical testing points are open to interpretation. As such, it is not feasible to conclude absolutely the conditions that may exist in the subsurface. Inferred conditions assume that homogeneous conditions exist, when in fact they may not. Subsurface conditions will vary between testing points and are likely to change with time. No assurance is made regarding changes in conditions subsequent to the time of the investigation. The findings contained in this report may be based, in part, upon information provided by others. No assurance is made regarding the accuracy of the information not generated by Watters Environmental. This report is complete only as an entire document, and no section is intended to be used separately.

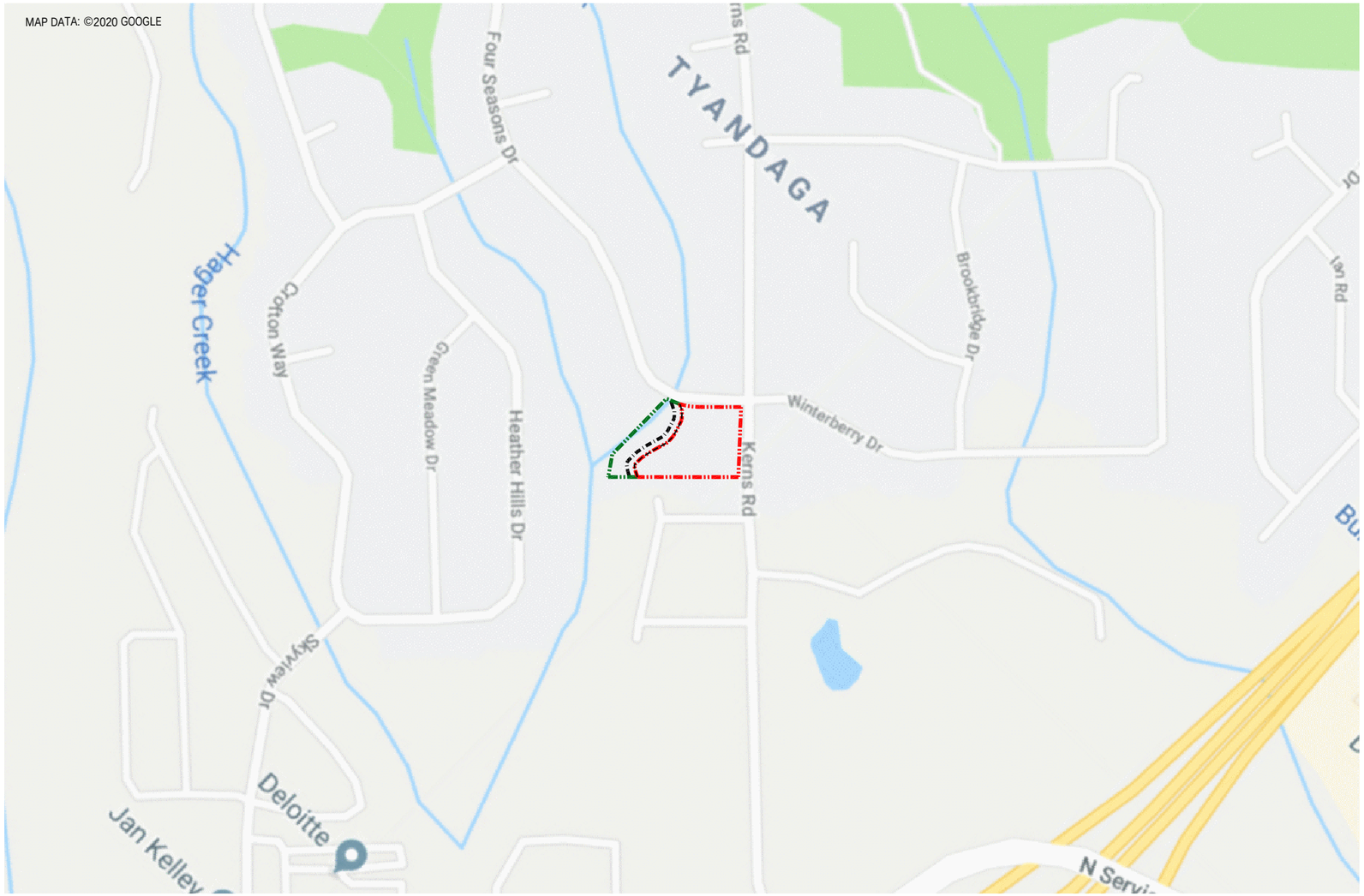
10.0 QUALIFICATIONS OF CONSULTANT

Kevin is a Project Manager with Watters Environmental and holds a Bachelor of Engineering from the University of Guelph. Kevin has over 11 years of consulting experience in areas of Phase I and II ESAs and provides technical support on environmental site assessments, asbestos and mould management for a variety of properties, including industrial, commercial, office, hotel and residential properties across Canada.

Mr. Basil Wong, M.Eng., P.Eng. is the Vice President, Technical Services with Watters Environmental Group Inc. and is a QP_{ESA}. Mr. Wong obtained his B.A.Sc. in Civil Engineering (Water Resources Option) at the University of Waterloo in 1992. In the course of obtaining this degree, he studied hydrogeology and contaminant transport in the Waterloo Earth Sciences Department (Institute for Groundwater Research). Mr. Wong furthered his studies in hydrogeology and other aspects of environmental engineering, and obtained a Master of Engineering at the University of Guelph in 1998. He has been a Professional Engineer in Ontario for over 23 years, and is also licensed in British Columbia, Alberta, Nova Scotia, and New Brunswick. Mr. Wong has over 27 years of environmental consulting experience in Phase I and II ESAs, hydrogeological assessments, soil and groundwater remediation, asbestos surveys, designated substances surveys, asbestos abatement, mould assessments, mould abatement, human health and ecological risk assessments and environmental compliance audits. Basil has conducted or managed hundreds of these projects in various land uses, such as hotels, commercial buildings, large industrial properties, residential dwellings, federally-owned properties and First Nation reserves.

FIGURES

PROJECT NORTH
TRUE NORTH



LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK

0m 200m
SCALE

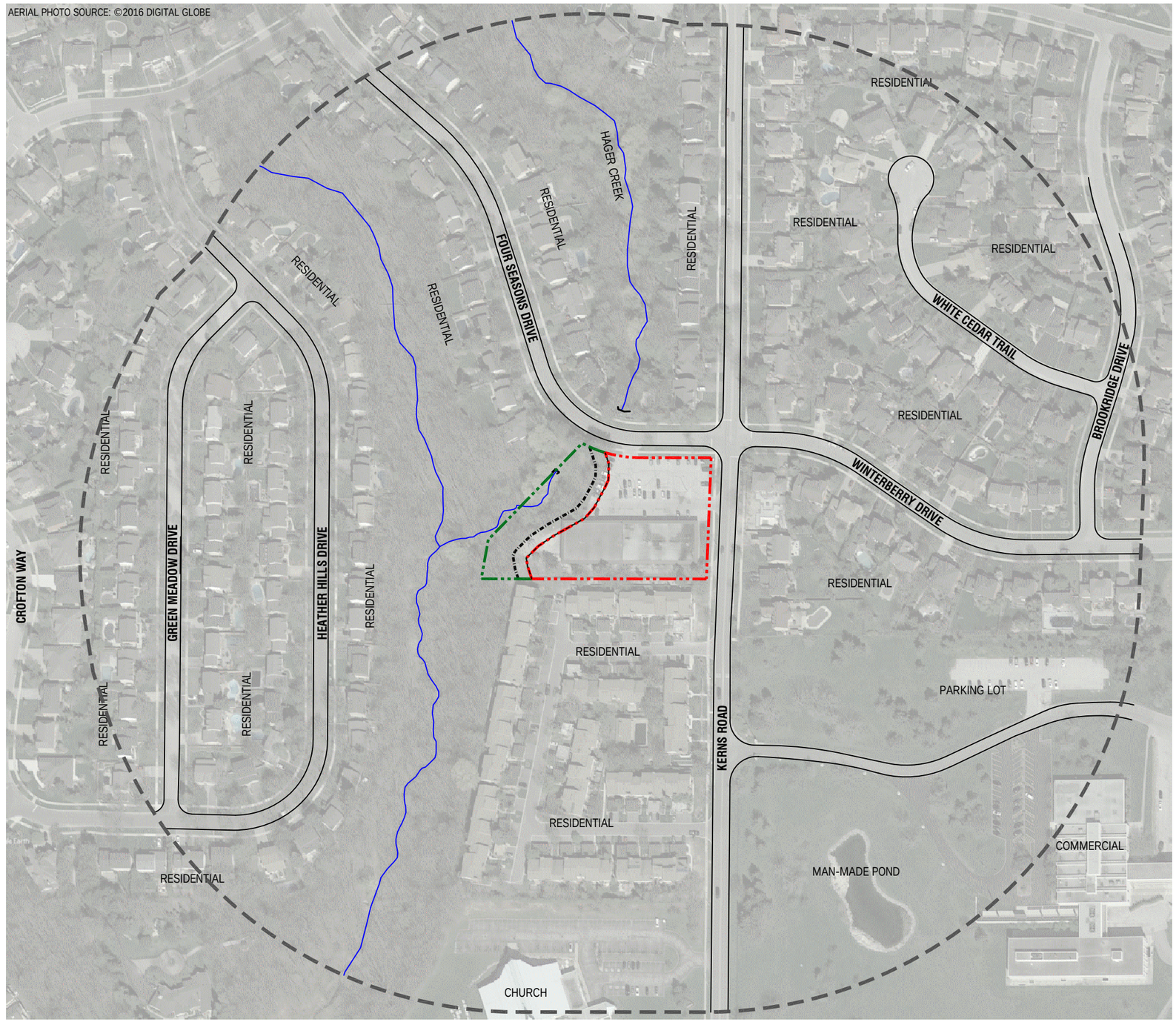
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F 416 361 2410

DRAWN: B. CALDERONE
CHECKED: K. SUE
DATE: NOVEMBER 2020

CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: PHASE TWO PROPERTY LOCATION MAP
PROJECT No: 19-0087.02.03
FIGURE No: 1



LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- 250m PHASE ONE STUDY AREA
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK

0m 50m 100m
SCALE

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REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: PHASE ONE STUDY AREA LAND USE MAP
PROJECT No: 19-0087.02.03
FIGURE No: 2

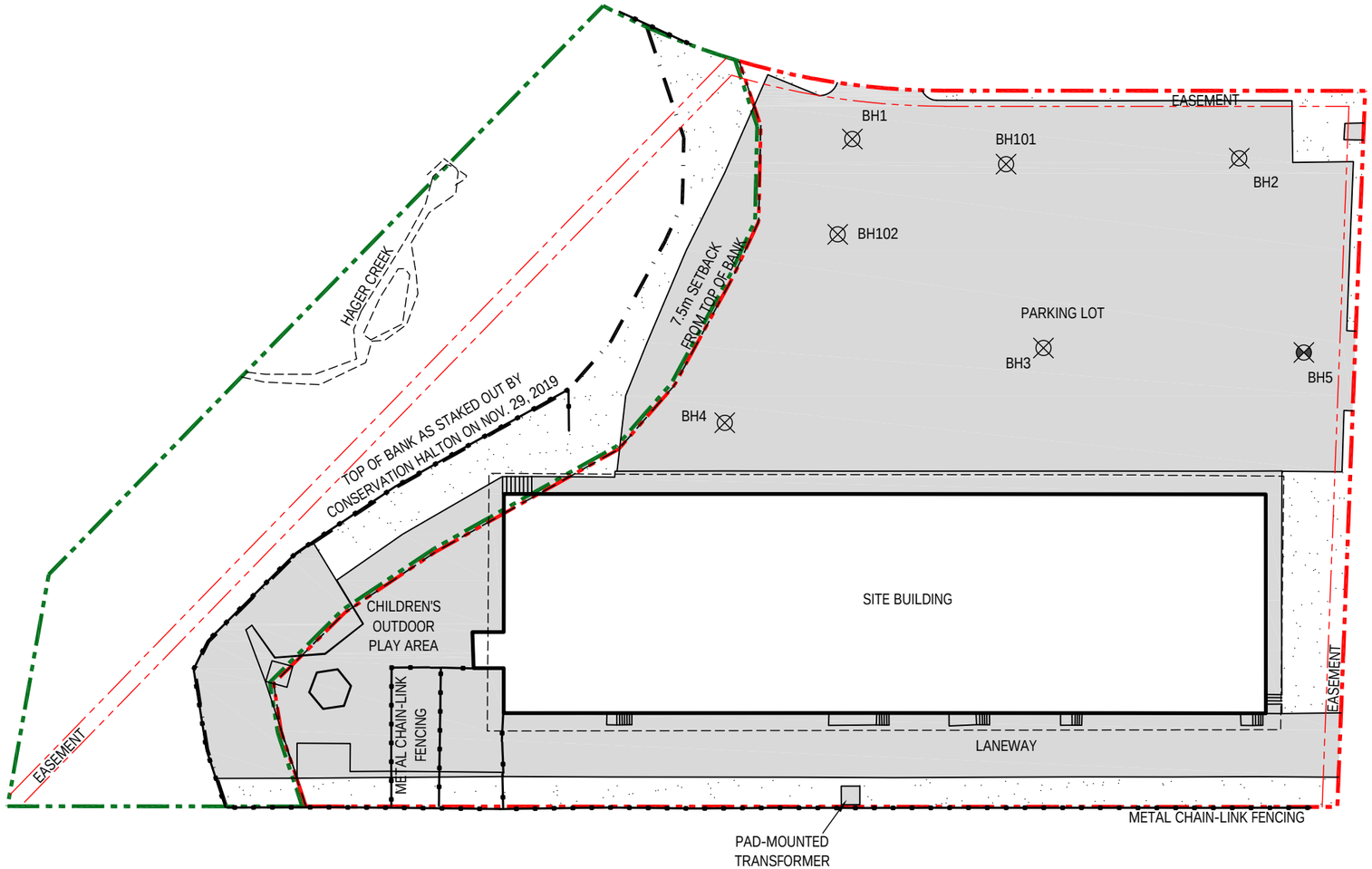
LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- LANDSCAPED AREA
- PAVED AREA
- EXP MONITORING WELL LOCATION
- EXP BOREHOLE LOCATION

INFERRED NEAR-SURFACE GROUNDWATER FLOW DIRECTION

PROJECT NORTH

TRUE NORTH



0m 10m 20m

SCALE

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SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: PHASE TWO PROPERTY LAYOUT PLAN

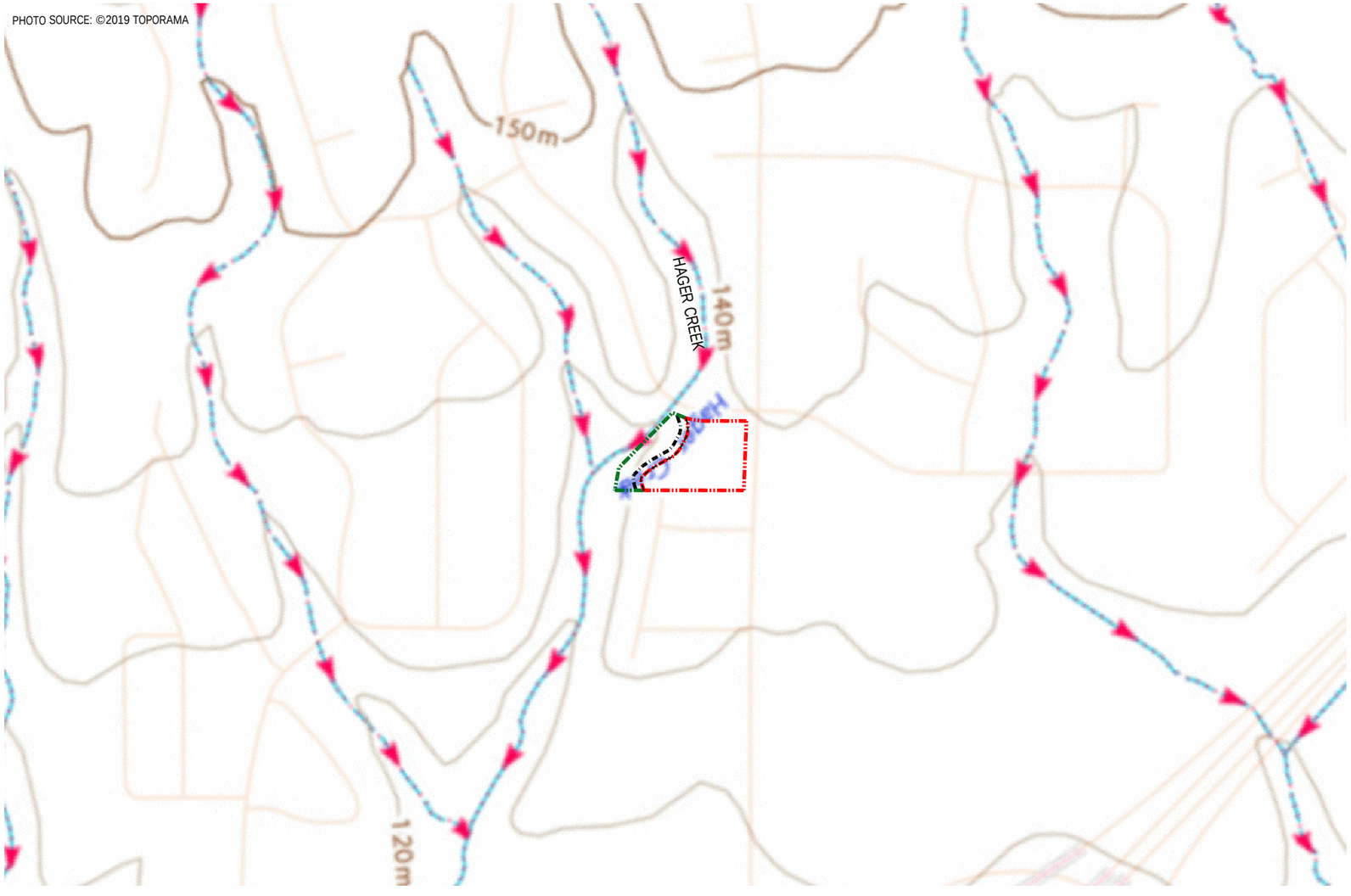
PROJECT No: 19-0087.02.03

FIGURE No: 3

INFERRED NEAR-SURFACE GROUNDWATER FLOW DIRECTION

PROJECT NORTH

TRUE NORTH



LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK

0m — 200m

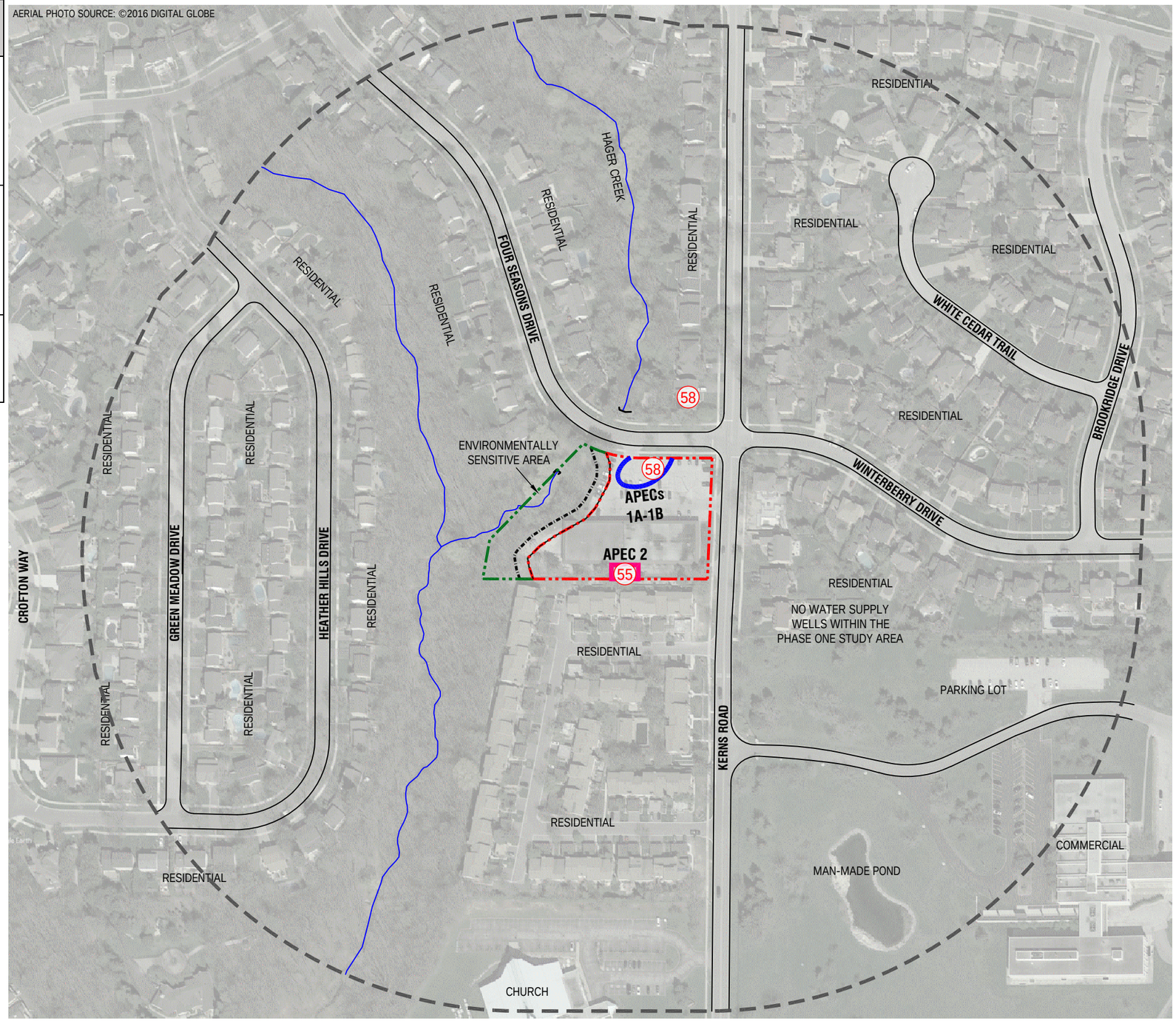
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DRAWN: B. CALDERONE CHECKED: K. SUE DATE: NOVEMBER 2020	CLIENT: FGL KERNS INC. SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO	REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT	FIGURE NAME: TOPOGRAPHICAL MAP PROJECT No: 19-0087.02.03 FIGURE No: 4	

Summary of PCAs Resulting in APECs on the Phase One Property						
Report PCA #	**APEC #**	**APEC Line / Colour**	**O. Reg. 153/04 Potentially Contaminating Activity**	**Location**	**Description**	**Potential Media Impacted**
1A	1A		#58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use biosoils as soil conditioners	On-Site PCA. APEC at north-central portion of the Phase One Property	Historic presence of a closed landfill on the north-central portion of the Phase One Property	Soil and Ground Water
1B	1B		#58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use biosoils as soil conditioners	Off-Site PCA, APEC at north-central portion of the Phase One Property	Historic presence of a closed landfill north of the Phase Two Property (across Four Seasons Drive - same as on-site landfill)	Soil and Ground Water
2	2		#55 – Transformer Manufacturing, Processing and Use	On-Site PCA. APEC along the south-central property line.	One pad-mounted transformer located on the south-central property line	Soil



LEGEND:

- EXTENT OF THE PHASE ONE PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE ONE PROPERTY
- 250m PHASE ONE STUDY AREA
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- (00) IDENTIFIED PCAs CONTRIBUTING TO AN APEC AT THE PHASE ONE PROPERTY.

0m 50m 100m
SCALE

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CHECKED: K. SUE
DATE: NOVEMBER 2020

CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

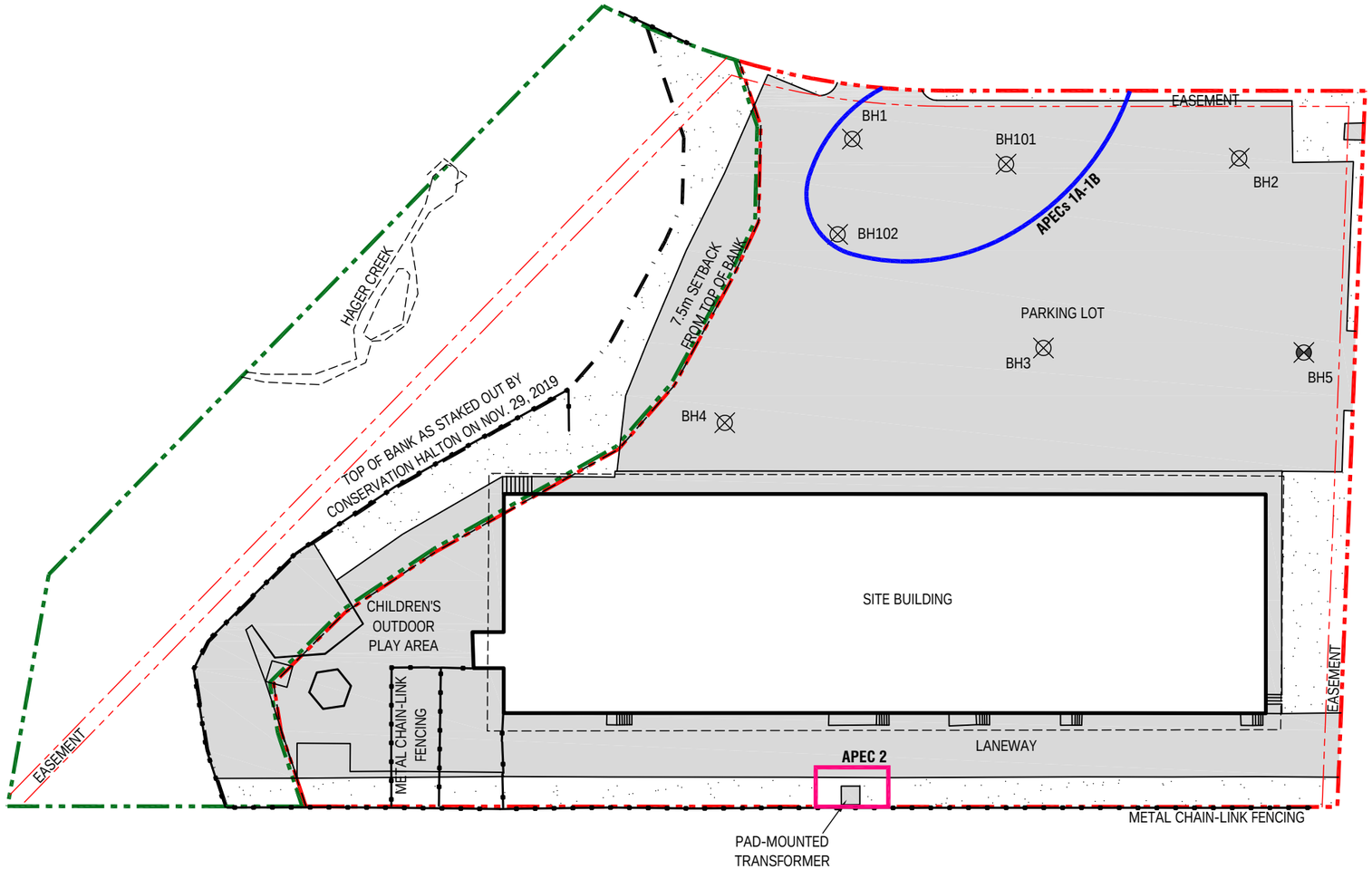
FIGURE NAME: PHASE ONE CONCEPTUAL SITE MODEL
PROJECT No: 19-0087.02.03
FIGURE No: 5

LEGEND:

- EXTENT OF THE PHASE ONE PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE ONE PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- LANDSCAPED AREA
- PAVED AREA
- EXP MONITORING WELL LOCATION
- EXP BOREHOLE LOCATION

Summary of PCAs Resulting in APECs on the Phase One Property

Report PCA #	APEC #	APEC Line / Colour	O. Reg. 153/04 Potentially Contaminating Activity	Location	Description	Potential Media Impacted
1A	1A		#58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use biosoils as soil conditioners	On-Site PCA. APEC at north-central portion of the Phase One Property	Historic presence of a closed landfill on the north-central portion of the Phase One Property	Soil and Ground Water
1B	1B		#58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use biosoils as soil conditioners	Off-Site PCA, APEC at north-central portion of the Phase One Property	Historic presence of a closed landfill north of the Phase Two Property (across Four Seasons Drive - same as on-site landfill)	Soil and Ground Water
2	2		#55 – Transformer Manufacturing, Processing and Use	On-Site PCA. APEC along the south-central property line.	One pad-mounted transformer located on the south-central property line	Soil



0m 10m 20m
SCALE

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DATE: NOVEMBER 2020

CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: PHASE ONE CONCEPTUAL SITE MODEL - EXPANDED VIEW
PROJECT No: 19-0087.02.03
FIGURE No: 6

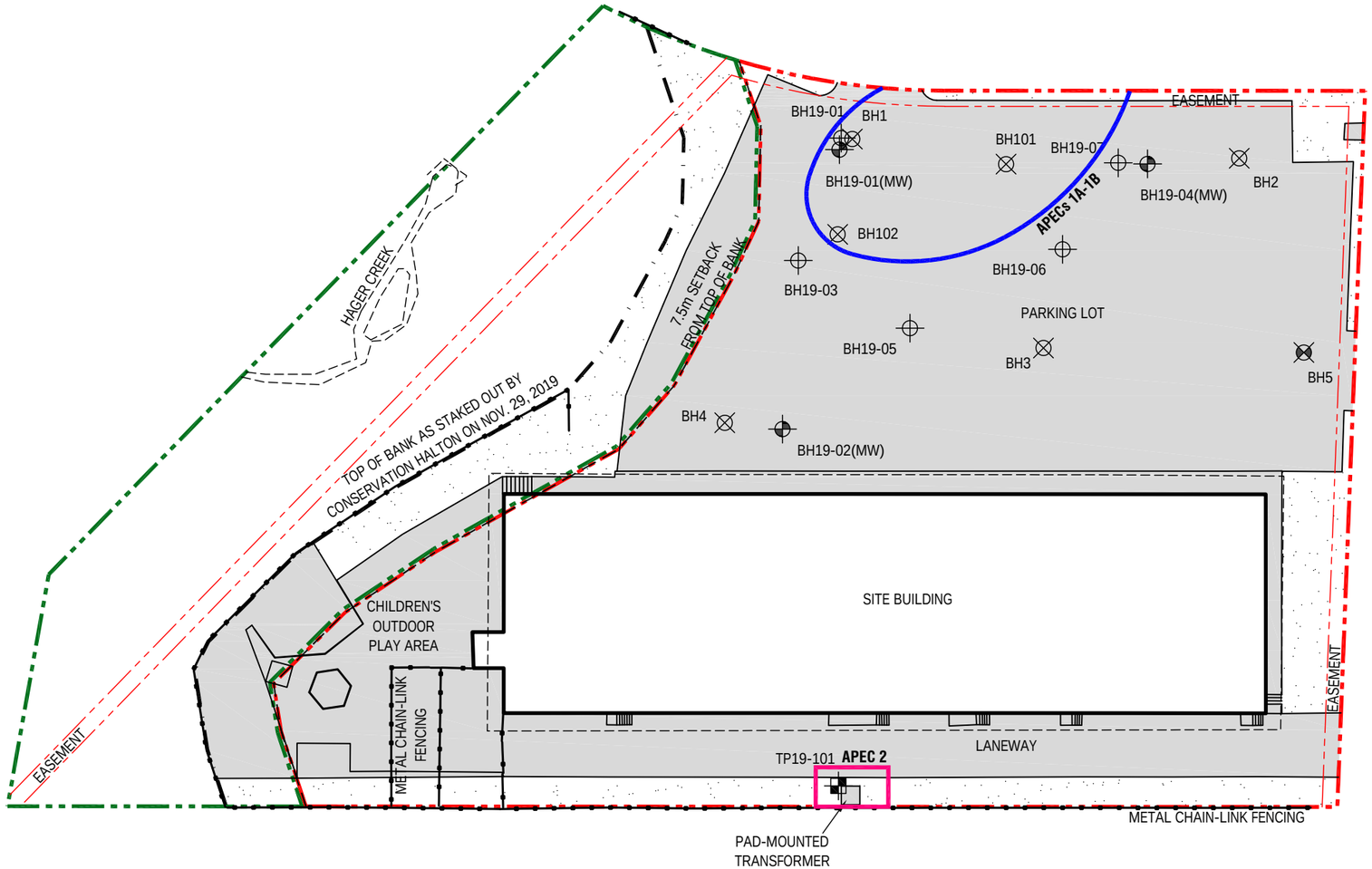
LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- LANDSCAPED AREA
- PAVED AREA
- EXP MONITORING WELL LOCATION
- EXP BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL MONITORING WELL LOCATION
- WATTERS ENVIRONMENTAL BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL TEST PIT LOCATION

INFERRED NEAR-SURFACE GROUNDWATER FLOW DIRECTION

PROJECT NORTH

TRUE NORTH



0m 10m 20m

SCALE

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CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: BOREHOLE AND MONITORING WELL LOCATION PLAN
PROJECT No: 19-0087.02.03
FIGURE No: 7

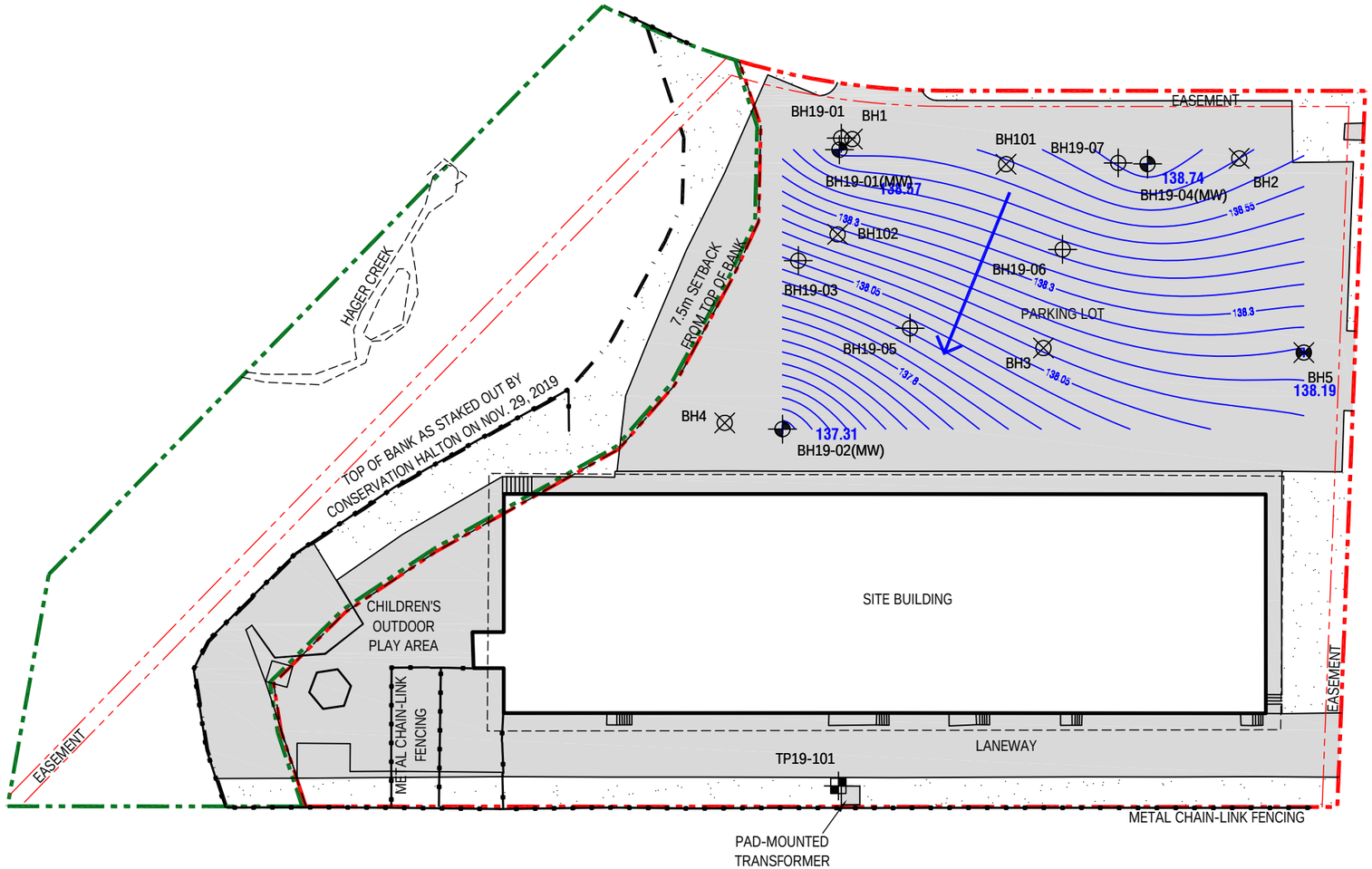
LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- LANDSCAPED AREA
- PAVED AREA
- EXP MONITORING WELL LOCATION
- EXP BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL MONITORING WELL LOCATION
- WATTERS ENVIRONMENTAL BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL TEST PIT LOCATION
- MEASURED SHALLOW GROUNDWATER DIRECTION - NOVEMBER 6, 2019

INFERRED NEAR-SURFACE GROUNDWATER FLOW DIRECTION

PROJECT NORTH

TRUE NORTH



0m 10m 20m
SCALE

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REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: GROUNDWATER CONTOURS
PROJECT No: 19-0087.02.03
FIGURE No: 8

LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- LANDSCAPED AREA / PAVED AREA
- EXP MONITORING WELL LOCATION
- EXP BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL MONITORING WELL LOCATION
- WATTERS ENVIRONMENTAL BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL TEST PIT LOCATION
- **SCS** TABLE 1 RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY
- PARAMETERS ANALYZED MEET SCS
- PARAMETERS ANALYZED EXCEED SCS
- SHALLOW SAMPLE EXCEEDS SCS DEEPER SAMPLE MEETS SCS
- SHALLOW SAMPLE MEETS SCS DEEPER SAMPLE EXCEEDS SCS
- MEASURED SHALLOW GROUNDWATER FLOW DIRECTION - NOV. 6, 2019
- APPROXIMATE BOUNDARY OF LANDFILL
- **mbgs** METRES BELOW GROUND SURFACE
- **PHCs** PETROLEUM HYDROCARBONS
- ESTIMATED LATERAL EXTENT OF PHC CONTAMINATED SOILS

Borehole Sample	BH19-05-3
Date Sampled	17-Oct-19
Sample Depth (mbgs)	1.52 - 2.13
Contaminant of Concern	PHCs

Borehole ID	BH19-05	
Soil Sample ID	BH19-05-8	
Date Sampled	17-Oct-19	
Sample Depth (mbgs)	5.33 - 5.94	
Analysis	PHCs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
PHC F2	10	**19**

Borehole ID	BH19-05	
Soil Sample ID	BH19-508 (duplicate of BH19-05-8)	
Date Sampled	17-Oct-19	
Sample Depth (mbgs)	5.33 - 5.94	
Analysis	PHCs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
PHC F2	10	**19**

Borehole Sample	BH19-02(MW)-5
Date Sampled	15-Oct-19
Sample Depth (mbgs)	4.57 - 5.18
Contaminant of Concern	PHCs

Borehole ID	BH19-03	
Soil Sample ID	BH19-03-6	
Date Sampled	16-Oct-19	
Sample Depth (mbgs)	3.81 - 4.42	
Analysis	PHCs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
PHC F3	240	**452**
PHC F4	120	**2810**

Borehole Sample	BH19-03(MW)-8
Date Sampled	16-Oct-19
Sample Depth (mbgs)	5.33 - 5.94
Contaminant of Concern	PHCs

Borehole Sample	BH102 SS5
Date Sampled	28-Nov-18
Sample Depth (mbgs)	3.1 - 3.7
Contaminant of Concern	PHCs

Borehole Sample	BH102 SS5 DUP 1
Date Sampled	28-Nov-18
Sample Depth (mbgs)	3.1 - 3.7
Contaminant of Concern	PHCs (F1 Only)

Borehole Sample	BH19-01(MW)-7
Date Sampled	17-Oct-19
Sample Depth (mbgs)	4.57 - 5.18
Contaminant of Concern	PHCs

Borehole Sample	BH19-01(MW)-16
Date Sampled	17-Oct-19
Sample Depth (mbgs)	11.43 - 11.79
Contaminant of Concern	PHCs

Borehole Sample	BH101 SS5
Date Sampled	28-Nov-18
Sample Depth (mbgs)	3.1 - 3.7
Contaminant of Concern	PHCs

Borehole Sample	BH1 SS4
Date Sampled	12-Oct-18
Sample Depth (mbgs)	2.3 - 2.9
Contaminant of Concern	PHCs

Borehole Sample	BH19-07-5
Date Sampled	17-Oct-19
Sample Depth (mbgs)	3.05 - 3.66
Contaminant of Concern	PHCs

Borehole ID	BH19-04(MW)	
Soil Sample ID	BH19-04(MW)-10	
Date Sampled	16-Oct-19	
Sample Depth (mbgs)	6.86 - 7.47	
Analysis	PHCs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
PHC F2	10	**13**

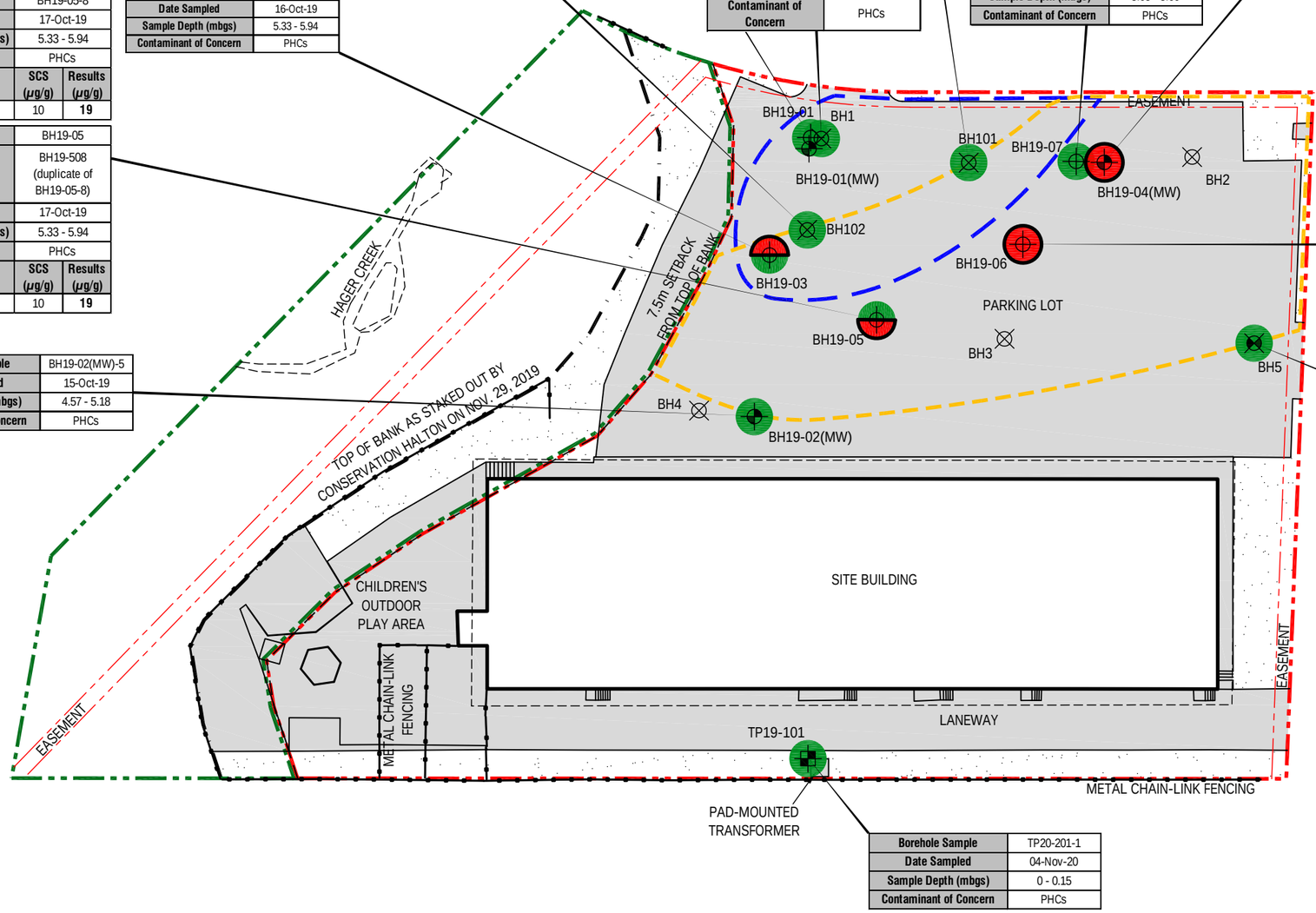
Borehole ID	BH19-04(MW)	
Soil Sample ID	BH19-400 [duplicate of BH19-04(MW)-10]	
Date Sampled	16-Oct-19	
Sample Depth (mbgs)	6.86 - 7.47	
Analysis	PHCs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
PHC F2	10	**18**

Borehole ID	BH19-06	
Soil Sample ID	BH19-06-5	
Date Sampled	15-Oct-19	
Sample Depth (mbgs)	3.05 - 3.66	
Analysis	PHCs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
PHC F2	10	**14**

Borehole ID	BH19-06	
Soil Sample ID	BH19-06-9	
Date Sampled	15-Oct-19	
Sample Depth (mbgs)	6.10 - 6.71	
Analysis	PHCs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
PHC F2	10	**21**

Borehole Sample	BH5 SS2
Date Sampled	11-Oct-18
Sample Depth (mbgs)	0.8 - 1.4
Contaminant of Concern	PHCs

Borehole Sample	TP20-201-1
Date Sampled	04-Nov-20
Sample Depth (mbgs)	0 - 0.15
Contaminant of Concern	PHCs



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DRAWN: B. CALDERONE
CHECKED: K. SUE
DATE: NOVEMBER 2020

CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: SOIL ANALYTICAL RESULTS (PHCs)
PROJECT No: 19-0087.02.03
FIGURE No: 9A

LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- LANDSCAPED AREA
- PAVED AREA
- EXP MONITORING WELL LOCATION
- EXP BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL MONITORING WELL LOCATION
- WATTERS ENVIRONMENTAL BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL TEST PIT LOCATION

SCS TABLE 1 RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY

- PARAMETERS ANALYZED MEET SCS
- PARAMETERS ANALYZED EXCEED SCS
- SHALLOW SAMPLE EXCEEDS SCS DEEPER SAMPLE MEETS SCS
- SHALLOW SAMPLE MEETS SCS DEEPER SAMPLE EXCEEDS SCS
- MEASURED SHALLOW GROUNDWATER FLOW DIRECTION - NOV. 6, 2019
- APPROXIMATE BOUNDARY OF LANDFILL

mbgs METRES BELOW GROUND SURFACE

BTEX BENZENE, TOLUENE, ETHYLBENZENE, XYLENES

VOCs VOLATILE ORGANIC COMPOUNDS

THMs TRIHALOMETHANES

Borehole Sample	BH102 SS5
Date Sampled	28-Nov-18
Sample Depth (mbgs)	3.1 - 3.7
Contaminant of Concern	BTEX
Borehole Sample	BH102 SS5 DUP-1
Date Sampled	28-Nov-18
Sample Depth (mbgs)	3.1 - 3.7
Contaminant of Concern	BTEX

Borehole Sample	BH19-01(MW)-7
Date Sampled	17-Oct-19
Sample Depth (mbgs)	4.57 - 5.18
Contaminant of Concern	VOCs, BTEX, THMs

Borehole Sample	BH19-01(MW)-16
Date Sampled	17-Oct-19
Sample Depth (mbgs)	11.43 - 12.04
Contaminant of Concern	VOCs, BTEX, THMs

Borehole Sample	BH101 SS5
Date Sampled	28-Nov-18
Sample Depth (mbgs)	3.1 - 3.7
Contaminant of Concern	BTEX

Borehole Sample	BH19-04(MW)-10
Date Sampled	16-Oct-19
Sample Depth (mbgs)	6.86 - 7.47
Contaminant of Concern	VOCs, BTEX, THMs

Borehole Sample	BH19-400 (duplicate of BH19-04(MW)-10)
Date Sampled	16-Oct-19
Sample Depth (mbgs)	6.86 - 7.47
Contaminant of Concern	VOCs, BTEX, THMs

Borehole Sample	BH19-03(MW)-6
Date Sampled	16-Oct-19
Sample Depth (mbgs)	3.81 - 4.42
Contaminant of Concern	VOCs, BTEX, THMs

Borehole Sample	BH19-03(MW)-8
Date Sampled	16-Oct-19
Sample Depth (mbgs)	5.33 - 5.94
Contaminant of Concern	VOCs, BTEX, THMs

Borehole Sample	BH1 SS4
Date Sampled	12-Oct-18
Sample Depth (mbgs)	2.3 - 2.9
Contaminant of Concern	BTEX

Borehole Sample	BH19-07-5
Date Sampled	17-Oct-19
Sample Depth (mbgs)	3.05 - 3.66
Contaminant of Concern	VOCs, BTEX, THMs

Borehole Sample	BH19-05-03
Date Sampled	17-Oct-19
Sample Depth (mbgs)	1.52 - 2.13
Contaminant of Concern	VOCs, BTEX, THMs

Borehole Sample	BH19-05-08
Date Sampled	17-Oct-19
Sample Depth (mbgs)	5.33 - 5.94
Contaminant of Concern	VOCs, BTEX, THMs

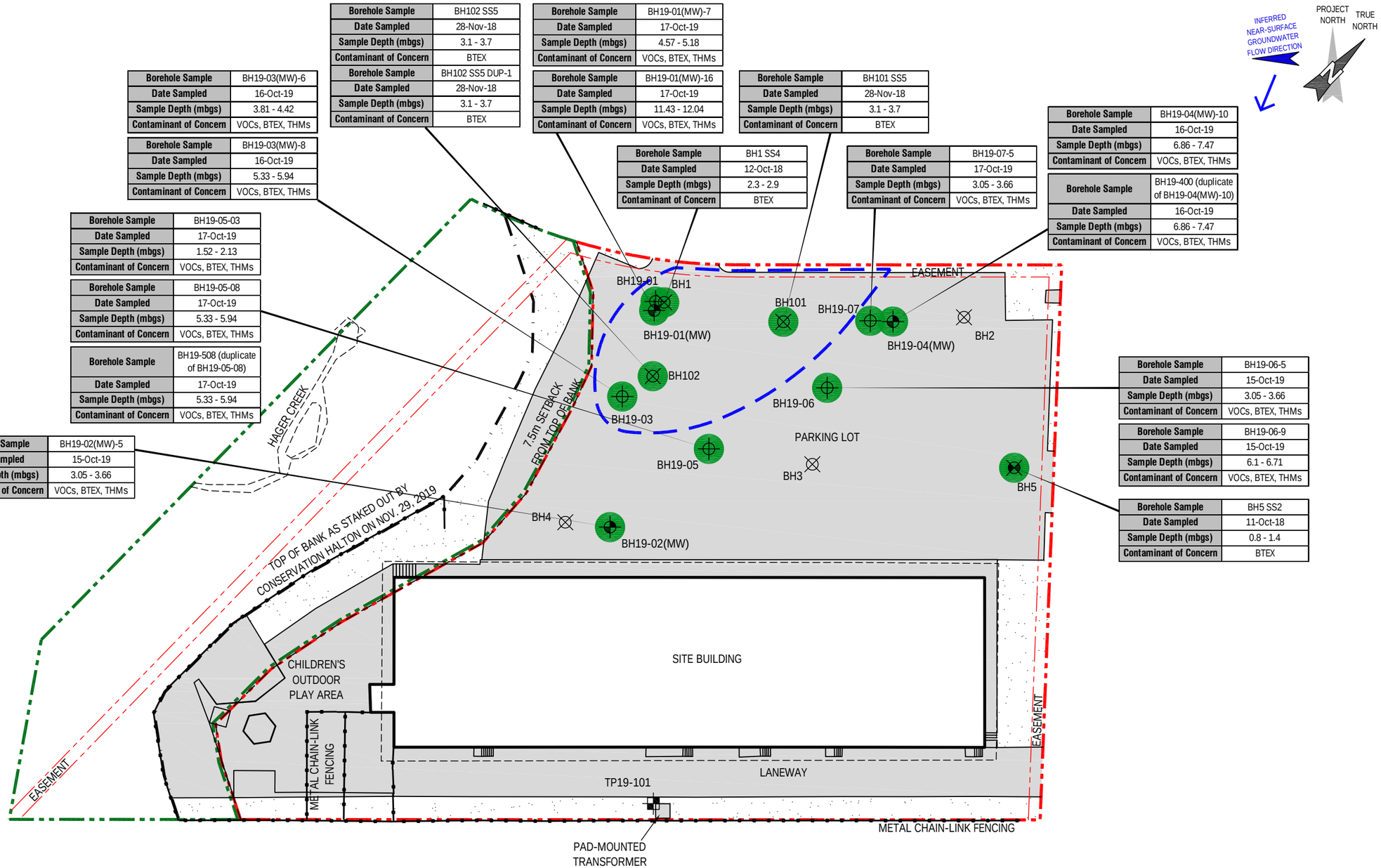
Borehole Sample	BH19-508 (duplicate of BH19-05-08)
Date Sampled	17-Oct-19
Sample Depth (mbgs)	5.33 - 5.94
Contaminant of Concern	VOCs, BTEX, THMs

Borehole Sample	BH19-02(MW)-5
Date Sampled	15-Oct-19
Sample Depth (mbgs)	3.05 - 3.66
Contaminant of Concern	VOCs, BTEX, THMs

Borehole Sample	BH19-06-5
Date Sampled	15-Oct-19
Sample Depth (mbgs)	3.05 - 3.66
Contaminant of Concern	VOCs, BTEX, THMs

Borehole Sample	BH19-06-9
Date Sampled	15-Oct-19
Sample Depth (mbgs)	6.1 - 6.71
Contaminant of Concern	VOCs, BTEX, THMs

Borehole Sample	BH5 SS2
Date Sampled	11-Oct-18
Sample Depth (mbgs)	0.8 - 1.4
Contaminant of Concern	BTEX



0m 10m 20m
SCALE

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DRAWN: B. CALDERONE
CHECKED: K. SUE
DATE: NOVEMBER 2020

CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: SOIL ANALYTICAL RESULTS (VOCs, BTEX, THMs)

PROJECT No: 19-0087.02.03

FIGURE No: 9B

LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- LANDSCAPED AREA / PAVED AREA
- EXP MONITORING WELL LOCATION
- EXP BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL MONITORING WELL LOCATION
- WATTERS ENVIRONMENTAL BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL TEST PIT LOCATION
- **SCS** TABLE 1 RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY
- PARAMETERS ANALYZED MEET SCS
- PARAMETERS ANALYZED EXCEED SCS
- SHALLOW SAMPLE EXCEEDS SCS DEEPER SAMPLE MEETS SCS
- SHALLOW SAMPLE MEETS SCS DEEPER SAMPLE EXCEEDS SCS
- MEASURED SHALLOW GROUNDWATER FLOW DIRECTION - NOV. 6, 2019
- APPROXIMATE BOUNDARY OF LANDFILL
- **mbgs** METRES BELOW GROUND SURFACE
- **As** ARSENIC
- **Sb** ANTIMONY
- **Se** SELENIUM
- **Cr(VI)** HEXAVALENT CHROMIUM
- **Hg** MERCURY
- **CN-** CYANIDE
- **B-HWS** BORON (HOT WATER SOLUBLE)
- **EC** ELECTRICAL CONDUCTIVITY
- **SAR** SODIUM ADSORPTION RATIO
- **ORPs** OTHER REGULATED PARAMETERS (As, Sb, Se, Cr(VI), Hg, CN-, B-HWS, EC, SAR)
- ESTIMATED LATERAL EXTENT OF METALS / ORP CONTAMINATED SOILS

Borehole ID	BH19-01(MW)
Soil Sample ID	BH19-01(MW)-2
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **4.6**
Antimony	1.3 / **2.7**
Barium	220 / **240**
Cadmium	1.2 / **3.2**
Copper	92 / **210**
Lead	120 / **450**
Molybdenum	2 / **3.8**
Silver	0.5 / **0.86**
Zinc	290 / **690**

Borehole ID	BH19-01(MW)
Soil Sample ID	BH19-102 (duplicate of BH19-01(MW)-2)
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **4.6**
Antimony	1.3 / **4.1**
Barium	220 / **240**
Cadmium	1.2 / **2.8**
Copper	92 / **200**
Lead	120 / **440**
Molybdenum	2 / **4.9**
Silver	0.5 / **0.97**
Zinc	290 / **650**

Borehole ID	BH19-01(MW)
Soil Sample ID	BH19-01(MW)-14
Date Sampled	17-Oct-19
Sample Depth (mbgs)	9.90 - 10.51
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
EC (mS/cm)	0.57 / **1.7**
Chromium VI	0.66 / **0.9**
Antimony	1.3 / **84**
Arsenic	18 / **87**
Barium	220 / **480**
Boron	36 / **69**
Cadmium	1.2 / **3.5**
Chromium	70 / **100**
Cobalt	21 / **31**
Copper	92 / **6900**
Lead	120 / **3700**
Molybdenum	2 / **20**
Nickel	82 / **170**
Silver	0.5 / **34**
Zinc	290 / **3000**

Borehole ID	BH1
Soil Sample ID	SS3
Date Sampled	12-Oct-18
Sample Depth (mbgs)	1.5 - 2.1
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
EC (mS/cm)	0.57 / **1.6**
Mercury	0.27 / **0.51**
Antimony	1.3 / **9.3**
Arsenic	18 / **25**
Barium	220 / **520**
Cadmium	1.2 / **5.1**
Copper	92 / **360**
Lead	120 / **1100**
Molybdenum	2 / **6.6**
Silver	0.5 / **4.9**
Zinc	290 / **1600**

Borehole ID	BH1
Soil Sample ID	SS4
Date Sampled	12-Oct-18
Sample Depth (mbgs)	2.3 - 2.9
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
EC (mS/cm)	0.57 / **1.2**
Chromium VI	0.66 / **3.7**
Antimony	1.3 / **74**
Arsenic	18 / **33**
Selenium	1.5 / **4.4**
Barium	220 / **680**
Boron	36 / **61**
Cadmium	1.2 / **12**
Chromium	70 / **91**
Copper	92 / **720**
Lead	120 / **4300**
Molybdenum	2 / **9.6**
Silver	0.5 / **5**
Zinc	290 / **3400**

Borehole ID	BH1
Soil Sample ID	SS11
Date Sampled	12-Oct-18
Sample Depth (mbgs)	10.7 - 11.3
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
EC (mS/cm)	0.57 / **2.1**
Mercury	0.27 / **0.45**
Antimony	1.3 / **4.7**
Barium	220 / **930**
Cadmium	1.2 / **4.3**
Copper	92 / **290**
Lead	120 / **430**
Molybdenum	2 / **5.3**
Zinc	290 / **2400**

Borehole ID	BH1
Soil Sample ID	SS12
Date Sampled	12-Oct-18
Sample Depth (mbgs)	12.2 - 12.3
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **2.9**

Borehole ID	BH101
Soil Sample ID	SS3
Date Sampled	28-Nov-18
Sample Depth (mbgs)	1.5 - 2.1
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **6.5**
EC (mS/cm)	0.57 / **1.3**
Chromium VI	0.66 / **1.3**
Mercury	0.27 / **0.39**
Antimony	1.3 / **9.8**
Arsenic	18 / **41**
Barium	220 / **370**
Boron	36 / **57**
Cadmium	1.2 / **3**
Chromium	70 / **74**
Copper	92 / **300**
Lead	120 / **1100**
Molybdenum	2 / **7.3**
Silver	0.5 / **1.2**
Zinc	290 / **1600**

Borehole ID	BH102
Soil Sample ID	SS4
Date Sampled	28-Nov-18
Sample Depth (mbgs)	2.3 - 2.9
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
EC (mS/cm)	0.57 / **1.1**
Chromium VI	0.66 / **1.1**
Free Cynaide	0.051 / **0.07**
Antimony	1.3 / **5.7**
Barium	220 / **500**
Cadmium	1.2 / **3.3**
Lead	120 / **410**
Molybdenum	2 / **3.8**
Zinc	290 / **3100**

Borehole Sample	BH102 SS10
Date Sampled	28-Nov-18
Sample Depth (mbgs)	7.6 - 8.2
Contaminants of Concern	Metals & ORPs

Borehole ID	BH19-03(MW)
Soil Sample ID	BH19-03(MW)-2
Date Sampled	16-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **7.8**
EC (mS/cm)	0.57 / **0.62**

Borehole ID	BH19-03(MW)
Soil Sample ID	BH19-302 (duplicate of BH19-03(MW)-2)
Date Sampled	16-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **7.8**
EC (mS/cm)	0.57 / **0.63**

Borehole ID	BH19-03(MW)
Soil Sample ID	BH19-03(MW)-9
Date Sampled	16-Oct-19
Sample Depth (mbgs)	6.10 - 6.71
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **3.9**
EC (mS/cm)	0.57 / **0.89**

Borehole Sample	BH19-07-2
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Contaminants of Concern	Metals & ORPs

Borehole ID	BH19-04(MW)
Soil Sample ID	BH19-04(MW)-1
Date Sampled	16-Oct-19
Sample Depth (mbgs)	0.15 - 0.76
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **5.9**

Borehole Sample	BH19-04(MW)-6
Date Sampled	16-Oct-19
Sample Depth (mbgs)	3.81 - 4.42
Contaminants of Concern	Metals & ORPs

Borehole ID	BH2
Soil Sample ID	SS3
Date Sampled	12-Oct-18
Sample Depth (mbgs)	1.5 - 2.1
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
EC (mS/cm)	0.57 / **0.63**

Borehole Sample	BH19-06-5
Date Sampled	16-Oct-19
Sample Depth (mbgs)	3.05 - 3.66
Contaminants of Concern	Metals & ORPs

Borehole Sample	BH19-06-9
Date Sampled	16-Oct-19
Sample Depth (mbgs)	6.10 - 6.71
Contaminants of Concern	Metals & ORPs

Borehole ID	BH5
Soil Sample ID	SS2
Date Sampled	11-Oct-18
Sample Depth (mbgs)	0.8 - 1.4
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
EC (mS/cm)	0.7 / **0.71**
SAR (no units)	2.4 / **4.8**

Borehole ID	BH19-05
Soil Sample ID	BH19-05-1
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0.15 - 0.76
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **3**

Borehole Sample	BH19-05-4
Date Sampled	17-Oct-19
Sample Depth (mbgs)	2.29 - 2.90
Contaminants of Concern	Metals & ORPs

Borehole ID	BH19-02(MW)
Soil Sample ID	BH19-02(MW)-1
Date Sampled	15-Oct-19
Sample Depth (mbgs)	0.15 - 0.76
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **14.8**
EC (mS/cm)	0.57 / **1.2**

Borehole Sample	BH19-02(MW)-5
Date Sampled	15-Oct-19
Sample Depth (mbgs)	3.05 - 3.66
Contaminants of Concern	Metals & ORPs

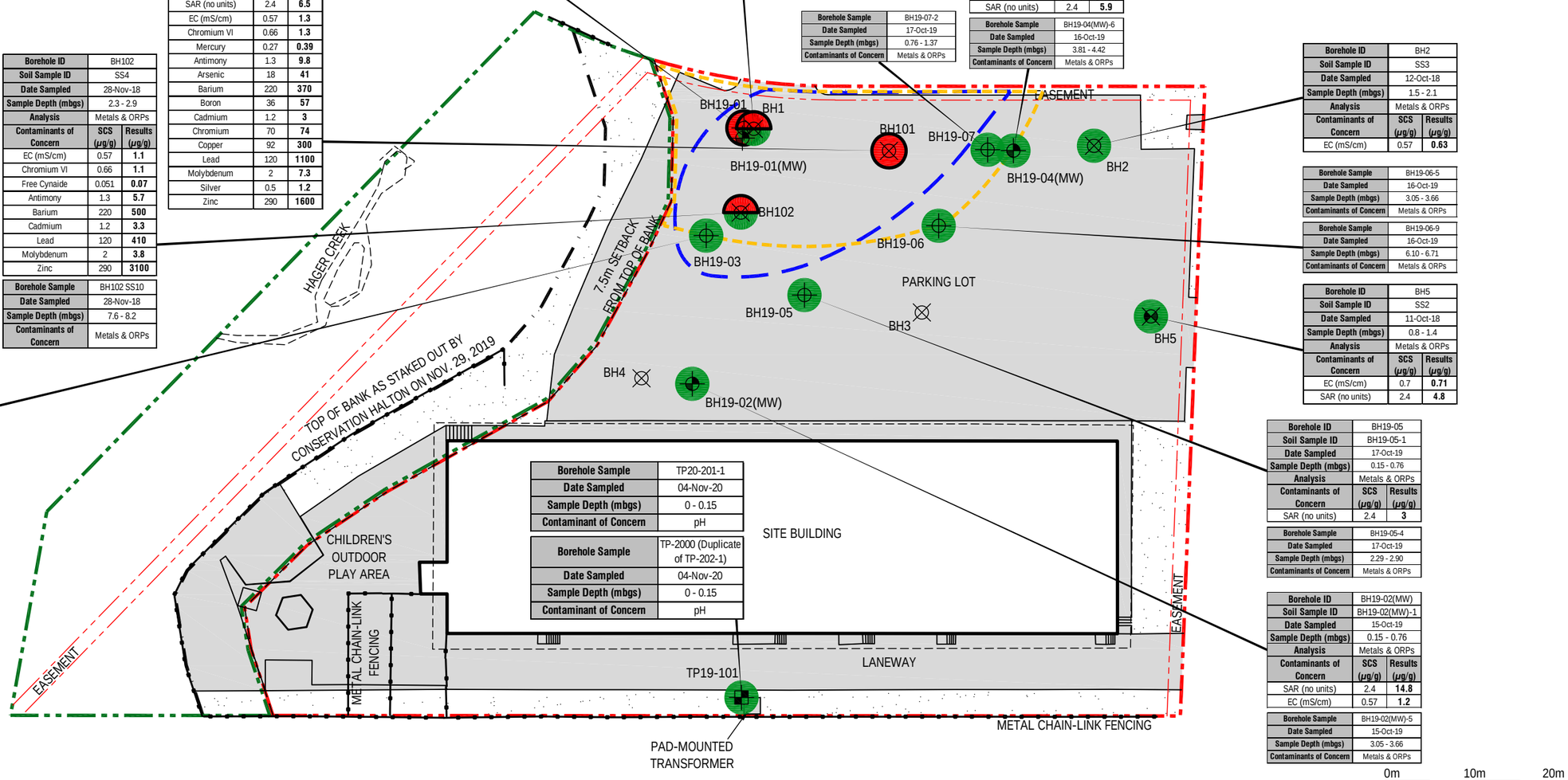
Borehole Sample	TP20-201-1
Date Sampled	04-Nov-20
Sample Depth (mbgs)	0 - 0.15
Contaminant of Concern	pH

Borehole Sample	TP-2000 (Duplicate of TP-202-1)
Date Sampled	04-Nov-20
Sample Depth (mbgs)	0 - 0.15
Contaminant of Concern	pH

INFERRED NEAR-SURFACE GROUNDWATER FLOW DIRECTION

PROJECT NORTH / TRUE NORTH

ELEVATED CONCENTRATIONS OF EC AND/OR SAR WERE DETECTED IN SOME OF THE SOIL SAMPLES. HOWEVER, AS PROVIDED FOR UNDER SECTION 49.1 OF ONTARIO REGULATION 153/04, THE APPLICABLE SITE CONDITIONS FOR SAR AND EC IN SOIL ARE DEEMED NOT TO BE EXCEEDED FOR THE PURPOSE OF PART XV.1 OF THE ACT. AS SUCH, ALL SOIL SAMPLES WITH ELEVATED CONCENTRATIONS RELATED TO EC AND SAR MET THE APPLICABLE SCS FOR THIS SITE AND WILL NOT BE CONSIDERED AS CONTAMINANTS OF CONCERN. THUS, NO CONCENTRATION EXCEEDANCES IN SOIL.



WATTERS ENVIRONMENTAL GROUP INC®

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DRAWN: B. CALDERONE
CHECKED: K. SUE
DATE: NOVEMBER 2020

CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: SOIL ANALYTICAL RESULTS (METALS & ORPs)

PROJECT No: 19-0087.02.03

FIGURE No: 9C

LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- LANDSCAPED AREA / PAVED AREA
- EXP MONITORING WELL LOCATION
- EXP BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL MONITORING WELL LOCATION
- WATTERS ENVIRONMENTAL BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL TEST PIT LOCATION
- **SCS** — TABLE 1 RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY
- PARAMETERS ANALYZED MEET SCS
- PARAMETERS ANALYZED EXCEED SCS
- SHALLOW SAMPLE EXCEEDS SCS DEEPER SAMPLE MEETS SCS
- SHALLOW SAMPLE MEETS SCS DEEPER SAMPLE EXCEEDS SCS
- MEASURED SHALLOW GROUNDWATER FLOW DIRECTION - NOV. 6, 2019
- APPROXIMATE BOUNDARY OF LANDFILL
- **mbgs** — METRES BELOW GROUND SURFACE
- **PAHs** — POLYCYCLIC AROMATIC HYDROCARBONS
- ESTIMATED LATERAL EXTENT OF PAH CONTAMINATED SOILS

Borehole ID	BH19-03	
Soil Sample ID	BH19-03-4	
Date Sampled	October 16, 2019	
Sample Depth (mbgs)	2.29 - 2.90	
Analysis	PAHs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
Acenaphthene	0.072	**2.74**
Anthracene	0.16	**2.51**
Benzo(a)anthracene	0.36	**11**
Benzo(a)pyrene	0.3	**14.2**
Benzo(b,j)fluoranthene	0.47	**17.4**
Benzo(g,h,i)perylene	0.68	**8.3**
Benzo(k)fluoranthene	0.48	**6**
Chrysene	2.8	**9.98**
Dibenz(a,h)anthracene	0.1	**1.51**
Fluoranthene	0.56	**16.8**
Fluorene	0.12	**0.83**
Indeno(1,2,3-cd)pyrene	0.23	**5.78**
Naphthalene	0.09	**0.42**
Phenanthrene	0.69	**9.83**
Pyrene	1	**18.2**

Borehole ID	BH19-03	
Soil Sample ID	BH19-304 (duplicate of BH19-03-4)	
Date Sampled	October 16, 2019	
Sample Depth (mbgs)	2.29 - 2.90	
Analysis	PAHs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
Acenaphthene	0.072	**4.25**
Anthracene	0.16	**3.5**
Benzo(a)anthracene	0.36	**13.5**
Benzo(a)pyrene	0.3	**17.3**
Benzo(b,j)fluoranthene	0.47	**20.8**
Benzo(g,h,i)perylene	0.68	**9.99**
Benzo(k)fluoranthene	0.48	**6.41**
Chrysene	2.8	**12.9**
Dibenz(a,h)anthracene	0.1	**1.9**
Fluoranthene	0.56	**20.5**
Fluorene	0.12	**1.18**
Indeno(1,2,3-cd)pyrene	0.23	**7.75**
Naphthalene	0.09	**0.64**
Phenanthrene	0.69	**12.6**
Pyrene	1	**22.5**

Borehole Sample	BH19-03-9
Date Sampled	16-Oct-19
Sample Depth (mbgs)	6.10 - 6.71
Contaminant of Concern	PAHs

Borehole ID	BH102	
Soil Sample ID	SS4	
Date Sampled	28-Nov-18	
Sample Depth (mbgs)	2.3 - 2.9	
Analysis	PAHs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
Acenaphthene	0.072	**0.13**
Anthracene	0.16	**0.34**
Benzo(a)anthracene	0.36	**0.56**
Benzo(a)pyrene	0.3	**0.45**
Benzo(b,j)fluoranthene	0.47	**0.52**
Fluoranthene	0.56	**1.4**
Fluorene	0.12	**0.2**
Indeno(1,2,3-cd)pyrene	0.23	**0.31**
Naphthalene	0.09	**0.1**
Phenanthrene	0.69	**1.4**
Pyrene	1	**1.2**

Borehole Sample	BH102 SS10
Date Sampled	28-Nov-18
Sample Depth (mbgs)	7.6 - 8.2
Contaminant of Concern	PAHs

Borehole Sample	BH19-01(MW)-2
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Contaminant of Concern	PAHs

Borehole Sample	BH19-102 [dup of BH19-01(MW)-2]
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Contaminant of Concern	PAHs

Borehole Sample	BH19-01(MW)-16
Date Sampled	17-Oct-19
Sample Depth (mbgs)	11.43 - 11.79
Contaminant of Concern	PAHs

Borehole Sample	BH1 SS12
Date Sampled	12-Oct-18
Sample Depth (mbgs)	12.2 - 12.3
Contaminant of Concern	PAHs

Borehole Sample	BH101 SS3
Date Sampled	28-Nov-18
Sample Depth (mbgs)	1.5 - 2.1
Contaminant of Concern	PAHs

Borehole Sample	BH19-07-2
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Contaminant of Concern	PAHs

Borehole Sample	BH19-04(MW)-1
Date Sampled	16-Oct-19
Sample Depth (mbgs)	0 - 0.61
Contaminant of Concern	PAHs

Borehole Sample	BH19-04(MW)-6
Date Sampled	16-Oct-19
Sample Depth (mbgs)	3.81 - 4.42
Contaminant of Concern	PAHs

Borehole Sample	BH19-06-5
Date Sampled	16-Oct-19
Sample Depth (mbgs)	3.05 - 3.66
Contaminant of Concern	PAHs

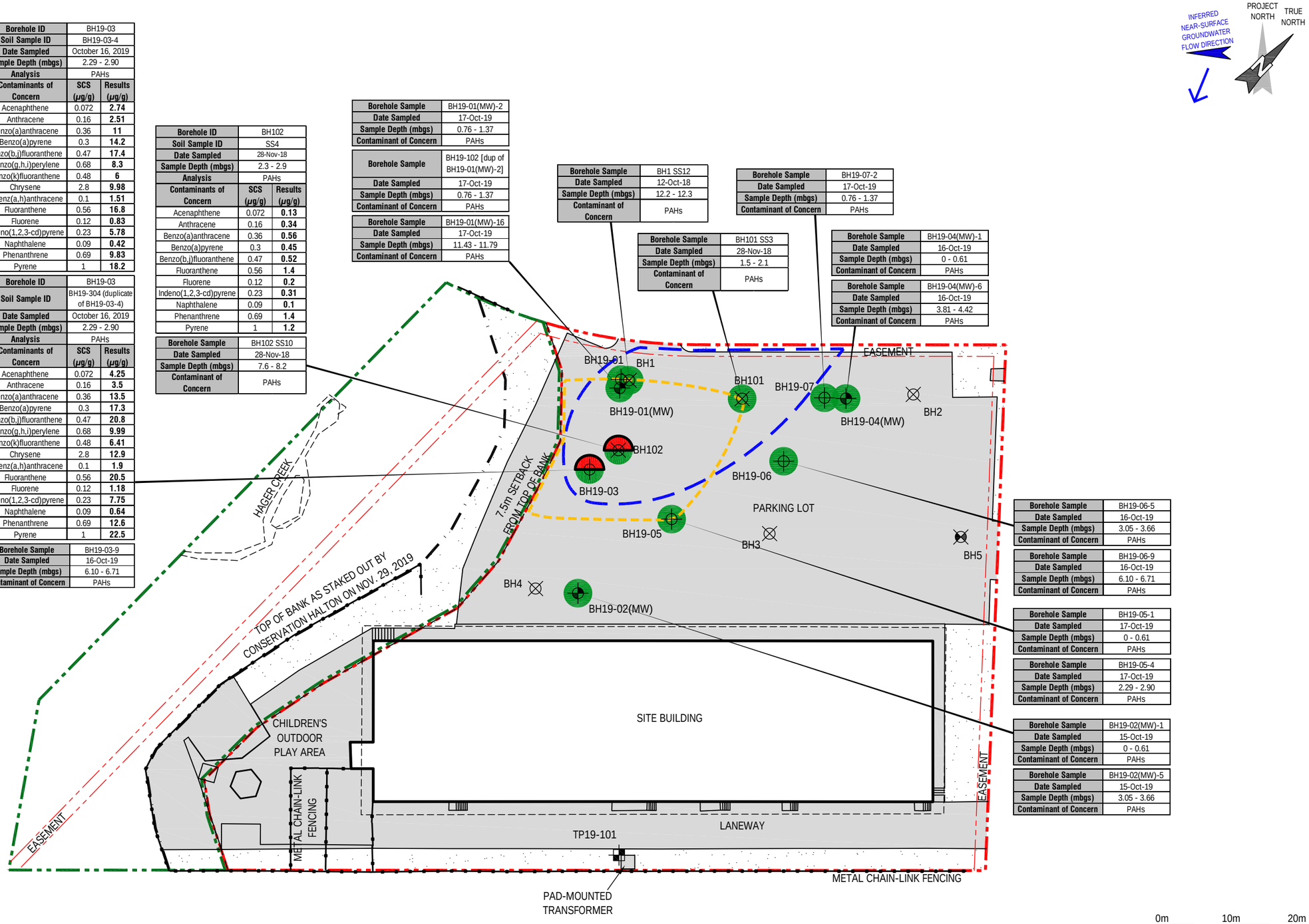
Borehole Sample	BH19-06-9
Date Sampled	16-Oct-19
Sample Depth (mbgs)	6.10 - 6.71
Contaminant of Concern	PAHs

Borehole Sample	BH19-05-1
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0 - 0.61
Contaminant of Concern	PAHs

Borehole Sample	BH19-05-4
Date Sampled	17-Oct-19
Sample Depth (mbgs)	2.29 - 2.90
Contaminant of Concern	PAHs

Borehole Sample	BH19-02(MW)-1
Date Sampled	15-Oct-19
Sample Depth (mbgs)	0 - 0.61
Contaminant of Concern	PAHs

Borehole Sample	BH19-02(MW)-5
Date Sampled	15-Oct-19
Sample Depth (mbgs)	3.05 - 3.66
Contaminant of Concern	PAHs



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T 416 361 2407
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DRAWN: B. CALDERONE
CHECKED: K. SUE
DATE: NOVEMBER 2020

CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: SOIL ANALYTICAL RESULTS (PAHs)

PROJECT No: 19-0087.02.03

FIGURE No: 9D

LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- LANDSCAPED AREA
- PAVED AREA
- EXP MONITORING WELL LOCATION
- EXP BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL MONITORING WELL LOCATION
- WATTERS ENVIRONMENTAL BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL TEST PIT LOCATION

SCS TABLE 1 RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY

- PARAMETERS ANALYZED MEET SCS
- PARAMETERS ANALYZED EXCEED SCS
- SHALLOW SAMPLE EXCEEDS SCS DEEPER SAMPLE MEETS SCS
- SHALLOW SAMPLE MEETS SCS DEEPER SAMPLE EXCEEDS SCS
- MEASURED SHALLOW GROUNDWATER FLOW DIRECTION - NOV. 6, 2019
- APPROXIMATE BOUNDARY OF LANDFILL

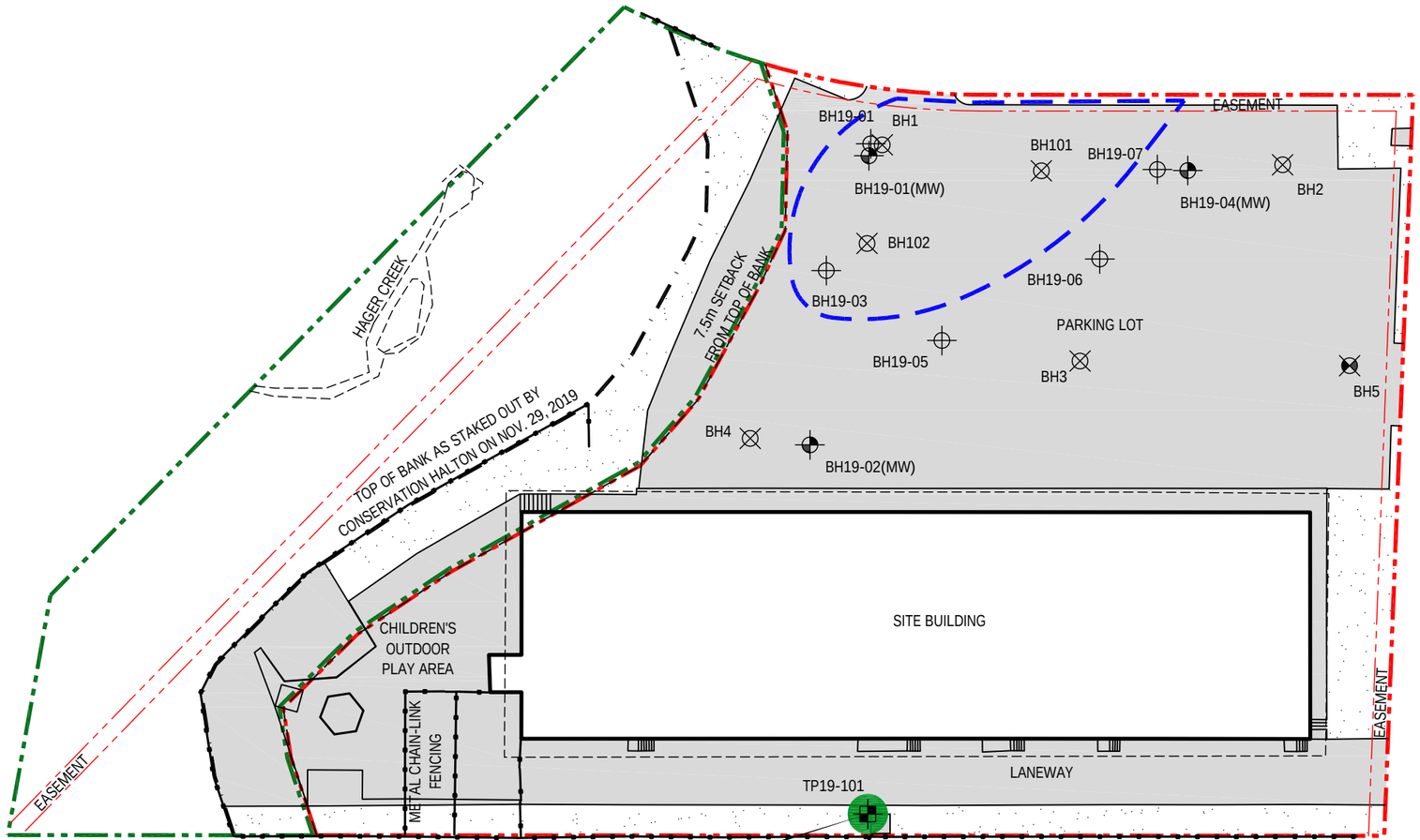
mbgs METRES BELOW GROUND SURFACE

PCBs POLYCHLORINATED BIPHENYLS

INFERRED NEAR-SURFACE GROUNDWATER FLOW DIRECTION

PROJECT NORTH

TRUE NORTH



Borehole Sample	TP19-101-1
Date Sampled	15-Oct-19
Sample Depth (mbgs)	0 - 0.15
Contaminant of Concern	PCBs

Borehole Sample	TP19-100-1 (Duplicate of TP19-101-1)
Date Sampled	15-Oct-19
Sample Depth (mbgs)	0 - 0.15
Contaminant of Concern	PCBs

0m 10m 20m

SCALE

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T 416 361 2407
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DRAWN: B. CALDERONE
CHECKED: K. SUE
DATE: NOVEMBER 2020

CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: SOIL ANALYTICAL RESULTS (PCBs)

PROJECT No: 19-0087.02.03

FIGURE No: 9E

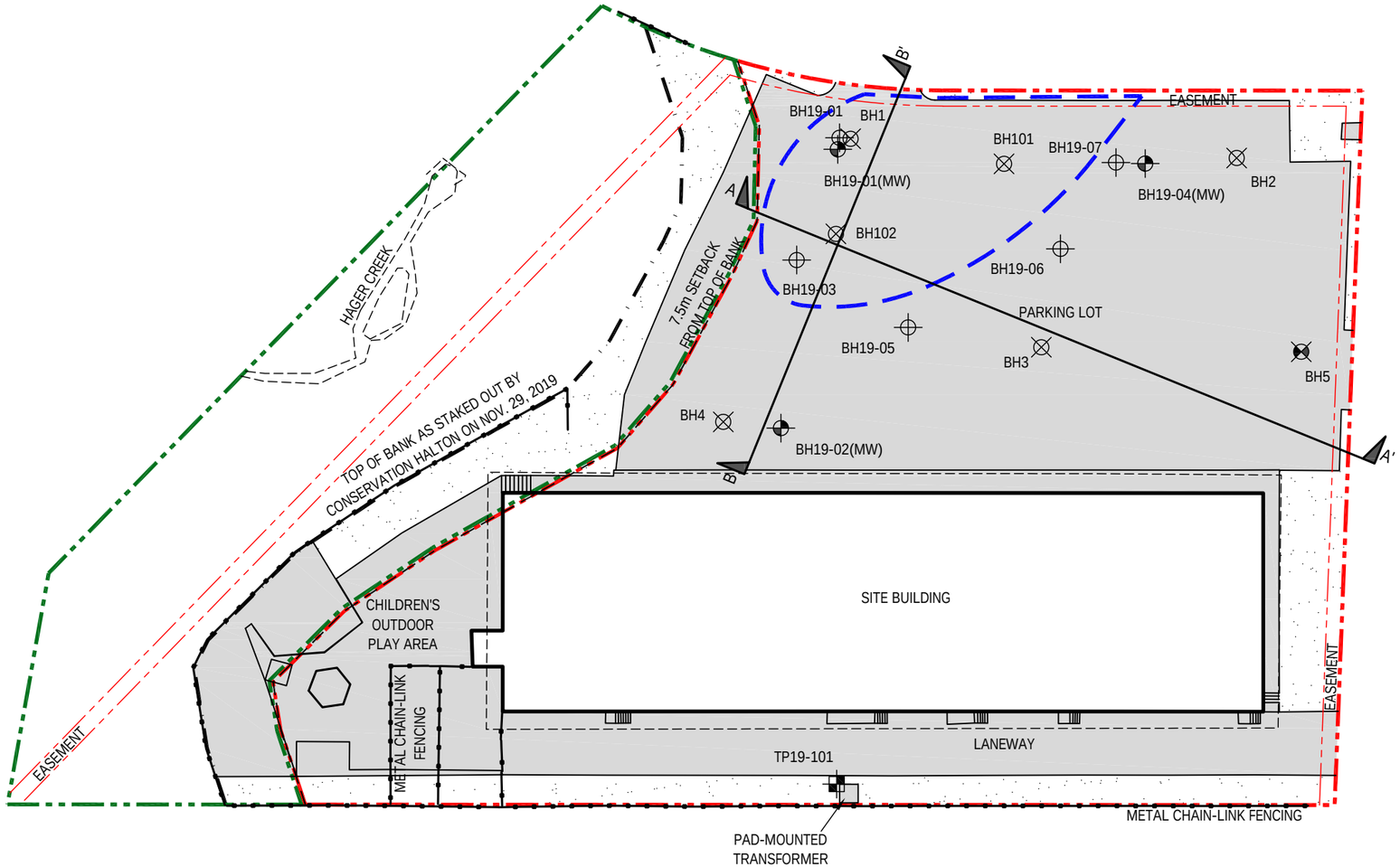
LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- LANDSCAPED AREA / PAVED AREA
- EXP MONITORING WELL LOCATION
- EXP BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL MONITORING WELL LOCATION
- WATTERS ENVIRONMENTAL BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL TEST PIT LOCATION
- MEASURED SHALLOW GROUNDWATER FLOR DIRECTION - NOV. 6, 2019
- APPROXIMATE BOUNDARY OF LANDFILL

INFERRED NEAR-SURFACE GROUNDWATER FLOW DIRECTION

PROJECT NORTH

TRUE NORTH



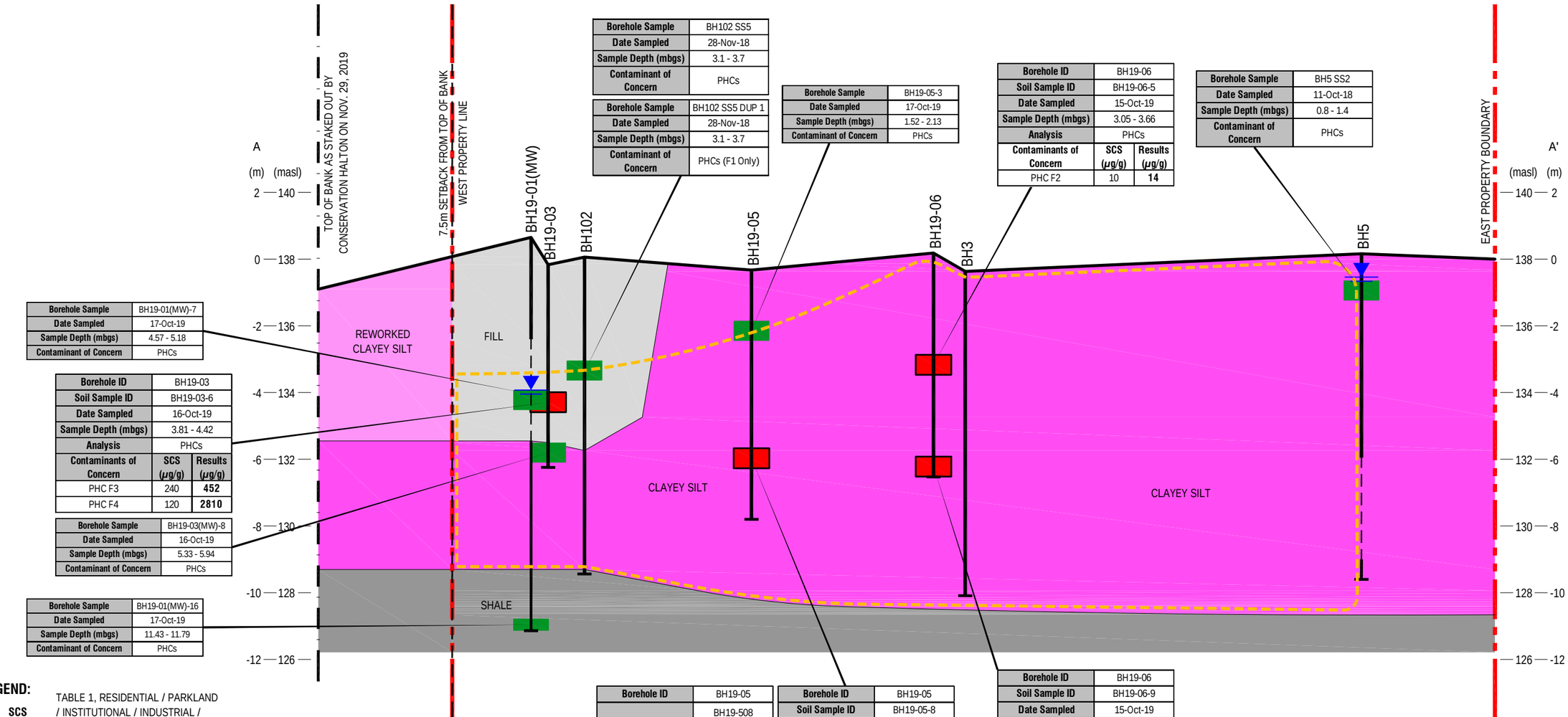
0m 10m 20m

SCALE

WATTERS ENVIRONMENTAL GROUP INC®

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DRAWN: B. CALDERONE CHECKED: K. SUE DATE: NOVEMBER 2020	CLIENT: FGL KERNS INC. SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO	REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT	FIGURE NAME: CROSS SECTION LOCATION PLAN PROJECT No: 19-0087.02.03 FIGURE No: 10



Borehole Sample	BH102 SS5
Date Sampled	28-Nov-18
Sample Depth (mbgs)	3.1 - 3.7
Contaminant of Concern	PHCs

Borehole Sample	BH102 SS5 DUP 1
Date Sampled	28-Nov-18
Sample Depth (mbgs)	3.1 - 3.7
Contaminant of Concern	PHCs (F1 Only)

Borehole Sample	BH19-05-3
Date Sampled	17-Oct-19
Sample Depth (mbgs)	1.52 - 2.13
Contaminant of Concern	PHCs

Borehole ID	BH19-06	
Soil Sample ID	BH19-06-5	
Date Sampled	15-Oct-19	
Sample Depth (mbgs)	3.05 - 3.66	
Analysis	PHCs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
PHC F2	10	**14**

Borehole Sample	BH5 SS2
Date Sampled	11-Oct-18
Sample Depth (mbgs)	0.8 - 1.4
Contaminant of Concern	PHCs

Borehole Sample	BH19-01(MW)-7
Date Sampled	17-Oct-19
Sample Depth (mbgs)	4.57 - 5.18
Contaminant of Concern	PHCs

Borehole ID	BH19-03	
Soil Sample ID	BH19-03-6	
Date Sampled	16-Oct-19	
Sample Depth (mbgs)	3.81 - 4.42	
Analysis	PHCs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
PHC F3	240	**452**
PHC F4	120	**2810**

Borehole Sample	BH19-03(MW)-8
Date Sampled	16-Oct-19
Sample Depth (mbgs)	5.33 - 5.94
Contaminant of Concern	PHCs

Borehole Sample	BH19-01(MW)-16
Date Sampled	17-Oct-19
Sample Depth (mbgs)	11.43 - 11.79
Contaminant of Concern	PHCs

Borehole ID	BH19-05	
Soil Sample ID	BH19-508 (duplicate of BH19-05-8)	
Date Sampled	17-Oct-19	
Sample Depth (mbgs)	5.33 - 5.94	
Analysis	PHCs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
PHC F2	10	**19**

Borehole ID	BH19-05	
Soil Sample ID	BH19-05-8	
Date Sampled	17-Oct-19	
Sample Depth (mbgs)	5.33 - 5.94	
Analysis	PHCs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
PHC F2	10	**19**

Borehole ID	BH19-06	
Soil Sample ID	BH19-06-9	
Date Sampled	15-Oct-19	
Sample Depth (mbgs)	6.10 - 6.71	
Analysis	PHCs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
PHC F2	10	**21**

LEGEND:

SCS TABLE 1, RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY

BH01(MW) MONITORING WELL LABEL

MONITORING WELL

SCREENED SECTION OF MONITORING WELL

GROUDNWATER LEVEL - MEASURED NOV. 6, 2019

masl METRES ABOVE SEA LEVEL

mbgs **METRES BELOW GROUND SURFACE**

PHCs PETROLEUM HYDROCARBONS

ESTIMATED VERTICAL EXTENT OF PHC CONTAMINATION

PARAMETERS ANALYZED MEET SCS

PARAMETERS ANALYZED EXCEED SCS

(H) 0m 5m 10m
(V) 0m 2.5m 5m
SCALE

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DRAWN: B. CALDERONE
CHECKED: K. SUE
DATE: NOVEMBER 2020

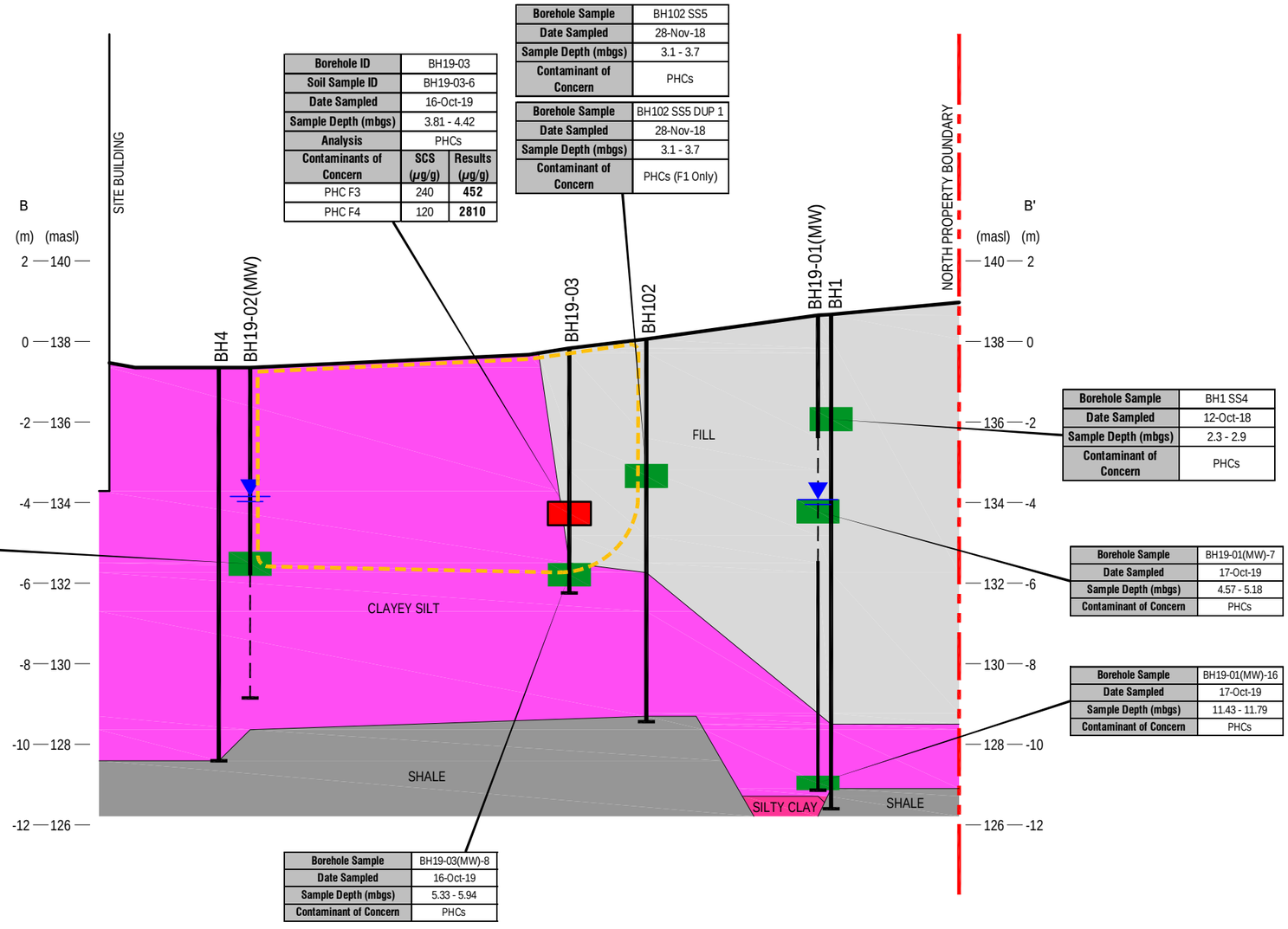
CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: SOIL ANALYTICAL RESULTS (PHCs) - CROSS SECTION A-A'

PROJECT No: 19-0087.02.03

FIGURE No: 11A



Borehole ID	BH19-03	
Soil Sample ID	BH19-03-6	
Date Sampled	16-Oct-19	
Sample Depth (mbgs)	3.81 - 4.42	
Analysis	PHCs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
PHC F3	240	**452**
PHC F4	120	**2810**

Borehole Sample	BH102 SS5
Date Sampled	28-Nov-18
Sample Depth (mbgs)	3.1 - 3.7
Contaminant of Concern	PHCs

Borehole Sample	BH102 SS5 DUP 1
Date Sampled	28-Nov-18
Sample Depth (mbgs)	3.1 - 3.7
Contaminant of Concern	PHCs (F1 Only)

Borehole Sample	BH1 SS4
Date Sampled	12-Oct-18
Sample Depth (mbgs)	2.3 - 2.9
Contaminant of Concern	PHCs

Borehole Sample	BH19-02(MW)-5
Date Sampled	15-Oct-19
Sample Depth (mbgs)	4.57 - 5.18
Contaminant of Concern	PHCs

Borehole Sample	BH19-01(MW)-7
Date Sampled	17-Oct-19
Sample Depth (mbgs)	4.57 - 5.18
Contaminant of Concern	PHCs

Borehole Sample	BH19-01(MW)-16
Date Sampled	17-Oct-19
Sample Depth (mbgs)	11.43 - 11.79
Contaminant of Concern	PHCs

Borehole Sample	BH19-03(MW)-8
Date Sampled	16-Oct-19
Sample Depth (mbgs)	5.33 - 5.94
Contaminant of Concern	PHCs

LEGEND:

SCS TABLE 1, RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY

BH01(MW) MONITORING WELL LABEL

MONITORING WELL

SCREENED SECTION OF MONITORING WELL

GROUDNWATER LEVEL - MEASURED NOV. 6, 2019

masl METRES ABOVE SEA LEVEL

mbgs METRES BELOW GROUND SURFACE

PHCs PETROLEUM HYDROCARBONS

ESTIMATED VERTICAL EXTENT OF PHC CONTAMINATION

PARAMETERS ANALYZED MEET SCS

PARAMETERS ANALYZED EXCEED SCS

(H) 0m 5m 10m
(V) 0m 2.5m 5m
SCALE

WATTERS ENVIRONMENTAL GROUP INC®
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DRAWN: B. CALDERONE
CHECKED: K. SUE
DATE: NOVEMBER 2020

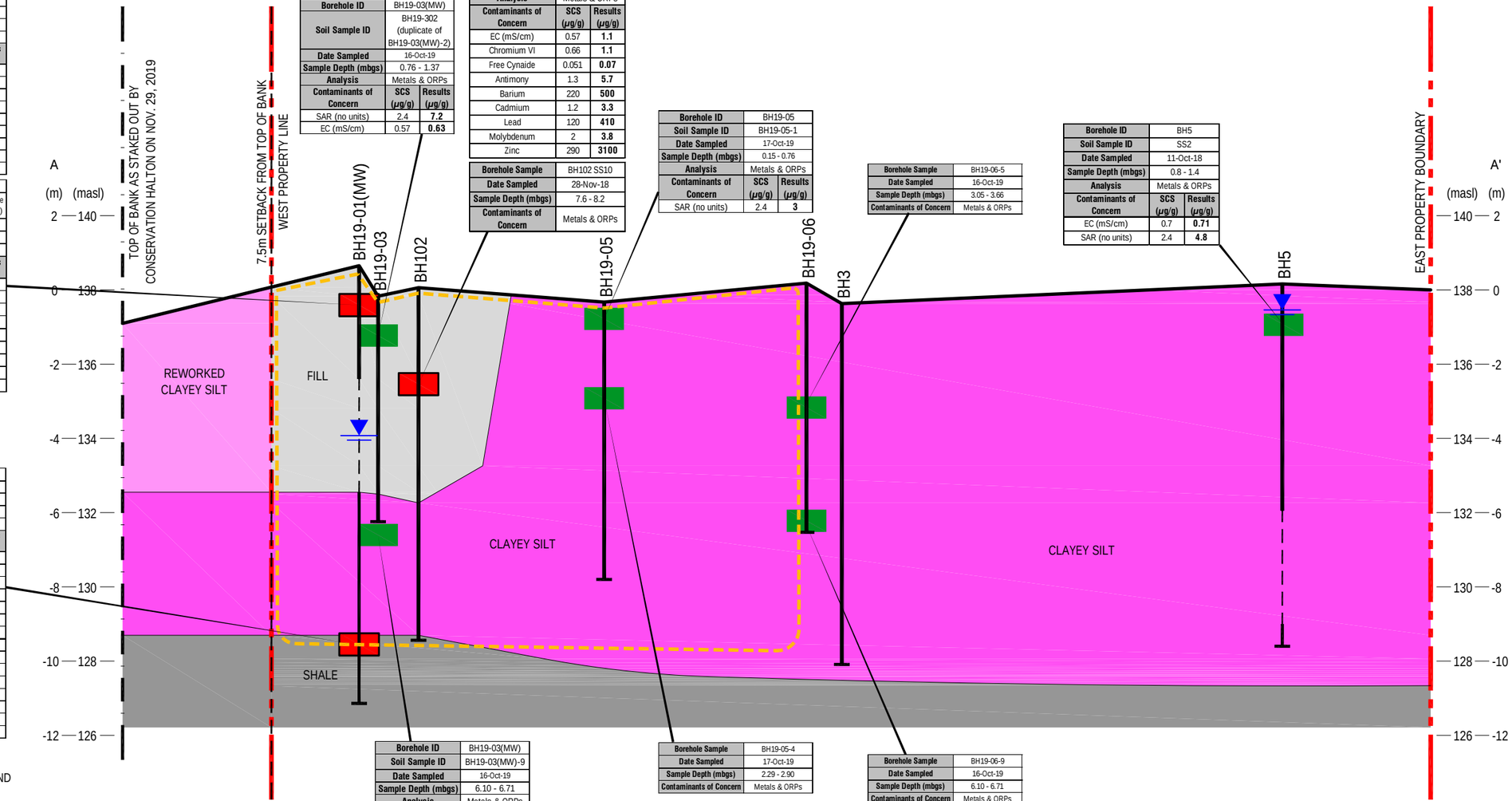
CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: SOIL ANALYTICAL RESULTS (PHCs) - CROSS SECTION B-B'

PROJECT No: 19-0087.02.03

FIGURE No: 11B



Borehole ID	BH19-01(MW)	
Soil Sample ID	BH19-01(MW)-2	
Date Sampled	17-Oct-19	
Sample Depth (mbgs)	0.76 - 1.37	
Analysis	Metals & ORPs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
SAR (no units)	2.4	**4.6**
Antimony	1.3	**2.7**
Barium	220	**240**
Cadmium	1.2	**3.2**
Copper	92	**210**
Lead	120	**450**
Molybdenum	2	**3.8**
Silver	0.5	**0.86**
Zinc	290	**690**

Borehole ID	BH19-01(MW)	
Soil Sample ID	BH19-102 (duplicate of BH19-01(MW)-2)	
Date Sampled	17-Oct-19	
Sample Depth (mbgs)	0.76 - 1.37	
Analysis	Metals & ORPs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
SAR (no units)	2.4	**4.6**
Antimony	1.3	**4.1**
Barium	220	**240**
Cadmium	1.2	**2.8**
Copper	92	**200**
Lead	120	**440**
Molybdenum	2	**4.9**
Silver	0.5	**0.97**
Zinc	290	**650**

Borehole ID	BH19-01(MW)	
Soil Sample ID	BH19-01(MW)-14	
Date Sampled	17-Oct-19	
Sample Depth (mbgs)	9.90 - 10.51	
Analysis	Metals & ORPs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
EC (mS/cm)	0.57	**1.7**
Chromium VI	0.66	**0.9**
Antimony	1.3	**84**
Arsenic	18	**87**
Barium	220	**480**
Boron	36	**69**
Cadmium	1.2	**3.5**
Chromium	70	**100**
Cobalt	21	**31**
Copper	92	**6900**
Lead	120	**3700**
Molybdenum	2	**20**
Nickel	82	**170**
Silver	0.5	**34**
Zinc	290	**3000**

Borehole ID	BH19-03(MW)	
Soil Sample ID	BH19-03(MW)-2	
Date Sampled	16-Oct-19	
Sample Depth (mbgs)	0.76 - 1.37	
Analysis	Metals & ORPs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
SAR (no units)	2.4	**7.8**
EC (mS/cm)	0.57	**0.62**

Borehole ID	BH19-03(MW)	
Soil Sample ID	BH19-302 (duplicate of BH19-03(MW)-2)	
Date Sampled	16-Oct-19	
Sample Depth (mbgs)	0.76 - 1.37	
Analysis	Metals & ORPs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
SAR (no units)	2.4	**7.2**
EC (mS/cm)	0.57	**0.63**

Borehole ID	BH102	
Soil Sample ID	SS4	
Date Sampled	28-Nov-18	
Sample Depth (mbgs)	2.3 - 2.9	
Analysis	Metals & ORPs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
EC (mS/cm)	0.57	**1.1**
Chromium VI	0.66	**1.1**
Free Cynaide	0.051	**0.07**
Antimony	1.3	**5.7**
Barium	220	**500**
Cadmium	1.2	**3.3**
Lead	120	**410**
Molybdenum	2	**3.8**
Zinc	290	**3100**

Borehole Sample	BH102 SS10
Date Sampled	28-Nov-18
Sample Depth (mbgs)	7.6 - 8.2
Contaminants of Concern	Metals & ORPs

Borehole ID	BH19-05	
Soil Sample ID	BH19-05-1	
Date Sampled	17-Oct-19	
Sample Depth (mbgs)	0.15 - 0.76	
Analysis	Metals & ORPs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
SAR (no units)	2.4	**3**

Borehole Sample	BH19-06-5
Date Sampled	16-Oct-19
Sample Depth (mbgs)	3.05 - 3.66
Contaminants of Concern	Metals & ORPs

Borehole ID	BH5	
Soil Sample ID	SS2	
Date Sampled	11-Oct-18	
Sample Depth (mbgs)	0.8 - 1.4	
Analysis	Metals & ORPs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
EC (mS/cm)	0.7	**0.71**
SAR (no units)	2.4	**4.8**

Borehole ID	BH19-03(MW)	
Soil Sample ID	BH19-03(MW)-9	
Date Sampled	16-Oct-19	
Sample Depth (mbgs)	6.10 - 6.71	
Analysis	Metals & ORPs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
SAR (no units)	2.4	**3.9**
EC (mS/cm)	0.57	**0.89**

Borehole Sample	BH19-05-4
Date Sampled	17-Oct-19
Sample Depth (mbgs)	2.29 - 2.90
Contaminants of Concern	Metals & ORPs

Borehole Sample	BH19-06-9
Date Sampled	16-Oct-19
Sample Depth (mbgs)	6.10 - 6.71
Contaminants of Concern	Metals & ORPs

LEGEND:

SCS TABLE 1, RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY

BH01(MW) MONITORING WELL LABEL

MONITORING WELL

SCREENED SECTION OF MONITORING WELL

GROUDNWATER LEVEL - MEASURED NOV. 6, 2019

masl METRES ABOVE SEA LEVEL

mbgs **METRES BELOW GROUND SURFACE**

As ARSENIC
Sb ANTIMONY
Se SELENIUM
Cr(VI) HEXAVALENT CHROMIUM
Hg MERCURY
CN- CYANIDE
B-HWS BORON (HOT WATER SOLUBLE)

PARAMETERS ANALYZED MEET SCS

PARAMETERS ANALYZED EXCEED SCS

EC ELECTRICAL CONDUCTIVITY
SAR SODIUM ADSORPTION RATIO
ORPs OTHER REGULATED PARAMETERS (As, Sb, Se, Cr(VI), Hg, CN-, B-HWS, EC, SAR)

ESTIMATED VERTICAL EXTENT OF METALS / ORP CONTAMINATION

ELEVATED CONCENTRATIONS OF EC AND/OR SAR WERE DETECTED IN SOME OF THE SOIL SAMPLES. HOWEVER, AS PROVIDED FOR UNDER SECTION 49.1 OF ONTARIO REGULATION 153/04, THE APPLICABLE SITE CONDITIONS FOR SAR AND EC IN SOIL ARE DEEMED NOT TO BE EXCEEDED FOR THE PURPOSE OF PART XV.1 OF THE ACT. AS SUCH, ALL SOIL SAMPLES WITH ELEVATED CONCENTRATIONS RELATED TO EC AND SAR MET THE APPLICABLE SCS FOR THIS SITE AND WILL NOT BE CONSIDERED AS CONTAMINANTS OF CONCERN. THUS, NO CONCENTRATION EXCEEDANCES IN SOIL.

(H) 0m 5m 10m
(V) 0m 2.5m 5m
SCALE

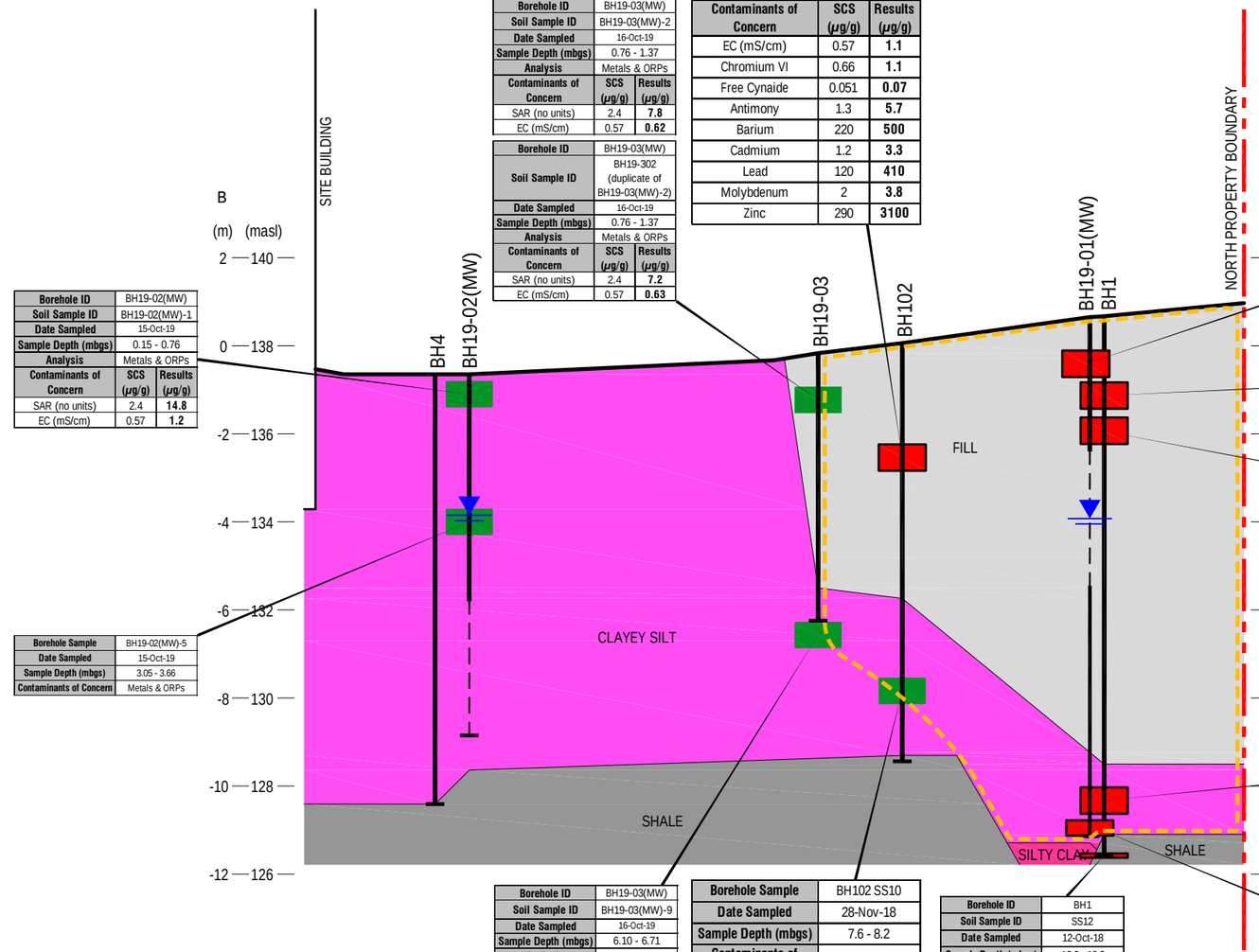
WATTERS ENVIRONMENTAL GROUP INC®
9135 Keele St. Unit A1
Concord, ON. L4K 0J4
T 416 361 2407
F 416 361 2410

DRAWN: B. CALDERONE
CHECKED: K. SUE
DATE: NOVEMBER 2020

CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: SOIL ANALYTICAL RESULTS (METALS & ORPs) - CROSS SECTION A-A'
PROJECT No: 19-0087.02.03
FIGURE No: 12A



Borehole ID	BH19-02(MW)
Soil Sample ID	BH19-02(MW)-1
Date Sampled	15-Oct-19
Sample Depth (mbgs)	0.15 - 0.76
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **14.8**
EC (mS/cm)	0.57 / **1.2**

Borehole Sample	BH19-02(MW)-5
Date Sampled	15-Oct-19
Sample Depth (mbgs)	3.05 - 3.66
Contaminants of Concern	Metals & ORPs

Borehole ID	BH19-03(MW)
Soil Sample ID	BH19-03(MW)-2
Date Sampled	16-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **7.8**
EC (mS/cm)	0.57 / **0.62**

Borehole ID	BH19-03(MW)
Soil Sample ID	BH19-302 (duplicate of BH19-03(MW)-2)
Date Sampled	16-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **7.2**
EC (mS/cm)	0.57 / **0.63**

Borehole ID	BH102
Soil Sample ID	SS4
Date Sampled	28-Nov-18
Sample Depth (mbgs)	2.3 - 2.9
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
EC (mS/cm)	0.57 / **1.1**
Chromium VI	0.66 / **1.1**
Free Cynaide	0.051 / **0.07**
Antimony	1.3 / **5.7**
Barium	220 / **500**
Cadmium	1.2 / **3.3**
Lead	120 / **410**
Molybdenum	2 / **3.8**
Zinc	290 / **3100**

Borehole ID	BH19-03(MW)
Soil Sample ID	BH19-03(MW)-9
Date Sampled	16-Oct-19
Sample Depth (mbgs)	6.10 - 6.71
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **3.9**
EC (mS/cm)	0.57 / **0.89**

Borehole Sample	BH102 SS10
Date Sampled	28-Nov-18
Sample Depth (mbgs)	7.6 - 8.2
Contaminants of Concern	Metals & ORPs

Borehole ID	BH1
Soil Sample ID	SS12
Date Sampled	12-Oct-18
Sample Depth (mbgs)	12.2 - 12.3
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **2.9**

Borehole ID	BH19-01(MW)
Soil Sample ID	BH19-01(MW)-2
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **4.6**
Antimony	1.3 / **2.7**
Barium	220 / **240**
Cadmium	1.2 / **3.2**
Copper	92 / **210**
Lead	120 / **450**
Molybdenum	2 / **3.8**
Silver	0.5 / **0.86**
Zinc	290 / **690**

Borehole ID	BH19-01(MW)
Soil Sample ID	BH19-102 (duplicate of BH19-01(MW)-2)
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
SAR (no units)	2.4 / **4.6**
Antimony	1.3 / **4.1**
Barium	220 / **240**
Cadmium	1.2 / **2.8**
Copper	92 / **200**
Lead	120 / **440**
Molybdenum	2 / **4.9**
Silver	0.5 / **0.97**
Zinc	290 / **650**

Borehole ID	BH1
Soil Sample ID	SS3
Date Sampled	12-Oct-18
Sample Depth (mbgs)	1.5 - 2.1
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
EC (mS/cm)	0.57 / **1.6**
Mercury	0.27 / **0.51**
Antimony	1.3 / **9.3**
Arsenic	18 / **25**
Barium	220 / **520**
Cadmium	1.2 / **5.1**
Copper	92 / **360**
Lead	120 / **1100**
Molybdenum	2 / **6.6**
Silver	0.5 / **4.9**
Zinc	290 / **1600**

Borehole ID	BH1
Soil Sample ID	SS4
Date Sampled	12-Oct-18
Sample Depth (mbgs)	2.3 - 2.9
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
EC (mS/cm)	0.57 / **1.2**
Chromium VI	0.66 / **3.7**
Antimony	1.3 / **74**
Arsenic	18 / **33**
Selenium	1.5 / **4.4**
Barium	220 / **680**
Boron	36 / **61**
Cadmium	1.2 / **12**
Chromium	70 / **91**
Copper	92 / **720**
Lead	120 / **4300**
Molybdenum	2 / **9.6**
Silver	0.5 / **5**
Zinc	290 / **3400**

Borehole ID	BH19-01(MW)
Soil Sample ID	BH19-01(MW)-14
Date Sampled	17-Oct-19
Sample Depth (mbgs)	9.90 - 10.51
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
EC (mS/cm)	0.57 / **1.7**
Chromium VI	0.66 / **0.9**
Antimony	1.3 / **84**
Arsenic	18 / **87**
Barium	220 / **480**
Boron	36 / **69**
Cadmium	1.2 / **3.5**
Chromium	70 / **100**
Cobalt	21 / **31**
Copper	92 / **6900**
Lead	120 / **3700**
Molybdenum	2 / **20**
Nickel	82 / **170**
Silver	0.5 / **34**
Zinc	290 / **3000**

Borehole ID	BH1
Soil Sample ID	SS11
Date Sampled	12-Oct-18
Sample Depth (mbgs)	10.7 - 11.3
Analysis	Metals & ORPs
Contaminants of Concern	SCS (µg/g) / Results (µg/g)
EC (mS/cm)	0.57 / **2.1**
Mercury	0.27 / **0.45**
Antimony	1.3 / **4.7**
Barium	220 / **930**
Cadmium	1.2 / **4.3**
Copper	92 / **290**
Lead	120 / **430**
Molybdenum	2 / **5.3**
Zinc	290 / **2400**

LEGEND:

SCS — TABLE 1, RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY

BH01(MW) — MONITORING WELL LABEL

MONITORING WELL

SCREENED SECTION OF MONITORING WELL

GROUDNWATER LEVEL - MEASURED NOV. 6, 2019

masl — METRES ABOVE SEA LEVEL

mbgs — METRES BELOW GROUND SURFACE

PARAMETERS ANALYZED MEET SCS

PARAMETERS ANALYZED EXCEED SCS

As	ARSENIC
Sb	ANTIMONY
Se	SELENIUM
Cr(VI)	HEXAVALENT CHROMIUM
Hg	MERCURY
CN-	CYANIDE
B-HWS	BORON (HOT WATER SOLUBLE)
EC	ELECTRICAL CONDUCTIVITY
SAR	SODIUM ADSORPTION RATIO
ORPs	OTHER REGULATED PARAMETERS (As, Sb, Se, Cr(VI), Hg, CN-, B-HWS, EC, SAR)

ESTIMATED VERTICAL EXTENT OF METALS / ORP CONTAMINATION

(H) 0m 5m 10m
(V) 0m 2.5m 5m
SCALE

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CHECKED: K. SUE
DATE: NOVEMBER 2020

CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: SOIL ANALYTICAL RESULTS (METALS & ORPs) - CROSS SECTION B-B'
PROJECT No: 19-0087.02.03
FIGURE No: 12B

Borehole ID	BH19-03	
Soil Sample ID	BH19-03-4	
Date Sampled	October 16, 2019	
Sample Depth (mbgs)	2.29 - 2.90	
Analysis	PAHs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
Acenaphthene	0.072	**2.74**
Anthracene	0.16	**2.51**
Benzo(a)anthracene	0.36	**11**
Benzo(a)pyrene	0.3	**14.2**
Benzo(b,j)fluoranthene	0.47	**17.4**
Benzo(g,h,i)perylene	0.68	**8.3**
Benzo(k)fluoranthene	0.48	**6**
Chrysene	2.8	**9.98**
Dibenz(a,h)anthracene	0.1	**1.51**
Fluoranthene	0.69	**16.8**
Fluorene	0.12	**0.83**
Indeno(1,2,3-cd)pyrene	0.23	**5.78**
Naphthalene	0.09	**0.42**
Phenanthrene	0.69	**9.83**
Pyrene	1	**18.2**

Borehole ID	BH19-03	
Soil Sample ID	BH19-304 (duplicate of BH19-03-4)	
Date Sampled	October 16, 2019	
Sample Depth (mbgs)	2.29 - 2.90	
Analysis	PAHs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
Acenaphthene	0.072	**4.25**
Anthracene	0.16	**3.5**
Benzo(a)anthracene	0.36	**13.5**
Benzo(a)pyrene	0.3	**17.3**
Benzo(b,j)fluoranthene	0.47	**20.8**
Benzo(g,h,i)perylene	0.68	**9.99**
Benzo(k)fluoranthene	0.48	**6.41**
Chrysene	2.8	**12.9**
Dibenz(a,h)anthracene	0.1	**1.9**
Fluoranthene	0.56	**20.5**
Fluorene	0.12	**1.18**
Indeno(1,2,3-cd)pyrene	0.23	**7.75**
Naphthalene	0.09	**0.64**
Phenanthrene	0.69	**12.6**
Pyrene	1	**22.5**

Borehole Sample	BH19-03-9
Date Sampled	16-Oct-19
Sample Depth (mbgs)	6.10 - 6.71
Contaminant of Concern	PAHs

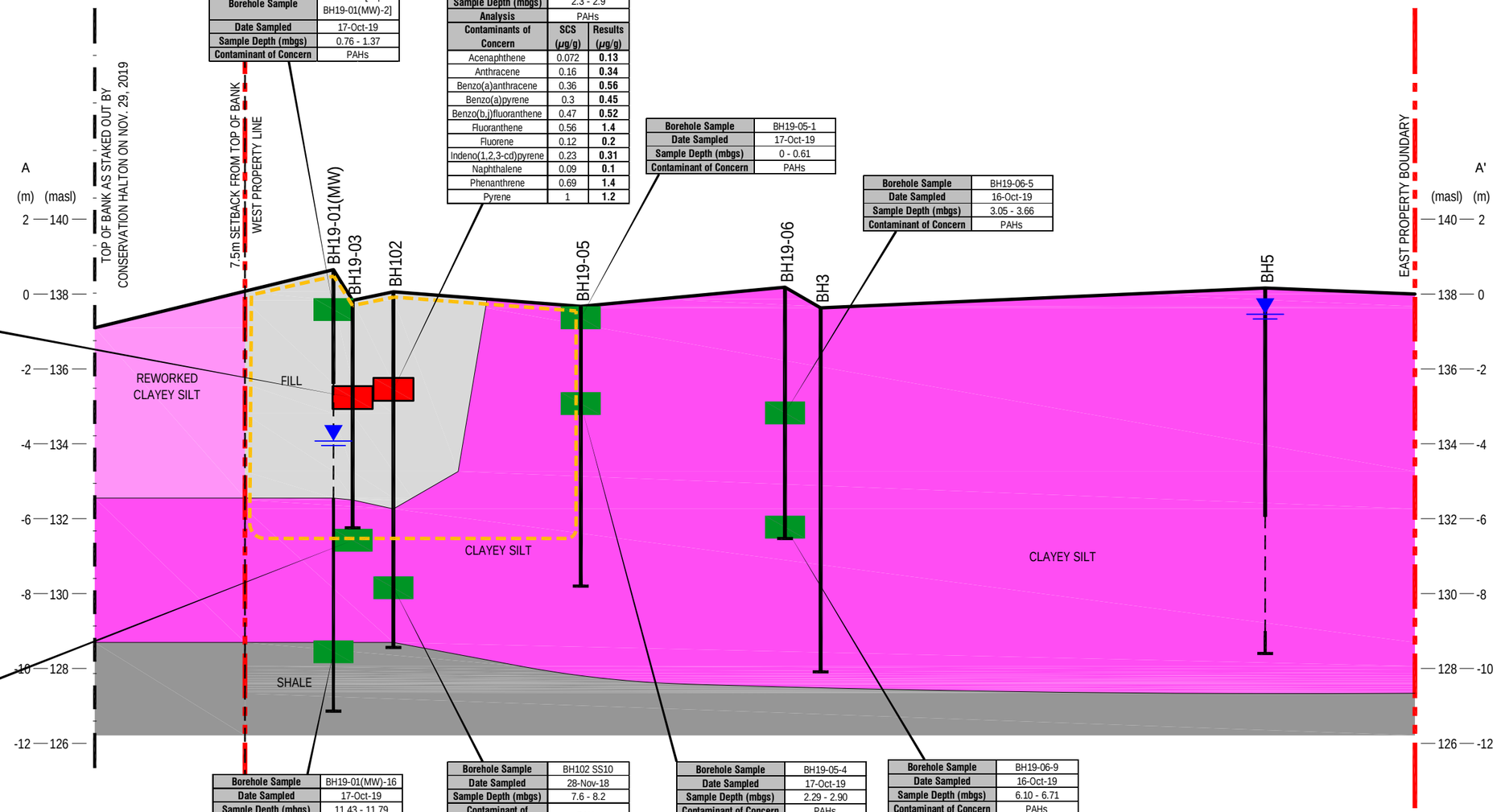
Borehole Sample	BH19-01(MW)-2
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Contaminant of Concern	PAHs

Borehole Sample	BH19-102 [dup of BH19-01(MW)-2]
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Contaminant of Concern	PAHs

Borehole ID	BH102	
Soil Sample ID	SS4	
Date Sampled	28-Nov-18	
Sample Depth (mbgs)	2.3 - 2.9	
Analysis	PAHs	
Contaminants of Concern	SCS (µg/g)	Results (µg/g)
Acenaphthene	0.072	**0.13**
Anthracene	0.16	**0.34**
Benzo(a)anthracene	0.36	**0.56**
Benzo(a)pyrene	0.3	**0.45**
Benzo(b,j)fluoranthene	0.47	**0.52**
Fluoranthene	0.56	**1.4**
Fluorene	0.12	**0.2**
Indeno(1,2,3-cd)pyrene	0.23	**0.31**
Naphthalene	0.09	**0.1**
Phenanthrene	0.69	**1.4**
Pyrene	1	**1.2**

Borehole Sample	BH19-05-1
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0 - 0.61
Contaminant of Concern	PAHs

Borehole Sample	BH19-06-5
Date Sampled	16-Oct-19
Sample Depth (mbgs)	3.05 - 3.66
Contaminant of Concern	PAHs



Borehole Sample	BH19-01(MW)-16
Date Sampled	17-Oct-19
Sample Depth (mbgs)	11.43 - 11.79
Contaminant of Concern	PAHs

Borehole Sample	BH102 SS10
Date Sampled	28-Nov-18
Sample Depth (mbgs)	7.6 - 8.2
Contaminant of Concern	PAHs

Borehole Sample	BH19-05-4
Date Sampled	17-Oct-19
Sample Depth (mbgs)	2.29 - 2.90
Contaminant of Concern	PAHs

Borehole Sample	BH19-06-9
Date Sampled	16-Oct-19
Sample Depth (mbgs)	6.10 - 6.71
Contaminant of Concern	PAHs

LEGEND:

SCS TABLE 1, RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY

BH01(MW) MONITORING WELL LABEL

MONITORING WELL

SCREENED SECTION OF MONITORING WELL

ESTIMATED VERTICAL EXTENT OF PAH CONTAMINATION

GROUDNWATER LEVEL - MEASURED NOV. 6, 2019

PARAMETERS ANALYZED MEET SCS

masl METRES ABOVE SEA LEVEL

PARAMETERS ANALYZED EXCEED SCS

mbgs **METRES BELOW GROUND SURFACE**

PAHs POLYCYCLIC AROMATIC HYDROCARBONS

(H) 0m 5m 10m
(V) 0m 2.5m 5m
SCALE

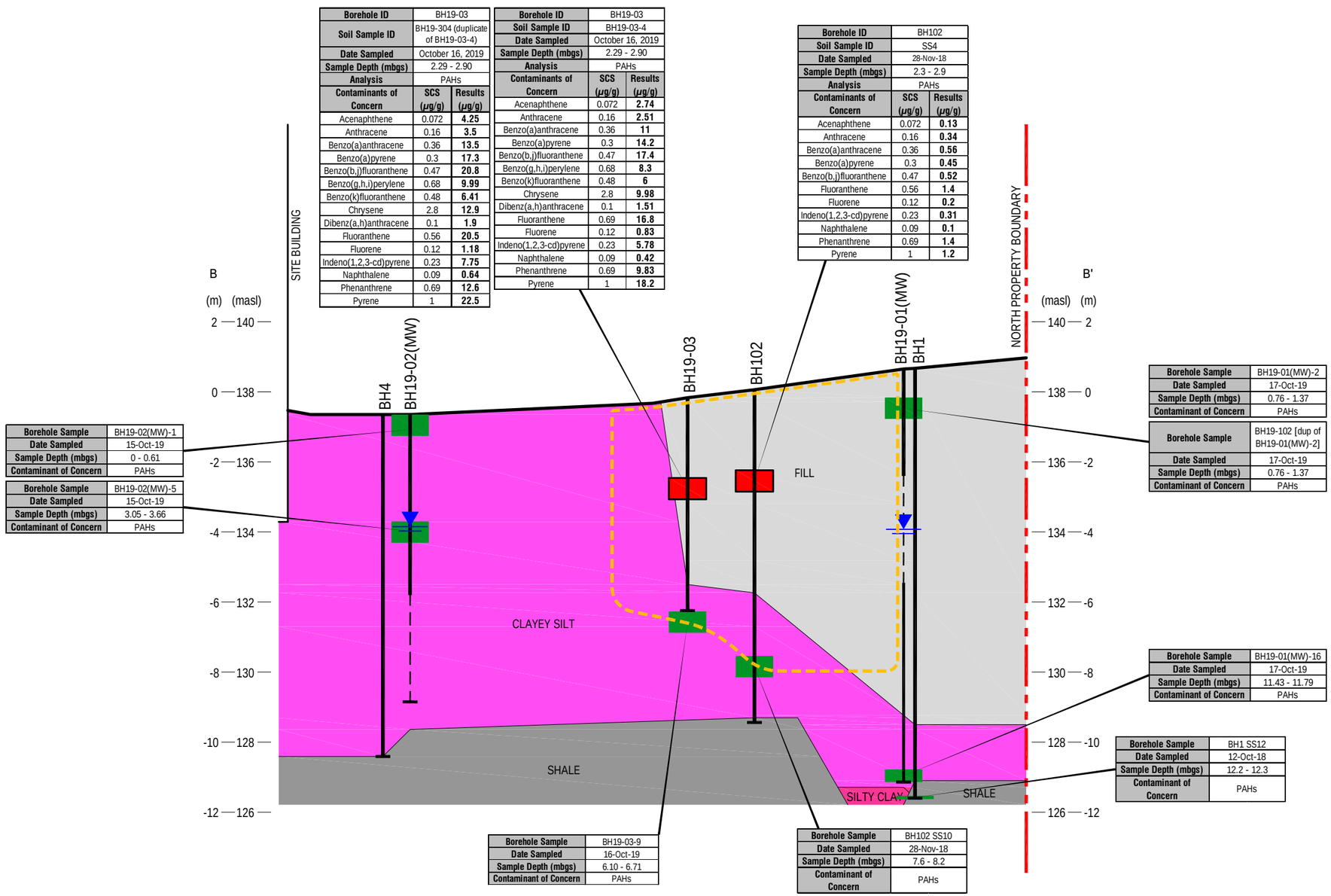
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CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: SOIL ANALYTICAL RESULTS (PAHs) - CROSS SECTION A-A'
PROJECT No: 19-0087.02.03
FIGURE No: 13A



Borehole ID	BH19-03
Soil Sample ID	BH19-304 (duplicate of BH19-03-4)
Date Sampled	October 16, 2019
Sample Depth (mbgs)	2.29 - 2.90
Analysis	PAHs

Contaminants of Concern	SCS (µg/g)	Results (µg/g)
Acenaphthene	0.072	**4.25**
Anthracene	0.16	**3.5**
Benzo(a)anthracene	0.36	**13.5**
Benzo(a)pyrene	0.3	**17.3**
Benzo(b,j)fluoranthene	0.47	**20.8**
Benzo(g,h,i)perylene	0.68	**9.99**
Benzo(k)fluoranthene	0.48	**6.41**
Chrysene	2.8	**12.9**
Dibenz(a,h)anthracene	0.1	**1.9**
Fluoranthene	0.56	**20.5**
Fluorene	0.12	**1.18**
Indeno(1,2,3-cd)pyrene	0.23	**7.75**
Naphthalene	0.09	**0.64**
Phenanthrene	0.69	**12.6**
Pyrene	1	**22.5**

Borehole ID	BH19-03
Soil Sample ID	BH19-03-4
Date Sampled	October 16, 2019
Sample Depth (mbgs)	2.29 - 2.90
Analysis	PAHs

Contaminants of Concern	SCS (µg/g)	Results (µg/g)
Acenaphthene	0.072	**2.74**
Anthracene	0.16	**2.51**
Benzo(a)anthracene	0.36	**11**
Benzo(a)pyrene	0.3	**14.2**
Benzo(b,j)fluoranthene	0.47	**17.4**
Benzo(g,h,i)perylene	0.68	**8.3**
Benzo(k)fluoranthene	0.48	**6**
Chrysene	2.8	**9.98**
Dibenz(a,h)anthracene	0.1	**1.51**
Fluoranthene	0.69	**16.8**
Fluorene	0.12	**0.83**
Indeno(1,2,3-cd)pyrene	0.23	**5.78**
Naphthalene	0.09	**0.42**
Phenanthrene	0.69	**9.83**
Pyrene	1	**18.2**

Borehole ID	BH102
Soil Sample ID	SS4
Date Sampled	28-Nov-18
Sample Depth (mbgs)	2.3 - 2.9
Analysis	PAHs

Contaminants of Concern	SCS (µg/g)	Results (µg/g)
Acenaphthene	0.072	**0.13**
Anthracene	0.16	**0.34**
Benzo(a)anthracene	0.36	**0.56**
Benzo(a)pyrene	0.3	**0.45**
Benzo(b,j)fluoranthene	0.47	**0.52**
Fluoranthene	0.56	**1.4**
Fluorene	0.12	**0.2**
Indeno(1,2,3-cd)pyrene	0.23	**0.31**
Naphthalene	0.09	**0.1**
Phenanthrene	0.69	**1.4**
Pyrene	1	**1.2**

Borehole Sample	BH19-02(MW)-1
Date Sampled	15-Oct-19
Sample Depth (mbgs)	0 - 0.61
Contaminant of Concern	PAHs

Borehole Sample	BH19-02(MW)-5
Date Sampled	15-Oct-19
Sample Depth (mbgs)	3.05 - 3.66
Contaminant of Concern	PAHs

Borehole Sample	BH19-01(MW)-2
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Contaminant of Concern	PAHs

Borehole Sample	BH19-102 [dup of BH19-01(MW)-2]
Date Sampled	17-Oct-19
Sample Depth (mbgs)	0.76 - 1.37
Contaminant of Concern	PAHs

Borehole Sample	BH19-01(MW)-16
Date Sampled	17-Oct-19
Sample Depth (mbgs)	11.43 - 11.79
Contaminant of Concern	PAHs

Borehole Sample	BH1 SS12
Date Sampled	12-Oct-18
Sample Depth (mbgs)	12.2 - 12.3
Contaminant of Concern	PAHs

Borehole Sample	BH19-03-9
Date Sampled	16-Oct-19
Sample Depth (mbgs)	6.10 - 6.71
Contaminant of Concern	PAHs

Borehole Sample	BH102 SS10
Date Sampled	28-Nov-18
Sample Depth (mbgs)	7.6 - 8.2
Contaminant of Concern	PAHs

LEGEND:

SCS — TABLE 1, RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY

BH01(MW) — MONITORING WELL LABEL

MONITORING WELL

SCREENED SECTION OF MONITORING WELL

ESTIMATED VERTICAL EXTENT OF PAH CONTAMINATION

GROUDNWATER LEVEL - MEASURED NOV. 6, 2019

PARAMETERS ANALYZED MEET SCS

masl — METRES ABOVE SEA LEVEL

PARAMETERS ANALYZED EXCEED SCS

mbgs — **METRES BELOW GROUND SURFACE**

PAHs — POLYCYCLIC AROMATIC HYDROCARBONS

(H) 0m 5m 10m
(V) 0m 2.5m 5m
SCALE

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SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

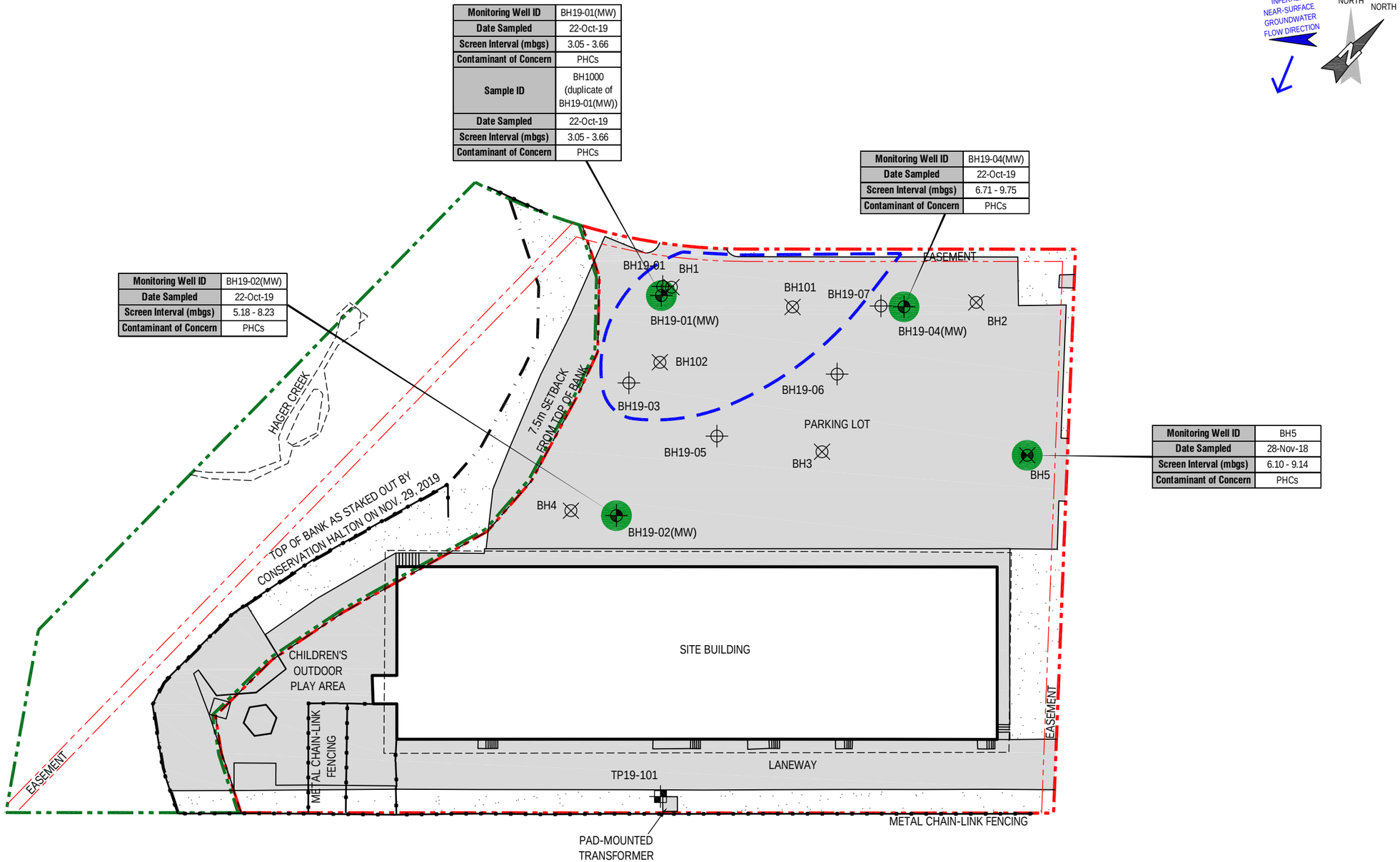
FIGURE NAME: SOIL ANALYTICAL RESULTS (PAHs) - CROSS SECTION B-B'

PROJECT No: 19-0087.02.03

FIGURE No: 13B

LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- LANDSCAPED AREA / PAVED AREA
- EXP MONITORING WELL LOCATION
- EXP BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL MONITORING WELL LOCATION
- WATTERS ENVIRONMENTAL BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL TEST PIT LOCATION
- **SCS** TABLE 1 RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY
- PARAMETERS ANALYZED MEET SCS
- PARAMETERS ANALYZED EXCEED SCS
- SHALLOW SAMPLE EXCEEDS SCS DEEPER SAMPLE MEETS SCS
- SHALLOW SAMPLE MEETS SCS DEEPER SAMPLE EXCEEDS SCS
- MEASURED SHALLOW GROUNDWATER FLOW DIRECTION - NOV. 6, 2019
- APPROXIMATE BOUNDARY OF LANDFILL
- **mbgs** METRES BELOW GROUND SURFACE
- **PHCs** PETROLEUM HYDROCARBONS



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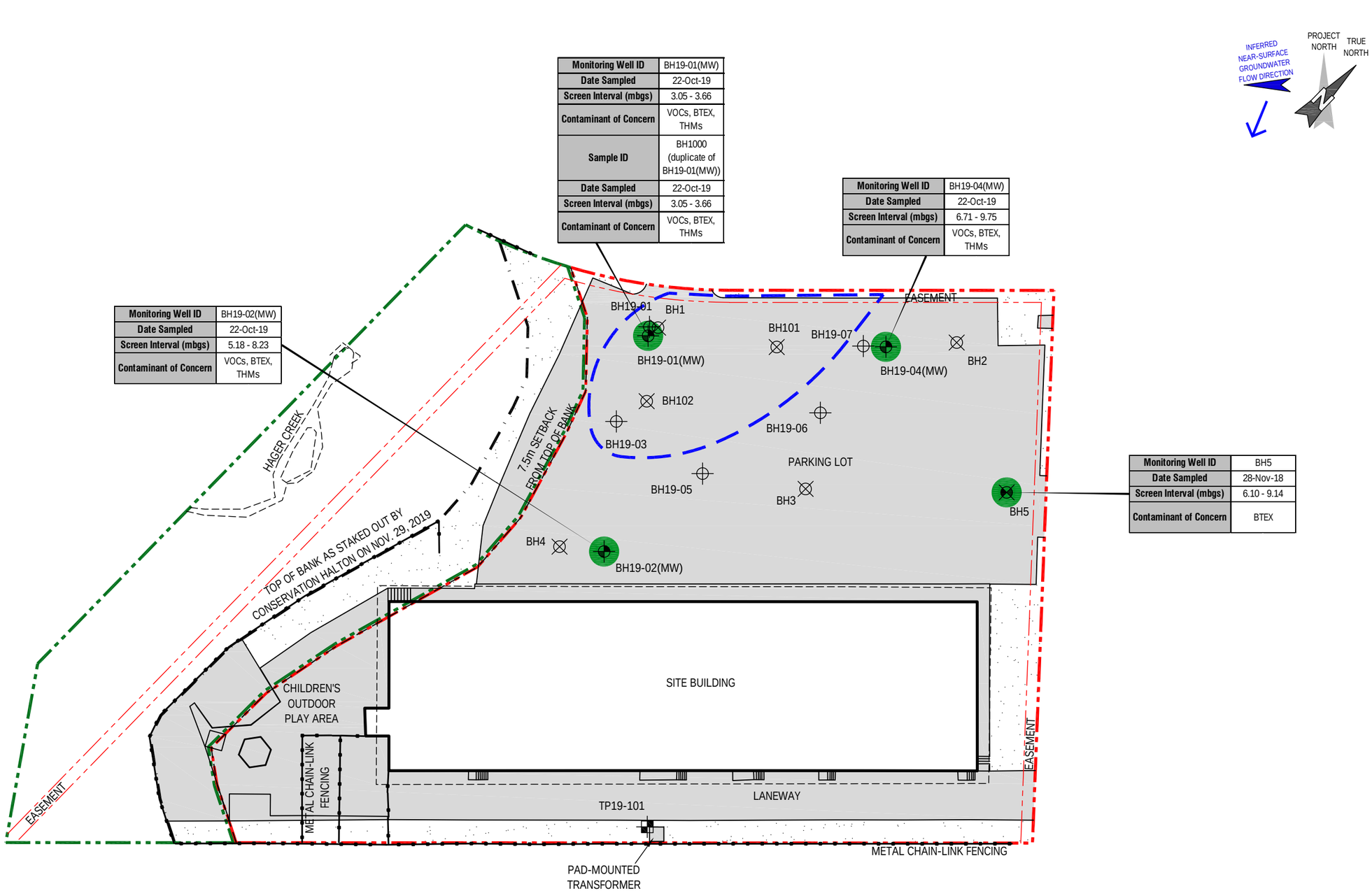
CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: GROUNDWATER ANALYTICAL RESULTS (PHCs)
PROJECT No: 19-0087.02.03
FIGURE No: 14A

LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- LANDSCAPED AREA / PAVED AREA
- EXP MONITORING WELL LOCATION
- EXP BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL MONITORING WELL LOCATION
- WATTERS ENVIRONMENTAL BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL TEST PIT LOCATION
- **SCS** TABLE 1 RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY
- PARAMETERS ANALYZED MEET SCS
- PARAMETERS ANALYZED EXCEED SCS
- SHALLOW SAMPLE EXCEEDS SCS DEEPER SAMPLE MEETS SCS
- SHALLOW SAMPLE MEETS SCS DEEPER SAMPLE EXCEEDS SCS
- MEASURED SHALLOW GROUNDWATER FLOW DIRECTION - NOV. 6, 2019
- APPROXIMATE BOUNDARY OF LANDFILL
- **mbgs** METRES BELOW GROUND SURFACE
- **BTEX** BENZENE, TOLUENE, ETHYLBENZENE, XYLENES
- **VOCs** VOLATILE ORGANIC COMPOUNDS
- **THMs** TRIHALOMETHANES



0m 10m 20m
SCALE

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CHECKED: K. SUE
DATE: NOVEMBER 2020

CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: GROUNDWATER ANALYTICAL RESULTS (VOCs, BTEX, THMs)
PROJECT No: 19-0087.02.03
FIGURE No: 14B

LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- LANDSCAPED AREA / PAVED AREA
- EXP MONITORING WELL LOCATION
- EXP BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL MONITORING WELL LOCATION
- WATTERS ENVIRONMENTAL BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL TEST PIT LOCATION
- **SCS** — TABLE 1 RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY
- PARAMETERS ANALYZED MEET SCS
- PARAMETERS ANALYZED EXCEED SCS
- SHALLOW SAMPLE EXCEEDS SCS DEEPER SAMPLE MEETS SCS
- SHALLOW SAMPLE MEETS SCS DEEPER SAMPLE EXCEEDS SCS
- MEASURED SHALLOW GROUNDWATER FLOW DIRECTION - NOV. 6, 2019
- APPROXIMATE BOUNDARY OF LANDFILL
- **mbgs** — METRES BELOW GROUND SURFACE
- **As** — ARSENIC
- **Sb** — ANTIMONY
- **Se** — SELENIUM
- **Cr(VI)** — HEXAVALENT CHROMIUM
- **Hg** — MERCURY
- **CN-** — CYANIDE
- **NA** — SODIUM
- **Cl** — CHLORIDE
- **ORPs** — OTHER REGULATED PARAMETERS (As, Sb, Se, Cr(VI), Hg, CN-, NA, Cl-)
- ESTIMATED LATERAL EXTENT OF METALS / ORP CONTAMINATION IN GROUNDWATER

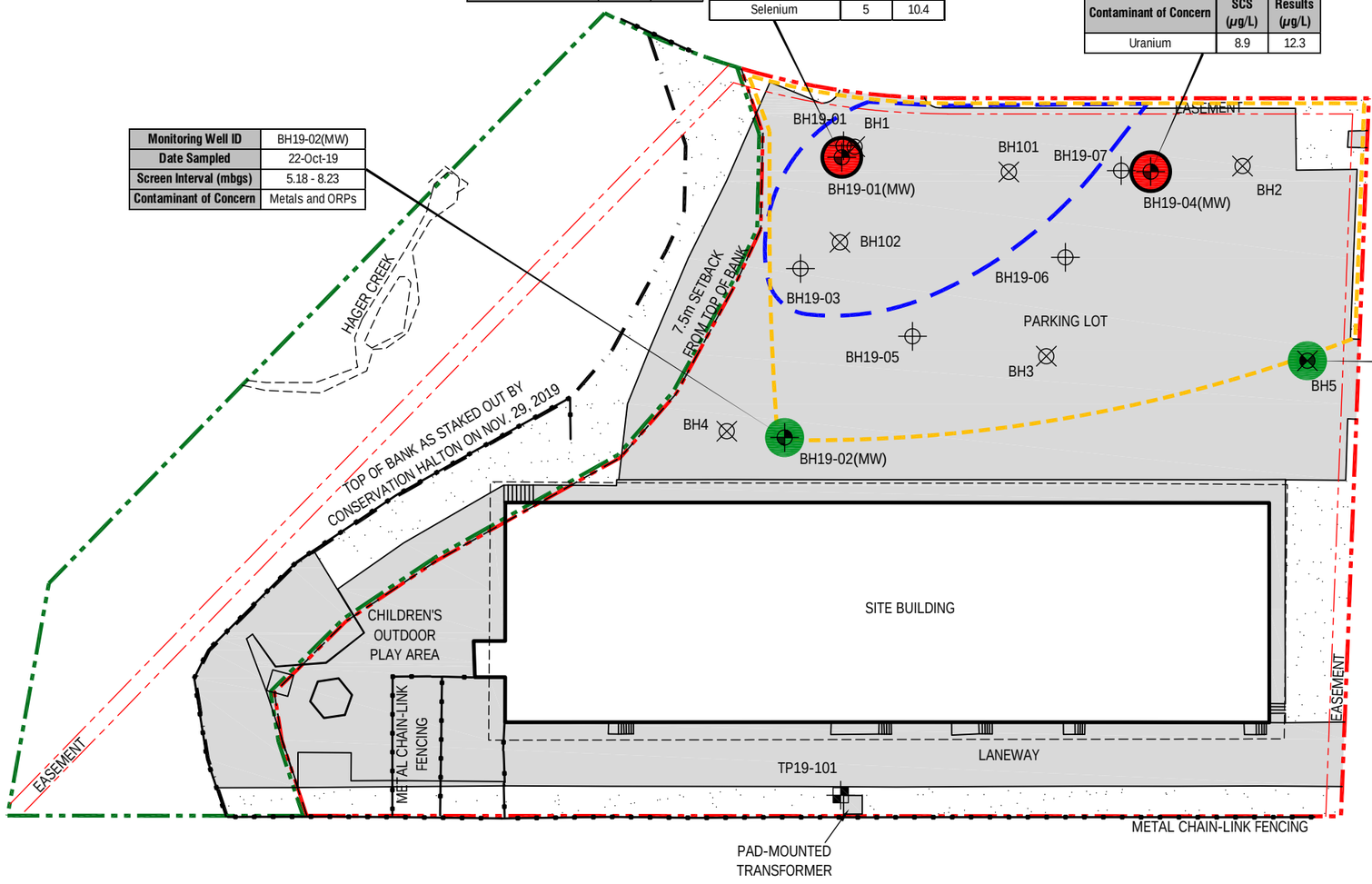
Monitoring Well ID	BH19-01(MW)	
Date Sampled	22-Oct-19	
Screen Interval (mbgs)	3.05 - 3.66	
Analysis	Metals and ORPs	
Contaminant of Concern	SCS (µg/L)	Results (µg/L)
Chloride	790000	1000000
Sodium	490000	564000
Antimony	1.5	21.4
Boron	1700	5980
Molybdenum	23	146
Selenium	5	10.6

Sample ID	BH1000 (duplicate of BH19-01(MW))	
Date Sampled	22-Oct-19	
Screen Interval (mbgs)	3.05 - 3.66	
Analysis	Metals and ORPs	
Contaminant of Concern	SCS (µg/L)	Results (µg/L)
Chloride	790000	960000
Sodium	490000	547000
Antimony	1.5	21.4
Boron	1700	3210
Molybdenum	23	147
Selenium	5	10.4

Monitoring Well ID	BH19-04(MW)	
Date Sampled	22-Oct-19	
Screen Interval (mbgs)	6.71 - 9.75	
Contaminant of Concern	Metals and ORPs	
Contaminant of Concern	SCS (µg/L)	Results (µg/L)
Uranium	8.9	12.3

Monitoring Well ID	BH19-02(MW)
Date Sampled	22-Oct-19
Screen Interval (mbgs)	5.18 - 8.23
Contaminant of Concern	Metals and ORPs

Monitoring Well ID	BH5
Date Sampled	28-Nov-18
Screen Interval (mbgs)	6.10 - 9.14
Contaminant of Concern	Metals and ORPs



ELEVATED CONCENTRATIONS OF NA AND/OR Cl- WERE DETECTED IN SOME OF THE SOIL SAMPLES. HOWEVER, AS PROVIDED FOR UNDER SECTION 49.1 OF ONTARIO REGULATION 153/04, THE APPLICABLE SITE CONDITIONS FOR SAR AND EC IN SOIL ARE DEEMED NOT TO BE EXCEEDED FOR THE PURPOSE OF PART XV.1 OF THE ACT. AS SUCH, ALL SOIL SAMPLES WITH ELEVATED CONCENTRATIONS RELATED TO NA AND Cl- MET THE APPLICABLE SCS FOR THIS SITE AND WILL NOT BE CONSIDERED AS CONTAMINANTS OF CONCERN. THUS, NO CONCENTRATION EXCEEDANCES IN SOIL.

0m 10m 20m
SCALE

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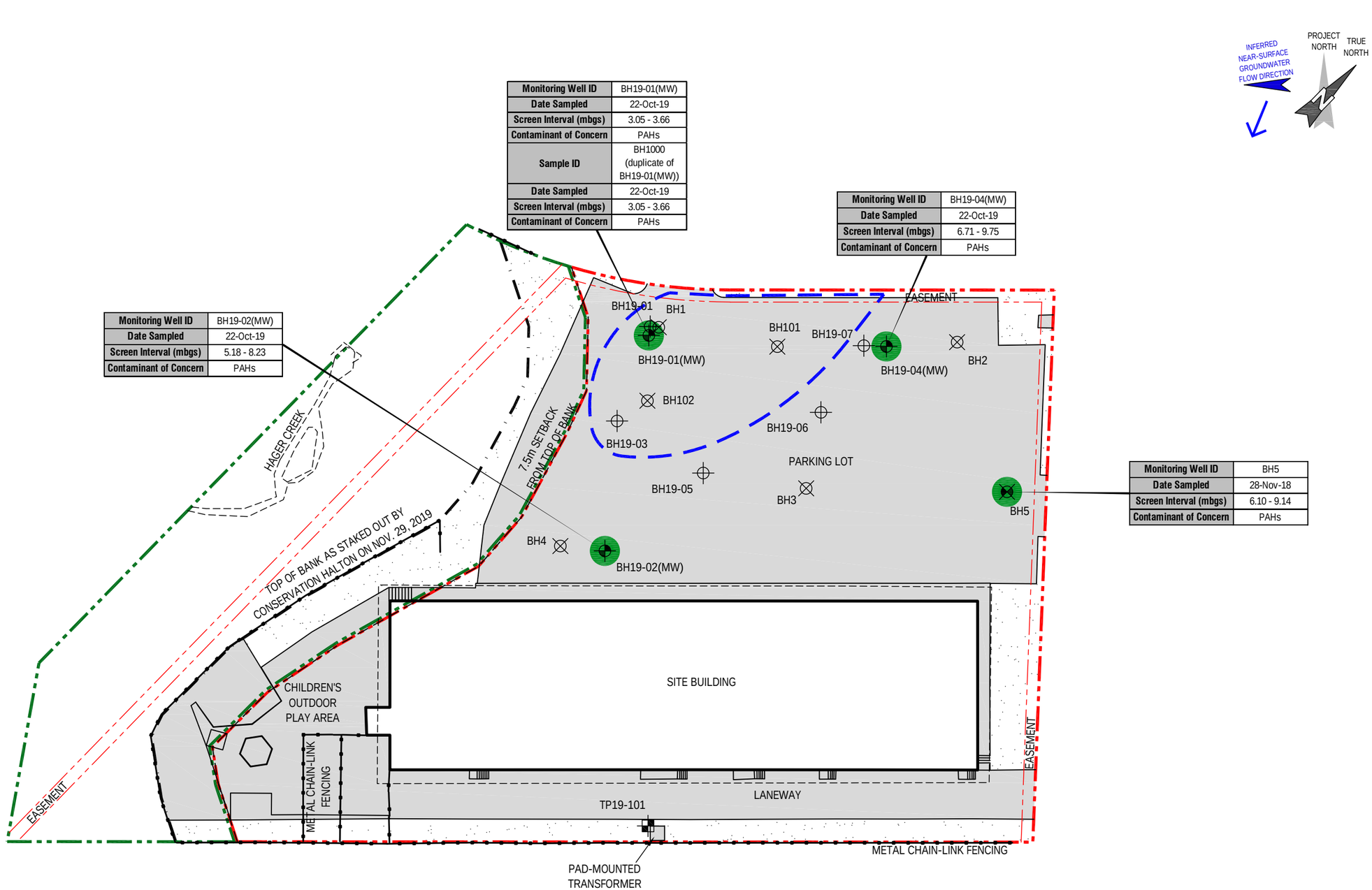
CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: GROUNDWATER ANALYTICAL RESULTS (METALS & ORPs)
PROJECT No: 19-0087.02.03
FIGURE No: 14C

LEGEND:

- EXTENT OF THE PHASE TWO PROPERTY
- OTHER PORTION OF 1600 KERNS ROAD NOT INCLUDED IN PHASE TWO PROPERTY
- TOP OF BANK LINE
- 7.5m SETBACK FROM TOP OF BANK
- LANDSCAPED AREA / PAVED AREA
- EXP MONITORING WELL LOCATION
- EXP BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL MONITORING WELL LOCATION
- WATTERS ENVIRONMENTAL BOREHOLE LOCATION
- WATTERS ENVIRONMENTAL TEST PIT LOCATION
- **SCS** TABLE 1 RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY
- PARAMETERS ANALYZED MEET SCS
- PARAMETERS ANALYZED EXCEED SCS
- SHALLOW SAMPLE EXCEEDS SCS DEEPER SAMPLE MEETS SCS
- SHALLOW SAMPLE MEETS SCS DEEPER SAMPLE EXCEEDS SCS
- MEASURED SHALLOW GROUNDWATER FLOW DIRECTION - NOV. 6, 2019
- APPROXIMATE BOUNDARY OF LANDFILL
- **mbgs** METRES BELOW GROUND SURFACE
- **PAHs** POLYCYCLIC AROMATIC HYDROCARBONS



0m 10m 20m
SCALE

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CHECKED: K. SUE
DATE: NOVEMBER 2020

CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

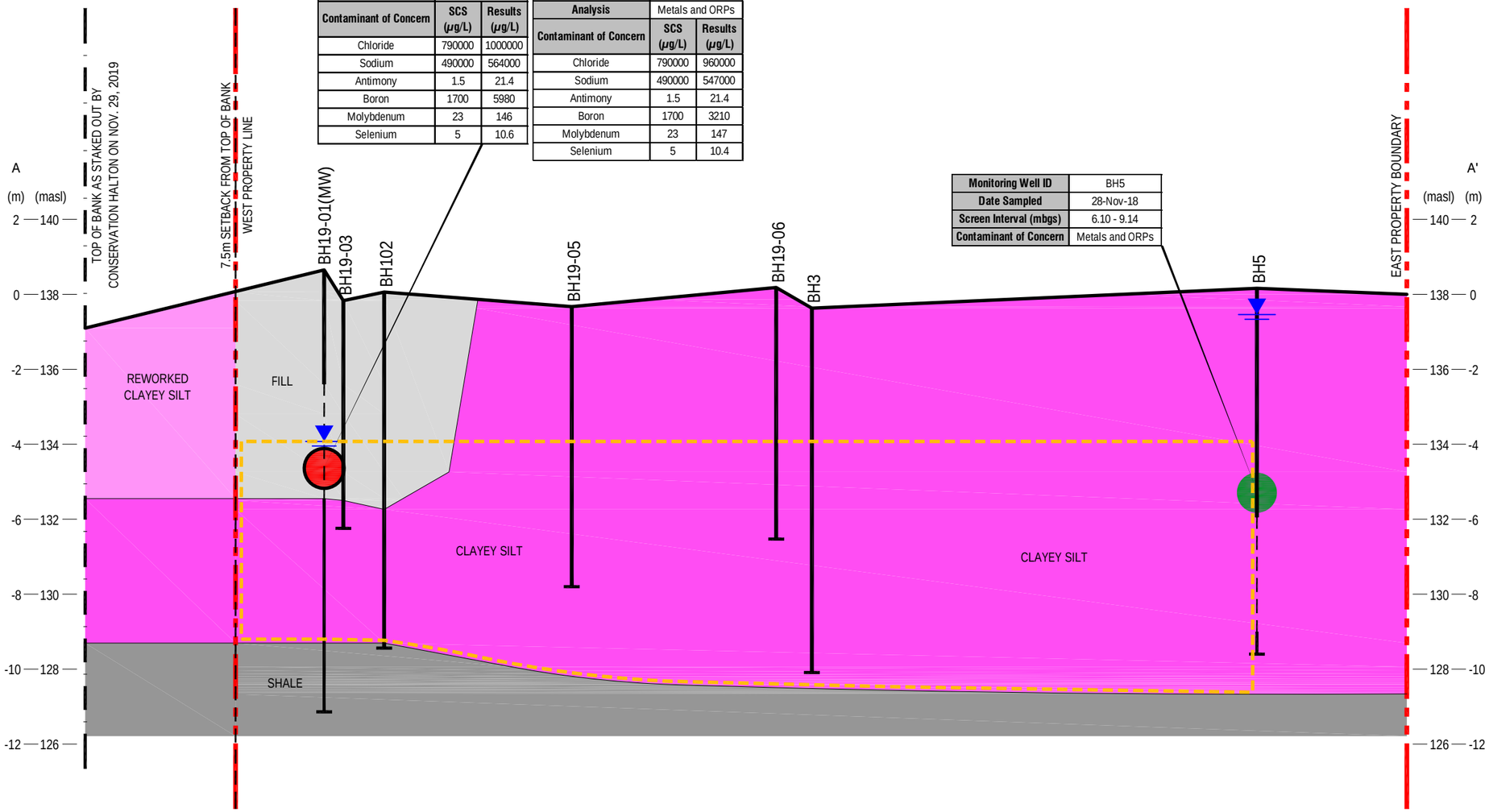
REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: GROUNDWATER ANALYTICAL RESULTS (PAHs)
PROJECT No: 19-0087.02.03
FIGURE No: 14D

Monitoring Well ID	BH19-01(MW)	
Date Sampled	22-Oct-19	
Screen Interval (mbgs)	3.05 - 3.66	
Analysis	Metals and ORPs	
Contaminant of Concern	SCS (µg/L)	Results (µg/L)
Chloride	790000	1000000
Sodium	490000	564000
Antimony	1.5	21.4
Boron	1700	5980
Molybdenum	23	146
Selenium	5	10.6

Sample ID	BH1000 (duplicate of BH19-01(MW))	
Date Sampled	20-Sep-18	
Screen Interval (mbgs)	3.05 - 3.66	
Analysis	Metals and ORPs	
Contaminant of Concern	SCS (µg/L)	Results (µg/L)
Chloride	790000	960000
Sodium	490000	547000
Antimony	1.5	21.4
Boron	1700	3210
Molybdenum	23	147
Selenium	5	10.4

Monitoring Well ID	BH5
Date Sampled	28-Nov-18
Screen Interval (mbgs)	6.10 - 9.14
Contaminant of Concern	Metals and ORPs



LEGEND:

SCS TABLE 1, RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY

BH01(MW) MONITORING WELL LABEL

MONITORING WELL

SCREENED SECTION OF MONITORING WELL

GROUDNWATER LEVEL - MEASURED NOV. 6, 2019

masl METRES ABOVE SEA LEVEL

mbgs METRES BELOW GROUND SURFAC

As ARSENIC
Sb ANTIMONY
Se SELENIUM
Cr(VI) HEXAVALENT CHROMIUM
Hg MERCURY
CN- CYANIDE
NA SODIUM
Cl- CHLORIDE

PARAMETERS ANALYZED MEET SCS

PARAMETERS ANALYZED EXCEED SCS

ORPs OTHER REGULATED PARAMETERS (As, Sb, Se, Cr(VI), Hg, CN-, NA, Cl-)

ESTIMATED VERTICAL EXTENT OF METALS / ORP CONTAMINATION

ELEVATED CONCENTRATIONS OF NA AND/OR Cl- WERE DETECTED IN SOME OF THE SOIL SAMPLES. HOWEVER, AS PROVIDED FOR UNDER SECTION 49.1 OF ONTARIO REGULATION 153/04, THE APPLICABLE SITE CONDITIONS FOR SAR AND EC IN SOIL ARE DEEMED NOT TO BE EXCEEDED FOR THE PURPOSE OF PART XV.1 OF THE ACT. AS SUCH, ALL SOIL SAMPLES WITH ELEVATED CONCENTRATIONS RELATED TO NA AND Cl- MET THE APPLICABLE SCS FOR THIS SITE AND WILL NOT BE CONSIDERED AS CONTAMINANTS OF CONCERN. THUS, NO CONCENTRATION EXCEEDANCES IN SOIL.

(H) 0m 5m 10m
(V) 0m 2.5m 5m
SCALE

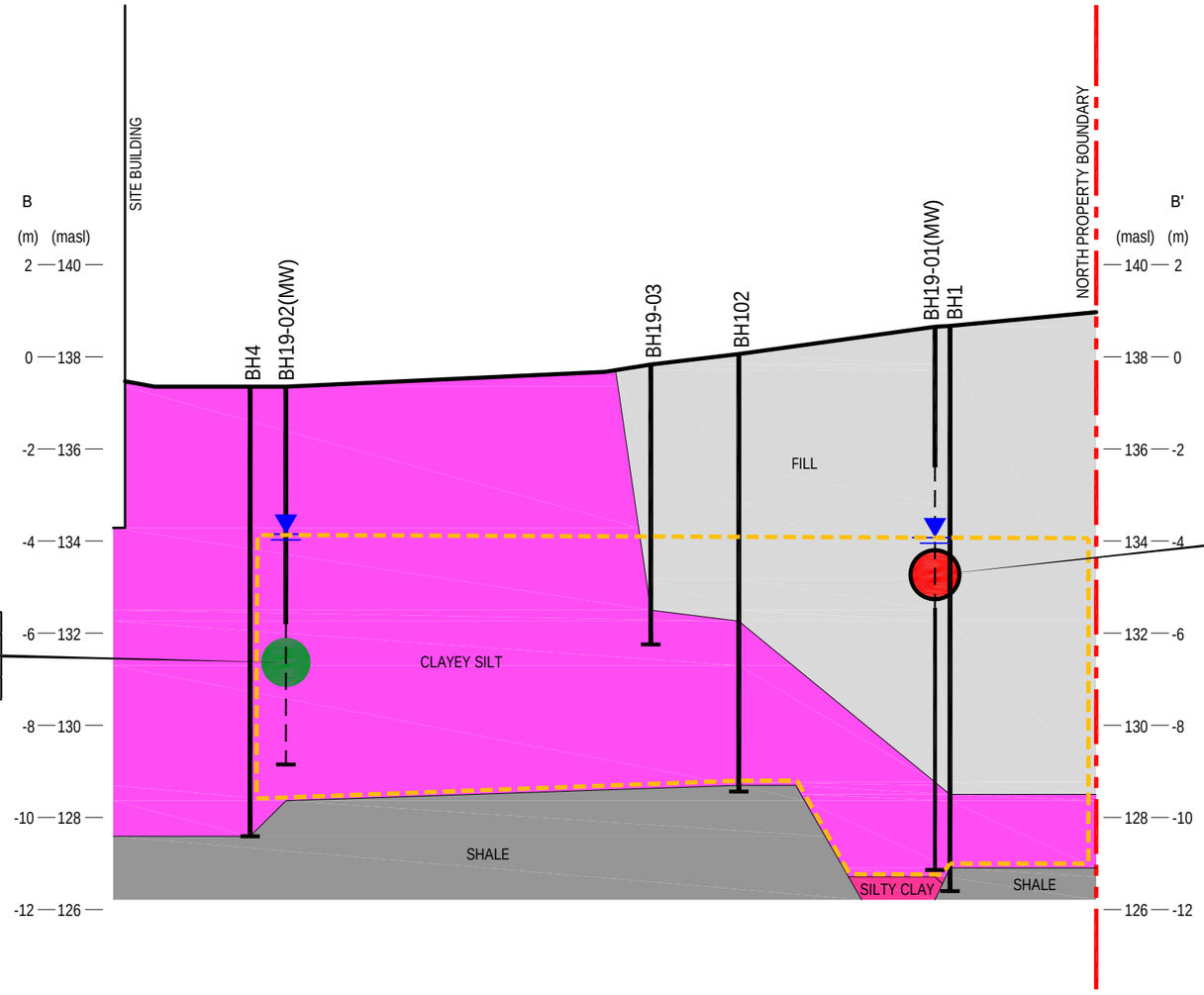
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CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: GROUNDWATER ANALYTICAL RESULTS (METALS & ORPs) - CROSS SECTION A-A'
PROJECT No: 19-0087.02.03
FIGURE No: 15A



Monitoring Well ID	BH19-02(MW)
Date Sampled	22-Oct-19
Screen Interval (mbgs)	5.18 - 8.23
Contaminant of Concern	Metals and ORPs

Monitoring Well ID	BH19-01(MW)	
Date Sampled	22-Oct-19	
Screen Interval (mbgs)	3.05 - 3.66	
Analysis	Metals and ORPs	
Contaminant of Concern	SCS (µg/L)	Results (µg/L)
Chloride	790000	1000000
Sodium	490000	564000
Antimony	1.5	21.4
Boron	1700	5980
Molybdenum	23	146
Selenium	5	10.6

Sample ID	BH1000 (duplicate of BH19-01(MW))	
Date Sampled	20-Sep-18	
Screen Interval (mbgs)	3.05 - 3.66	
Analysis	Metals and ORPs	
Contaminant of Concern	SCS (µg/L)	Results (µg/L)
Chloride	790000	960000
Sodium	490000	547000
Antimony	1.5	21.4
Boron	1700	3210
Molybdenum	23	147
Selenium	5	10.4

LEGEND:

SCS TABLE 1, RESIDENTIAL / PARKLAND / INSTITUTIONAL / INDUSTRIAL / COMMERCIAL / COMMUNITY

BH01(MW) MONITORING WELL LABEL

MONITORING WELL

SCREENED SECTION OF MONITORING WELL

GROUNDWATER LEVEL - MEASURED NOV. 6, 2019

masl METRES ABOVE SEA LEVEL

mbgs METRES BELOW GROUND SURFA(

As	ARSENIC
Sb	ANTIMONY
Se	SELENIUM
Cr(VI)	HEXAVALENT CHROMIUM
Hg	MERCURY
CN-	CYANIDE
NA	SODIUM
Cl-	CHLORIDE

PARAMETERS ANALYZED MEET SCS

PARAMETERS ANALYZED EXCEED SCS

ORPs OTHER REGULATED PARAMETERS (As, Sb, Se, Cr(VI), Hg, CN-, NA, Cl-)

ESTIMATED VERTICAL EXTENT OF METALS / ORP CONTAMINATION

ELEVATED CONCENTRATIONS OF NA AND/OR Cl- WERE DETECTED IN SOME OF THE SOIL SAMPLES. HOWEVER, AS PROVIDED FOR UNDER SECTION 49.1 OF ONTARIO REGULATION 153/04, THE APPLICABLE SITE CONDITIONS FOR SAR AND EC IN SOIL ARE DEEMED NOT TO BE EXCEEDED FOR THE PURPOSE OF PART XV.1 OF THE ACT. AS SUCH, ALL SOIL SAMPLES WITH ELEVATED CONCENTRATIONS RELATED TO NA AND Cl- MET THE APPLICABLE SCS FOR THIS SITE AND WILL NOT BE CONSIDERED AS CONTAMINANTS OF CONCERN. THUS, NO CONCENTRATION EXCEEDANCES IN SOIL.

(H) 0m 5m 10m
(V) 0m 2.5m 5m
SCALE

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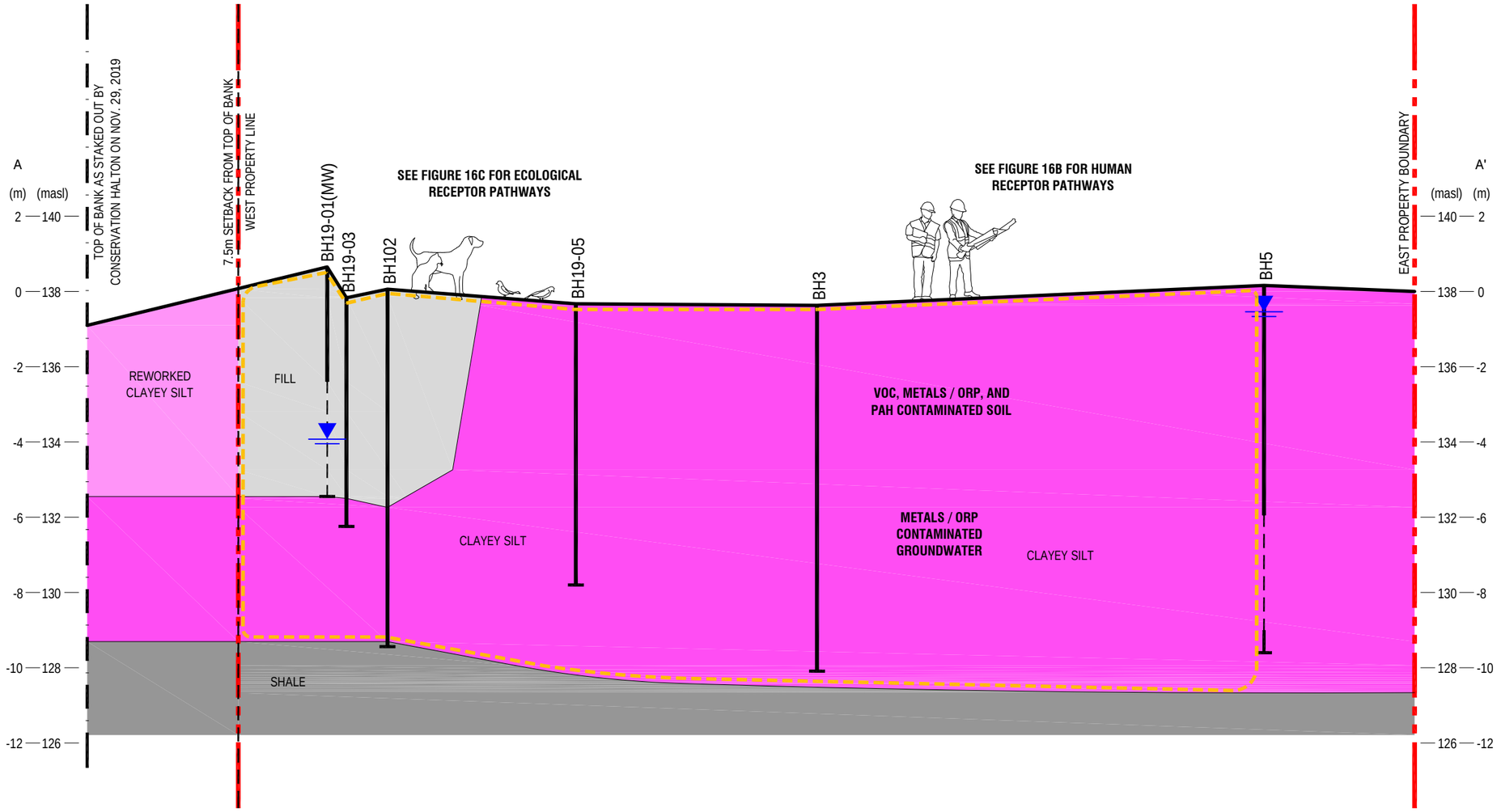
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CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: GROUNDWATER ANALYTICAL RESULTS (METALS & ORPs) - CROSS SECTION B-B'
PROJECT No: 19-0087.02.03
FIGURE No: 15B

ENVIRONMENTALLY SENSITIVE AREA WITHIN 30m WEST OF THE PHASE TWO PROPERTY



LEGEND:

BH01(MW) — MONITORING WELL LABEL

MONITORING WELL

SCREENED SECTION OF MONITORING WELL

GROUDNWATER LEVEL - MEASURED NOV. 6, 2019

masl METRES ABOVE SEA LEVEL

mbgs **METRES BELOW GROUND SURFACE**

POTENTIAL EXPOSURE SCENARIOS BASED ON NO RISK MANAGEMENT MEASURES

(H) 0m 5m 10m
(V) 0m 2.5m 5m
SCALE

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REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: PHASE TWO CONCEPTUAL SITE MODEL
PROJECT No: 19-0087.02.03
FIGURE No: 16A

PRIMARY CONTAMINANT SOURCE	SECONDARY SOURCE	TERTIARY SOURCE	EXPOSURE PATHWAY	RECEPTOR CHARACTERIZATION									
				PATHWAYS OF POTENTIAL CONCERN									
				ON-SITE									
				RESIDENT (TODDLER & COMPOSITE)	OUTDOOR MAINTENANCE WORKER	CONSTRUCTION/ TRENCH WORKER	INDOOR WORKER	PROPERTY VISITOR	RESIDENT (TODDLER & COMPOSITE)	OUTDOOR MAINTENANCE WORKER	CONSTRUCTION/ TRENCH WORKER	PROPERTY VISITOR/RECREATIONAL USER	INDOOR WORKER
COCs IN SOIL	DIRECT SOIL CONTACT		INCIDENTAL INGESTION AND DERMAL CONTACT	√	√	√	X	√	X	X	X	X	X
	RESUSPENSION OF SOIL	OUTDOOR PARTICULATE	INHALATION OF DUST	√	√	√	X	√	√	√	√	√	X
	UPTAKE FROM SOIL	HOME GROWN PRODUCE	INGESTION OF HOME GROWN PRODUCE	O	X	X	X	X	X	X	X	X	X
	VOLATILIZATION	OUTDOOR AIR	INHALATION OF OUTDOOR AIR	√	√	√	X	√	√	√	√	√	X
	VOLATILIZATION	TRENCH AIR	INHALATION OF TRENCH AIR	X	X	√	X	X	X	X	√	X	X
	VAPOUR INTRUSION	INDOOR AIR	INHALATION OF INDOOR AIR	√	X	X	√	√	X	X	X	X	X
	LEACHING/MIGRATION VIA GROUNDWATER	SURFACE WATER	INCIDENTAL INGESTION AND DERMAL CONTACT	X	X	X	X	X	X	X	X	X	X
		UPTAKE → FISH	INGESTION OF LOCAL FISH	O	X	X	X	X	X	X	X	X	X
COCs IN GROUNDWATER	DIRECT GROUNDWATER CONTACT		INCIDENTAL INGESTION AND DERMAL CONTACT	X	X	√	X	X	X	X	√	X	X
	POTABLE GROUNDWATER USE		INGESTION AND DERMAL CONTACT	√	X	X	√	√	X	X	X	X	X
	VOLATILIZATION	OUTDOOR AIR	INHALATION OF OUTDOOR AIR	√	√	√	X	√	√	√	√	√	X
	VOLATILIZATION	TRENCH AIR	INHALATION OF TRENCH AIR	X	X	√	X	X	X	X	√	X	X
	VAPOUR INTRUSION	INDOOR AIR	INHALATION OF INDOOR AIR	√	X	X	√	X	√	X	X	√	√
	LEACHING/MIGRATION	SURFACE WATER	INCIDENTAL INGESTION AND DERMAL CONTACT	X	X	X	X	X	X	X	X	√	X
		UPTAKE → FISH	INGESTION OF LOCAL FISH	O	X	X	X	X	O	X	X	O	X

√	Indicates exposure pathway for receptor is complete and was assessed quantitatively in the RA
√	Indicates exposure pathway for receptor is complete and was assessed qualitatively in the RA
X	Exposure pathway is not considered complete and was not assessed in the HHRA
O	Exposure pathway is considered insignificant and/or there is insufficient information available to evaluate this pathway, not assessed in HHRA

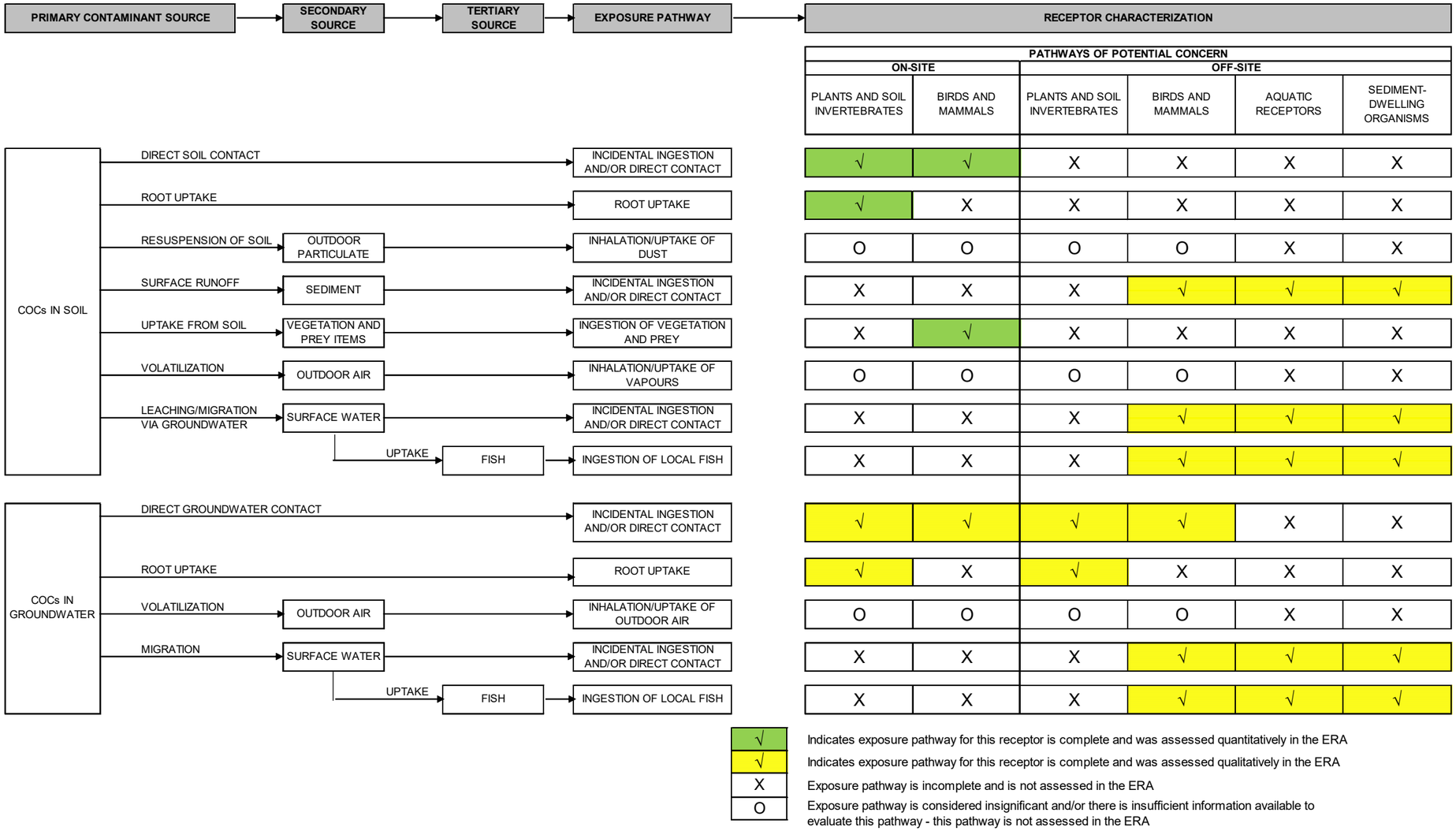
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CHECKED: K. SUE
DATE: NOVEMBER 2020

CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: HUMAN HEALTH CONCEPTUAL SITE MODEL WITHOUT RISK MANAGEMENT MEASURES
PROJECT No: 19-0087.02.03
FIGURE No: 16B



√	Indicates exposure pathway for this receptor is complete and was assessed quantitatively in the ERA
√	Indicates exposure pathway for this receptor is complete and was assessed qualitatively in the ERA
X	Exposure pathway is incomplete and is not assessed in the ERA
O	Exposure pathway is considered insignificant and/or there is insufficient information available to evaluate this pathway - this pathway is not assessed in the ERA

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DATE: NOVEMBER 2020

CLIENT: FGL KERNS INC.
SITE ADDRESS: 1600 KERNS ROAD, PART 1 OF BLOCK G REGISTERED PLAN M-81, BURLINGTON, ONTARIO

REPORT NAME: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

FIGURE NAME: ECOLOGICAL CONCEPTUAL SITE MODEL WITHOUT RISK MANAGEMENT MEASURES
PROJECT No: 19-0087.02.03
FIGURE No: 16C

APPENDIX A

Sampling and Analysis Plan

Sampling and Analysis Plan Rationale

Based on identified Potentially Contaminating Activities (PCAs), the following Areas of Potential Environmental Concerns (APECs) identified within the Site are summarized below.

APEC	Borehole/ Monitoring Well	Rationale	Contaminants of Potential Concern*	
			Soil	Groundwater
APEC 1	BH19-01(MW) BH19-02(MW) BH19-03 BH19-04(MW) BH19-05 BH19-06 BH19-07 BH101 BH102 BH1 BH2 BH3 BH4 BH5	To investigate the soil quality with respect to the historic presence of a closed landfill within the parking lot area on the north-central/northeast portion of the Phase One Property.	PHCs F1 to F4, VOCs (including BTEX) PAHs, and M&I	PHCs F1 to F4, VOCs (including BTEX) PAHs, and M&I
APEC 2	TP19-100-1	To investigate the soil quality as a result of the presence of a potential historic PCB-containing pad-mounted transformer on the south-central portion of the Phase One Property	PCBs	Not Applicable

*Notes: PHC: Petroleum Hydrocarbons; VOC: Volatile Organic Compounds; BTEX: Benzene, Toluene, Ethylbenzene, Xylene; PAH: Polycyclic Aromatic Hydrocarbons; M&I: Metals and Inorganics

Sampling Information

Media To Be Investigated	Soil and groundwater
Sampling Parameters	See table above
Sampling System	Judgmental
Sampling Locations	See table above. For soil samples, surface and/or subsurface samples shall be evaluated and the "worst-case" sample should be determined for laboratory analysis consideration. Deeper samples are to be analyzed for vertical delineation (if required due to contamination in the shallow soils).

Sampling Interval	Regular sampling intervals (every 2.5 feet or 0.76 metres) for boreholes to be drilled with a CME 75 drilling rig with 2-foot long split-spoons. Sampling in test pits using a hand auger. Sampling depths for test pitting will be judgemental based on soil stratigraphy, evidence of impacts, etc.
Sampling Method	Split spoon, and hand auger.
Cluster or nested wells?	Not applicable – Only needed if there is contaminated groundwater
Trip Blank	Include a trip blank for each submission of groundwater samples for VOC analysis.
Performance Criteria Reference	Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, Amended July 1, 2011 (Table 5 to 15).

Residue Management

Soil cuttings and groundwater purged from the monitoring wells shall be stored in 45 gallon steel drums and be temporarily left on the Phase Two Property. The Client must be informed that the sealed drums should be secured at all times, which is part of their responsibility. Upon receipt of the laboratory results, handling and/or disposal options shall be discussed with the Client.

Prior to soil offsite disposal and/or transportation (if required), a composite soil sample shall be collected and be sent to an accredited laboratory for Toxicity Characteristics Leaching Procedure (TCLP) analysis.

Quality Assurance / Quality Control

Applicable Site Condition Standards	Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institution property uses with Medium and Fine Textured soil contained in Table 3 of the Ontario Ministry of the Environment [now Ministry of the Environment Conservation and Parks (MECP)] publication "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*", dated April 15, 2011.
Laboratory	SGS Canada Inc. (SGS)
Duplicate	Duplicate ratio of 1:10, as a minimum, for each parameter group.
Trip Blank	Include a trip blank if sampling for VOC parameters in groundwater.
Performance Criteria Reference	PAHs, OC Pesticides, PCBs, Methyl Mercury Relative Percentage Difference (RPD): ≤30% ground water and ≤40%soil PHCs RPD: ≤30% both groundwater and soil VOCs RPD: ≤30% groundwater and ≤50% soil Metals and Inorganics and Mercury RPD: ≤20% ground water and ≤30% soil Chromium VI, Chloride and Cyanide RPD: ≤20% ground water and ≤35% soil Electrical Conductivity RPD: ≤10% soil Referenced from "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*", dated March 9, 2004, amended July 1, 2011.

All soil and groundwater samples will be transferred immediately into laboratory supplied sampling containers. Details of the sampling containers are summarized below:

Parameter	Sample Bottle	Preservative	Handling & Custody of Samples
Soil			
Metals & Inorganics, PHCs (F2-F4), PAHs, PCBs, and Reg. 347/558 Toxicity Characteristics Leaching Procedure	Amber glass Teflon lined lid	None	Field staff will collect soil samples and transfer them to SGS. All soil samples will be kept in a cooler with ice from the time of collection until the time they are transferred to the laboratory's control under Chain-of-Custody procedures.
VOCs, PHCs (F1)	Vial	Methanol	
Groundwater			
PHCs (F2-F4)	Amber Glass Bottle	HCl	Field staff will collect groundwater samples and transfer them to SGS. All groundwater samples will be kept in a cooler with ice from the time of collection until the time they are transferred to the laboratory's control under Chain of Custody procedures.
PAH	Amber Glass Bottle	None	
Dissolved Metals	Plastic Bottle	Nitric Acid	
Mercury	Amber Glass	HCl	
Cr VI	Plastic Bottle	Ammonium sulphate/hydroxide	
CNF	Plastic Bottle	NaOH	
General Analysis	Plastic Bottle	No Preservative	
VOCs, PHCs (F1)	Vials	$NaHSO_4$	

Field investigations and sample handling procedures will be conducted in general accordance with Watters Environmental's Standard Operating Procedures for Phase Two ESAs. To minimize the potential for cross-contamination of samples at differing locations, the following procedures were used by Watters Environmental field staff:

- New disposable gloves are to be used for each sample collected (parameter varying);

- Non-dedicated tools are to be cleaned between sample collections;
- Soil samples are to be placed in laboratory-supplied containers suitable for the analysis;
- Wells are to be purged with dedicated, Waterra® tubing, for each well; and
- Water samples are to be retrieved with dedicated low-flow sampler tubing for each well (where low-flow sampling can be completed).

Samples are to be labelled and stored in a cooler with ice while in the field and during transportation to the office and/or laboratory.

All soil samples submitted for chemical analysis will be submitted in laboratory-supplied glass containers. Samples to be analyzed for metals and inorganics, PCBs, PAHs and PHCs in the F2 to F4 fractions, will be submitted in glass jars with Teflon lined lids. Soil samples submitted for analysis of VOCs and PHCs in the F1 fraction will be collected using disposable TerraCore samplers and placed in vials containing a pre-measured amount of methanol both of which will be provided by SGS. A new TerraCore sampler will be used each time soil samples are collected for potential analysis of VOCs and PHCs in the F1 fraction.

At least one field duplicate sample will be collected for every ten samples submitted for laboratory analysis. One trip blank sample (for each submission) will also be submitted for laboratory analysis when groundwater samples are analyzed for VOCs.

Additional Site Information

Physical Impediments	The boreholes and monitoring wells should be placed at strategic locations with the consideration of access limitations and the underground utilities beneath and the aboveground utilities above the Phase Two Property.
Utilities	Underground utilities associated with the Site building at the Phase Two Property include water lines, natural gas lines and electrical lines. Ensure that public utility locates are ordered through Ontario One Call, and all drilling areas are scanned by a private utility locator.
Site Boundaries	See survey plan (Appendix B) or figures from Phase One ESA.
Adjacent Properties / Structures	See Figure 2 from Phase One ESA.

Applicable Watters Environmental Standard Operating Procedures

Borehole Drilling	Watters Environmental SOP # 4.1.1, 4.1.2 and 4.1.3
Excavating	Watters Environmental SOP #8.1.1 and 8.1.2
Soil Sampling	Watters Environmental SOP # 4.1.8, 6.5.1, 6.5.2
Field Screening Measurements	Watters Environmental SOP # 4.5 and 6.5.9
Monitoring Well Installation	Watters Environmental SOP # 4.1.5
Monitoring Well Development	Watters Environmental SOP #6.2.2 and 6.2.3
Water Quality Measurements	Watters Environmental SOP #6.2.1
Groundwater Sampling	Watters Environmental SOP #6.2.1, 6.2.4, 6.2.5 and 6.2.7
Sediment Sampling	Not Applicable

APPENDIX B

Plan of Survey

PLAN OF SURVEY OF

PART OF BLOCK G
REGISTERED PLAN M-81
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

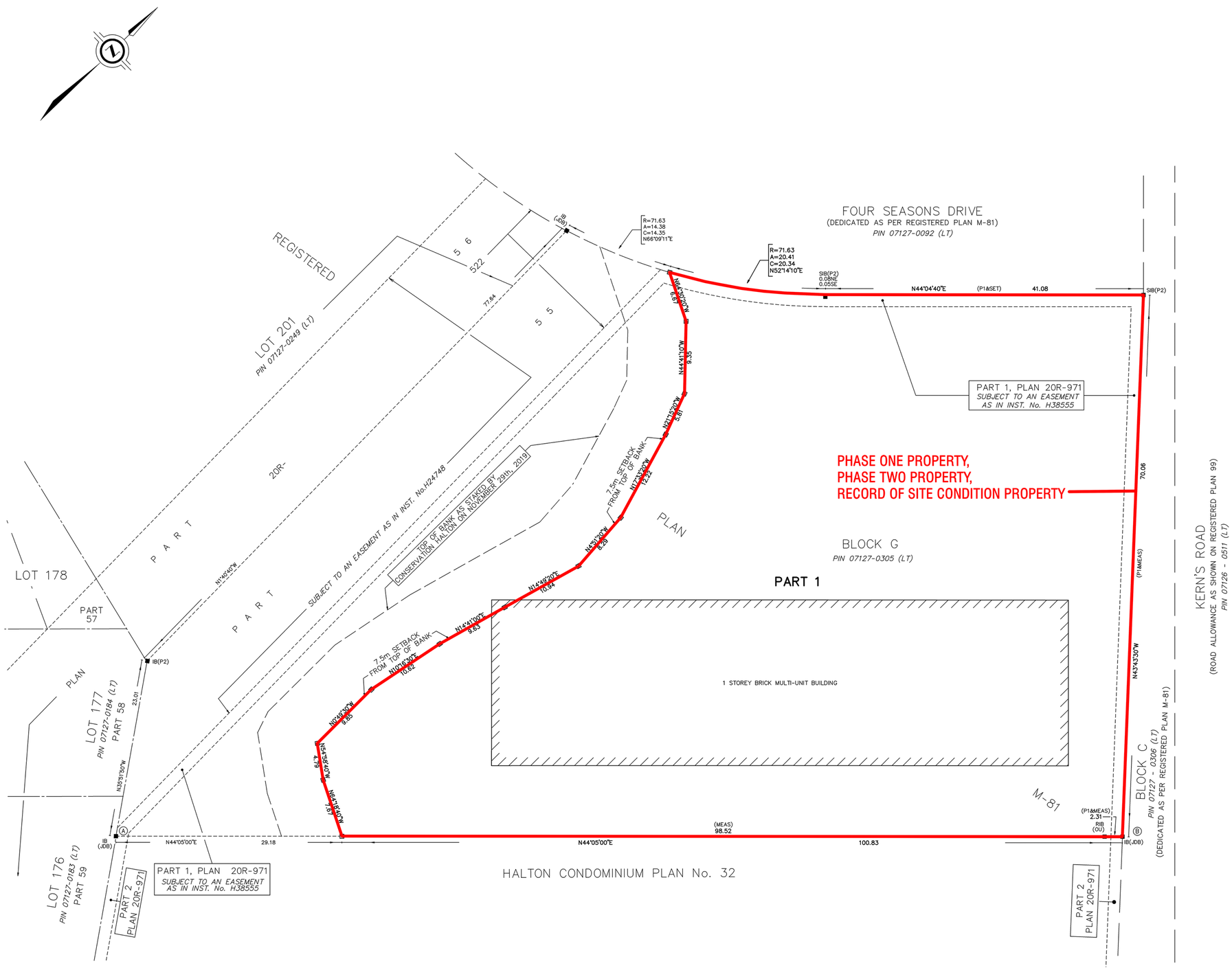
SCALE 1 : 250

5 0 5 10 15 metres

J. D. BARNES LIMITED

© COPYRIGHT

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



NOTES

BEARINGS ARE UTM GRID, DERIVED FROM (ORP's) OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK (RTN) OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS)(2010.0).

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999896.

INTEGRATION DATA

OBSERVED REFERENCE POINTS (ORPs): UTM ZONE 17, NAD83 (CSRS) (2010.0).

COORDINATES TO URBAN ACCURACY PER SECTION 14 (2) OF O.REG 216/10.

POINT ID	EASTING	NORTHING
ORP (A)	594 129.13	4 799 213.70
ORP (B)	594 219.56	4 799 307.08

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

LEGEND

■	DENOTES	SURVEY MONUMENT FOUND
□	DENOTES	SURVEY MONUMENT SET
SIB	DENOTES	STANDARD IRON BAR
SSIB	DENOTES	SHORT STANDARD IRON BAR
IB	DENOTES	IRON BAR
RIB	DENOTES	ROUND IRON BAR
CPW	DENOTES	CONCRETE PIN WITH WASHER IN ASPHALT
OU	DENOTES	ORIGIN UNKNOWN
JDB	DENOTES	J. D. BARNES LIMITED
WIT	DENOTES	WITNESS
P1	DENOTES	SURVEYOR'S REAL PROPERTY REPORT SHOWING TOPOGRAPHIC INFORMATION BY J. D. BARNES LTD., DATED SEPT. 18, 2018.
P2	DENOTES	REGISTERED PLAN M-81

SURVEY MONUMENTS PLANTED ARE IRON BARS UNLESS OTHERWISE NOTED.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.

2. THE SURVEY WAS COMPLETED ON .

DATE

THOMAS J. SALB
ONTARIO LAND SURVEYOR

J.D.BARNES LIMITED
SURVEYING MAPPING GIS
LAND INFORMATION SPECIALISTS
401 WHEELABRATOR WAY, SUITE A, MILTON, ON L9T 3C1
T: (905) 875-9955 F: (905) 875-9956 www.jdbarnes.com

DRAWN BY:	CHECKED BY:	REFERENCE NO.:
ARP		18-30-288-02-C
FILE: G:\18-30-288\02\Drawing\18-30-288-02-C.dgn		DATED: APRIL 2, 2020
		PLOTTED: 4/2/2020

APPENDIX C

Borehole Logs

WATTERS ENVIRONMENTAL GROUP INC.®
9135 Keele Street, Unit A1
Concord, Ontario L4K 0J4
www.wattersenvironmental.com
416-361-2407

Borehole No: BH19-01(MW)

Project No.: 19-0087.02.02

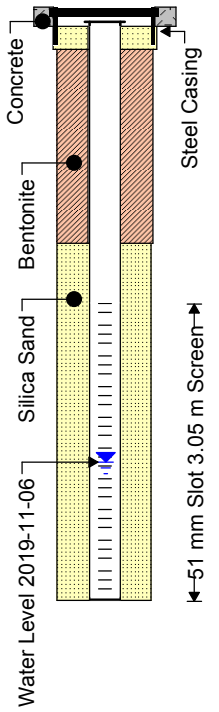
Client: Fieldgate Properties Limited

Location: 1600 Kerns Road, Burlington, Ontario

Ground Elevation: 0 **Total Depth:** 11.79 m / 38.67 ft

Logged By: T.A. **Project Manager:** K.S. & B.W.

SUBSURFACE PROFILE				SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Number	Type	Blow Count	Recovery %	Vapour (CCG/PID)	Lab Submitted	Monitoring Well Completion Details
0 / 0		Ground Surface	0.00							
		14 cm Asphalt	0.00							
1 /		18 cm Granular Base		1	SS	6-4-4-4	75	0/1		
2 / 1		FILL, clayey silt, toposil pockets, glass fragments, ceramic fragments, brown and grey, some black, moist, loose		2	SS	2-2-2-2	100	0/1	X	
3 /										
4 /		sand, some silt, some brick, glass and		3	SS	2-2-3-3	60	0/1		
5 /										
6 / 2		ceramic fragments, red, moist loose		4	SS	1-1-1-2	50	0/1		
7 /										
8 /				5	SS	2-2-1-2	40	0/1		
9 /										
10 / 3				6	SS	4-3-3-2	15	0/1		
11 /										
12 /				7	SS	2-2-1-2	25	0/1	X	
13 / 4										
14 /										
15 /										
16 / 5		wet		8	SS	1-0-1-1	15	0/1		
17 /										
18 /										
19 /				9	SS	1-1-3-2	15	0/1		
20 / 6										
21 /										
22 /				10	SS	1-2-3-2	25	0/1		
23 / 7										
24 /										
25 /				11	SS	3-3-4-4	25	0/1		
26 /										
27 / 8										
28 /				12	SS	1-2-3-2	25	0/1		
29 /										
30 /				13	SS	3-5-9-10	40	0/1		
31 / 9										
32 /										
33 /				14	SS	5-7-16-20	50	0/1	X	
34 / 10										
35 /										
36 /		some wood		15	SS	10-15-35-21	75	0/1		
37 / 11			-11.29							
38 /		SILTY CLAY to WEATHERED SHALE, red to grey, moist, hard	11.29 -11.79	16	SS	48-50-70 for 50 mm	75	0/1	X	
39 /		End of Borehole	11.79							



Drilled By: Pontil Drilling, CME 75 Truck Mount Rig

Drill Method: Hollow Augers and Split Spoon Sampling

Drill Date: 2019-10-17

Hole Size: 20 cm diameter

Screening Tool: Eagle II

Sheet: 1 of 1

WATTERS ENVIRONMENTAL GROUP INC.®
9135 Keele Street, Unit A1
Concord, Ontario L4K 0J4
www.wattersenvironmental.com
416-361-2407

Borehole No: BH19-02(MW)

Project No.: 19-0087.02.02

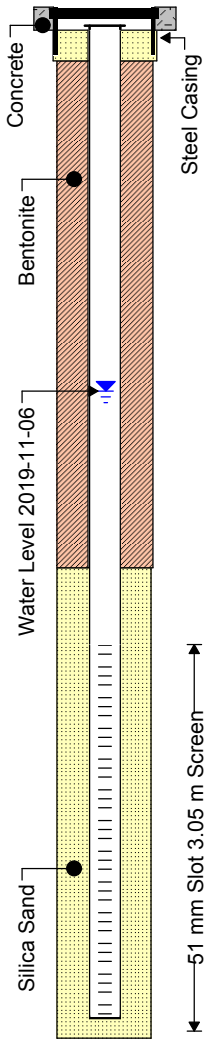
Client: Fieldgate Properties Limited

Location: 1600 Kerns Road, Burlington, Ontario

Ground Elevation: 0 **Total Depth:** 9.14 m / 30 ft

Logged By: T.A. **Project Manager:** K.S. & B.W.

SUBSURFACE PROFILE				SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Number	Type	Blow Count	Recovery %	Vapour (CCG/PID)	Lab Submitted	Monitoring Well Completion Details
0 / 0		Ground Surface	0.00							
		10 cm Asphalt	0.00							
1		10 cm Granular Base		1	SS	3-7-9-10	82	0/0	X	
2 / 1		CLAYEY SILT, trace gravel, trace sand, trace oxidized fissures, brown veined grey, moist, stiff, no stains, no odours		2	SS	4-7-13-13	90	0/1		
3										
4				3	SS	6-11-16-17	90	0/1	X	
5 / 2										
6				4	SS	4-8-11-17	57	0/0		
7										
8 / 3				5	SS	4-6-12-15	90	0/1	X	
9										
10				6	SS	6-12-11-15	100	0/1		
11 / 4										
12				7	SS	4-7-12-17	90	0/1		
13										
14				8	SS	3-4-7-11	100	0/1		
15 / 5		grey, stiff								
16				9	SS	2-5-5-10	74	0/1		
17										
18				10	SS	5-6-8-8	100	0/1		
19 / 6										
20				11	SS	2-5-6-7	82	0/1		
21										
22				12	SS	5-6-11-11	100	0/1		
23 / 7										
24										
25										
26 / 8										
27										
28										
29			-8.99							
30 / 9		End of Borehole	8.99							
31										



Drilled By: Pontil Drilling, CME 75 Truck Mount Rig

Drill Method: Hollow Augers and Split Spoon Sampling

Drill Date: 2019-10-15

Hole Size: 20 cm diameter

Screening Tool: Eagle II

Sheet: 1 of 1

WATTERS ENVIRONMENTAL GROUP INC.®
9135 Keele Street, Unit A1
Concord, Ontario L4K 0J4
www.wattersenvironmental.com
416-361-2407

Borehole No: BH19-03

Project No.: 19-0087.02.02

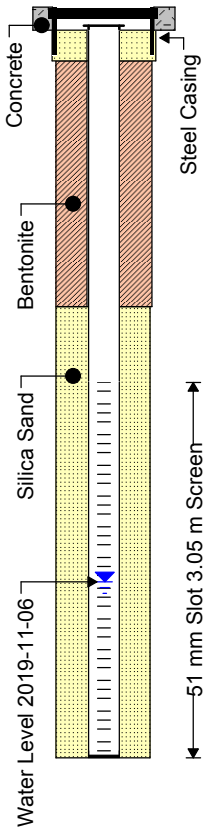
Client: Fieldgate Properties Limited

Location: 1600 Kerns Road, Burlington, Ontario

Ground Elevation: 0 **Total Depth:** 7.47 m / 24.5 ft

Logged By: T.A. **Project Manager:** K.S. & B.W.

SUBSURFACE PROFILE				SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Number	Type	Blow Count	Recovery %	Vapour (CCG/PID)	Lab Submitted	Monitoring Well Completion Details
0 / 0		Ground Surface	0.00							
		11 cm Asphalt	0.00							
1 /		10 cm Granular Base								
2 /		FILL, clayey silt, toposil pockets, glass fragments, ceramic fragments, brown and grey, some black, moist, loose		1	SS	2-3-4-5	65	0/1		
3 / 1				2	SS	2-3-3-3	75	0/1	X	
4 /		sand, some silt, some gravel some brick, glass and ceramic fragments, red, moist		3	SS	2-2-2-3	35	0/1		
6 / 2		loose		4	SS	2-2-3-3	57	0/1	X	
8 /				5	SS	3-2-3-3	33	0/1		
10 / 3		wet		6	SS	1-0-1-0	26	0/1	X	
12 /				7	SS	1-1-1-1	25	0/1		
13 / 4			-5.33							
16 /		CLAYEY SILT, trace gravel, trace sand, brown to grey, moist, stiff to very stiff	5.33	8	SS	0-1-4-9	75	0/1	X	
18 / 5				9	SS	2-5-8-10	65	0/1	X	
20 /				10	SS	4-7-12-15	75	0/1		
23 / 7			-7.47							
24 /		End of Borehole	7.47							
25 / 8										
28 /										
29 / 9										
31 /										



Drilled By: Pontil Drilling, CME 75 Truck Mount Rig

Drill Method: Hollow Augers and Split Spoon Sampling

Drill Date: 2019-10-16

Hole Size: 20 cm diameter

Screening Tool: Eagle II

Sheet: 1 of 1

WATTERS ENVIRONMENTAL GROUP INC.®
9135 Keele Street, Unit A1
Concord, Ontario L4K 0J4
www.wattersenvironmental.com
416-361-2407

Borehole No: BH19-04(MW)

Project No.: 19-0087.02.02

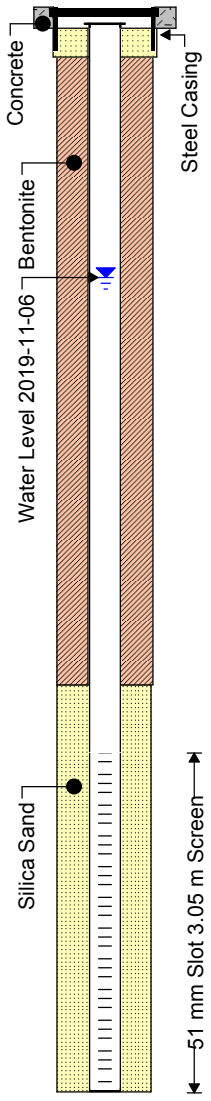
Client: Fieldgate Properties Limited

Location: 1600 Kerns Road, Burlington, Ontario

Ground Elevation: 0 **Total Depth:** 9.91 m / 32.5 ft

Logged By: T.A. **Project Manager:** K.S. & B.W.

SUBSURFACE PROFILE				SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Number	Type	Blow Count	Recovery %	Vapour (CCG/PID)	Lab Submitted	Monitoring Well Completion Details
0 / 0		Ground Surface	0.00							
		11 cm Asphalt 16 cm Granular Base	0.00							
1 / 0				1	SS	3-4-5-9	65	0/1	X	
2 / 1		CLAYEY SILT, trace gravel, trace sand, trace oxidized fissures, brown, veined grey, moist, stiff to very stiff, no stains, no odours		2	SS	5-10-14-17	82	0/0		
3 / 2				3	SS	7-12-14-20	90	0/0		
4 / 3				4	SS	7-12-20-19	82	0/1		
5 / 4				5	SS	7-12-20-19	100	0/1		
6 / 5				6	SS	7-13-15-15	100	0/1	X	
7 / 6				7	SS	5-10-16-20	100	0/1		
8 / 7		grey, stiff		8	SS	7-12-15-14	100	0/1		
9 / 8				9	SS	5-9-15-14	100	0/1		
10 / 9				10	SS	3-7-8-8	100	0/1	X	
				11	SS	3-7-8-9	100	0/1		
				12	SS	3-6-10-10	100	0/1		
				13	SS	4-7-7-14	100	0/1	X	
10 / 10		End of Borehole	-9.75 9.75							



Drilled By: Pontil Drilling, CME 75 Truck Mount Rig

Drill Method: Hollow Augers and Split Spoon Sampling

Drill Date: 2019-10-16

Hole Size: 20 cm diameter

Screening Tool: Eagle II

Sheet: 1 of 1

WATTERS ENVIRONMENTAL GROUP INC.®

9135 Keele Street, Unit A1
Concord, Ontario L4K 0J4
www.wattersenvironmental.com
416-361-2407

Borehole No: BH19-05

Project No.: 19-0087.02.02

Client: Fieldgate Properties Limited

Location: 1600 Kerns Road, Burlington, Ontario

Ground Elevation: 0 **Total Depth:** 7.47 m / 24.5 ft

Logged By: T.A. **Project Manager:** K.S. & B.W.

SUBSURFACE PROFILE				SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Number	Type	Blow Count	Recovery %	Vapour (CCG/PID)	Lab Submitted	Monitoring Well Completion Details
0 / 0		Ground Surface	0.00							
		12 cm Asphalt	0.00							
1		7 cm Granular Base		1	SS	3-4-4-7	57	5/0	X	
2		CLAYEY SILT, trace gravel, trace sand, trace oxidized fissures, brown veined grey, moist, stiff to very stiff, no stains, no odours		2	SS	6-8-10-13	100	5/0		
3 / 1										
4				3	SS	6-8-10-11	100	5/0	X	
5										
6 / 2										
7		stiff		4	SS	5-6-6-9	90	5/0	X	
8										
9 / 3										
10		very stiff		5	SS	5-9-10-14	90	5/0		
11										
12 / 4										
13				6	SS	5-10-13-15	100	5/0		
14										
15 / 5										
16				7	SS	7-12-17-20	100	5/0		
17										
18 / 6										
19		trace sand lenses, wet grey		8	SS	4-8-10-14	100	25/0	X	
20										
21				9	SS	3-9-9-10	65	5/0		
22										
23 / 7		grey, stiff		10	SS	6-10-11-15	50	5/0		
24			-7.47							
25		End of Borehole	7.47							
26 / 8										
27										
28										
29 / 9										
30										
31										
32										
33 / 10										
34										

Drilled By: Pontil Drilling, CME 75 Truck Mount Rig

Drill Method: Hollow Augers and Split Spoon Sampling

Drill Date: 2019-10-17

Hole Size: 20 cm diameter

Screening Tool: Eagle II

Sheet: 1 of 1

WATTERS ENVIRONMENTAL GROUP INC.®

9135 Keele Street, Unit A1
Concord, Ontario L4K 0J4
www.wattersenvironmental.com
416-361-2407

Borehole No: BH19-06

Project No.: 19-0087.02.02

Client: Fieldgate Properties Limited

Location: 1600 Kerns Road, Burlington, Ontario

Ground Elevation: 0 **Total Depth:** 6.71 m / 22 ft

Logged By: T.A. **Project Manager:** K.S. & B.W.

SUBSURFACE PROFILE				SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Number	Type	Blow Count	Recovery %	Vapour (CCG/PID)	Lab Submitted	Monitoring Well Completion Details
0 / 0		Ground Surface	0.00							
		11 cm Asphalt	0.00							
		13 cm Granular Base		1	SS	2-3-5-8	90	0/1		
3 / 1		CLAYEY SILT, trace gravel, trace sand, trace oxidized fissures, brown veined grey, moist, stiff to very stiff, no stains, no odours		2	SS	7-9-13-18	100	0/1		
6 / 2				3	SS	7-13-16-18	100	0/1		
9 / 3				4	SS	3-9-13-19	95	0/1		
11 / 4				5	SS	5-10-15-17	100	0/1	X	
13 / 4		grey, stiff		6	SS	5-7-7-10	100	0/1		
16 / 5				7	SS	3-5-8-10	100	0/0		
18 / 6				8	SS	3-4-6-6	100	0/0		
21 / 6				9	SS	3-5-7-8	65	0/0	X	
22 / 7			-6.71							
		End of Borehole	6.71							

Drilled By: Pontil Drilling, CME 75 Truck Mount Rig

Drill Method: Hollow Augers and Split Spoon Sampling

Drill Date: 2019-10-16

Hole Size: 20 cm diameter

Screening Tool: Eagle II

Sheet: 1 of 1

WATTERS ENVIRONMENTAL GROUP INC.®

9135 Keele Street, Unit A1
Concord, Ontario L4K 0J4
www.wattersenvironmental.com
416-361-2407

Borehole No: BH19-07

Project No.: 19-0087.02.02

Client: Fieldgate Properties Limited

Location: 1600 Kerns Road, Burlington, Ontario

Ground Elevation: 0 **Total Depth:** 3.66 m / 12 ft

Logged By: T.A. **Project Manager:** K.S. & B.W.

SUBSURFACE PROFILE				SAMPLE						
Depth (ft / m)	Symbol	Description	Depth/Elev.	Number	Type	Blow Count	Recovery %	Vapour (CCG/PID)	Lab Submitted	Monitoring Well Completion Details
0 / 0		Ground Surface	0.00							
		11 cm Asphalt 17 cm Granular Base	0.00							
1				1	SS	4-3-3-3	90	0/1		
2 / 1		CLAYEY SILT, trace gravel, trace sand, trace gravel, trace oxidized fissures, brown veined grey, moist, stiff to very stiff, no stains, no odours		2	SS	3-5-8-10	100	0/1	X	
3										
4 / 2				3	SS	6-10-13-15	100	0/1		
5										
6 / 3				4	SS	8-10-13-15	95	0/1		
7										
8 / 4				5	SS	5-11-11-18	100	0/1	X	
9			-3.66							
10 / 5		End of Borehole grey, stiff	3.66							
11										
12 / 6										
13										
14 / 7										
15										
16 / 8										
17										
18 / 9										
19										
20 / 10										
21										
22 / 11										
23										
24 / 12										
25										
26 / 13										
27										
28 / 14										
29										
30 / 15										
31										
32 / 16										
33										
34 / 17										

Drilled By: Pontil Drilling, CME 75 Truck Mount Rig

Drill Method: Hollow Augers and Split Spoon Sampling

Drill Date: 2019-10-17

Hole Size: 20 cm diameter

Screening Tool: Eagle II

Sheet: 1 of 1

APPENDIX D

Laboratory Certificates-of-Analyses





FINAL REPORT

CA14605-OCT19 R1

19-0087.02.02

Prepared for

Watters Environmental Group Inc.

FINAL REPORT

CA14605-OCT19 R1

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Watters Environmental Group Inc.	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	9135 Keele St Unit A1 Concord, ON L4K 0i4. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Kevin Sue	Telephone	2165
Telephone	(416) 361-2407	Facsimile	705-652-6365
Facsimile	(416) 361-2410	Email	jill.campbell@sgs.com
Email	ksue@wattersenvironmental.com; labcerts@wattersenvironme	SGS Reference	CA14605-OCT19
Project	19-0087.02.02	Received	10/18/2019
Order Number		Approved	10/25/2019
Samples	(2) Soil (29)	Report Number	CA14605-OCT19 R1
		Date Reported	04/24/2020

COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

Temperature of Sample upon Receipt: 9 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:008608/008607/009896

SIGNATORIES

Jill Campbell, B.Sc.,GISAS



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Legend..... 34
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Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Kevin Sue
Samplers: T Alston

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

			Sample Number	37	38	
			Sample Name	TP19-101-1	TP19-100-1	
			Sample Date	15/10/2019	15/10/2019	
Parameter	**Units**	**RL**		**Result**	**Result**	
Metals and Inorganics						
Moisture Content	%	-		10.7	10.6	

PACKAGE: **- PCBs** ()

			Sample Number	37	38	
			Sample Name	TP19-101-1	TP19-100-1	
			Sample Date	15/10/2019	15/10/2019	
Parameter	**Units**	**RL**		**Result**	**Result**	
PCBs						
Polychlorinated Biphenyls (PCBs) - Total	µg/g	0.3		< 0.3	< 0.3	

PACKAGE: **REG153 - BTEX** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

			Sample Number	9	11	15	18	19	25	27	29
			Sample Name	BH19-01 (MW)-7	BH19-01 (MW)-16	BH19-02 (MW)-5	BH19-03-6	BH19-03-8	BH19-04 (MW)-10	BH19-400	BH19-05-3
			Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
			Sample Date	17/10/2019	17/10/2019	15/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	17/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
BTEX											
Benzene	µg/g	0.02	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Ethylbenzene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	µg/g	0.05	0.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Xylene (total)	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
m/p-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
o-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Kevin Sue
Samplers: T Alston

PACKAGE: **REG153 - BTEX** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Sample Number				31	32	33	34	36
Sample Name				BH19-05-8	BH19-508	BH19-06-5	BH19-06-9	BH19-07-5
Sample Matrix				Soil	Soil	Soil	Soil	Soil
Sample Date				17/10/2019	17/10/2019	15/10/2019	16/10/2019	16/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
BTEX								
Benzene	µg/g	0.02	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Ethylbenzene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	µg/g	0.05	0.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Xylene (total)	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
m/p-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
o-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

PACKAGE: **REG153 - Hydrides** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Sample Number				8	10	12	13	15	16	20	21
Sample Name				BH19-01 (MW)-2	BH19-01 (MW)-14	BH19-102	BH19-02 (MW)-1	BH19-02 (MW)-5	BH19-03-2	BH19-03-9	BH19-302
Sample Matrix				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date				17/10/2019	17/10/2019	17/10/2019	15/10/2019	15/10/2019	15/10/2019	16/10/2019	16/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Hydrides											
Antimony	µg/g	0.8	1.3	2.7	84	4.1	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Arsenic	µg/g	0.5	18	9.6	87	10	5.1	4.1	4.3	6.8	4.3
Selenium	µg/g	0.7	1.5	1.1	1.3	1.0	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Kevin Sue
Samplers: T Alston

PACKAGE: **REG153 - Hydrides** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Sample Number				23	24	28	30	33	34	35
Sample Name				BH19-04 (MW)-1	BH19-04 (MW)-6	BH19-05-1	BH19-05-4	BH19-06-5	BH19-06-9	BH19-07-2
Sample Matrix				Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date				16/10/2019	16/10/2019	17/10/2019	17/10/2019	17/10/2019	16/10/2019	17/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Hydrides										
Antimony	µg/g	0.8	1.3	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Arsenic	µg/g	0.5	18	3.5	5.1	4.0	4.9	3.5	3.7	4.2
Selenium	µg/g	0.7	1.5	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Sample Number				8	9	10	11	12	13	14	15
Sample Name				BH19-01 (MW)-2	BH19-01 (MW)-7	BH19-01 (MW) -14	BH19-01 (MW) -16	BH19-102	BH19-02 (MW)-1	BH19-02 (MW)-3	BH19-02 (MW)-5
Sample Matrix				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date				17/10/2019	17/10/2019	17/10/2019	17/10/2019	17/10/2019	15/10/2019	15/10/2019	15/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics											
Moisture Content	%	-		15.0	34.4	14.5	13.0	15.1	13.0		11.8
Grain Size	%	-								83.6% fine	
Barium	µg/g	0.1	220	240		480		240	140		87
Beryllium	µg/g	0.02	2.5	0.56		0.45		0.58	0.56		0.58
Boron	µg/g	1	36	12		69		11	8		9
Cadmium	µg/g	0.02	1.2	3.2		3.5		2.8	0.09		0.10
Chromium	µg/g	0.5	70	39		100		39	22		22
Cobalt	µg/g	0.01	21	12		31		12	14		12
Copper	µg/g	0.1	92	210		6900		200	34		38
Lead	µg/g	0.1	120	450		3700		440	12		11
Molybdenum	µg/g	0.1	2	3.8		20		4.9	1.3		0.6
Nickel	µg/g	0.5	82	36		170		37	33		26
Silver	µg/g	0.05	0.5	0.86		34		0.97	< 0.05		< 0.05

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Kevin Sue
Samplers: T Alston

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Sample Number				8	9	10	11	12	13	14	15
Sample Name				BH19-01 (MW)-2	BH19-01 (MW)-7	BH19-01 (MW)-14	BH19-01 (MW)-16	BH19-102	BH19-02 (MW)-1	BH19-02 (MW)-3	BH19-02 (MW)-5
Sample Matrix				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date				17/10/2019	17/10/2019	17/10/2019	17/10/2019	17/10/2019	15/10/2019	15/10/2019	15/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics (continued)											
Thallium	µg/g	0.02	1	0.17		0.02		0.17	0.22		0.17
Uranium	µg/g	0.002	2.5	0.65		0.45		0.64	0.62		0.63
Vanadium	µg/g	3	86	28		15		28	30		28
Zinc	µg/g	0.7	290	690		3000		650	63		61
Water Soluble Boron	µg/g	0.5		< 0.5		4.9		< 0.5	< 0.5		< 0.5

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Sample Number				16	17	18	19	20	21	22	23
Sample Name				BH19-03-2	BH19-03-4	BH19-03-6	BH19-03-8	BH19-03-9	BH19-302	BH19-304	BH19-04 (MW)-1
Sample Matrix				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date				15/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics											
Moisture Content	%	-		12.1	20.2	23.8	13.5	13.6	12.0	21.4	14.5
Barium	µg/g	0.1	220	100				170	98		68
Beryllium	µg/g	0.02	2.5	0.51				0.57	0.49		0.32
Boron	µg/g	1	36	7				13	7		7
Cadmium	µg/g	0.02	1.2	0.15				0.34	0.17		0.46
Chromium	µg/g	0.5	70	19				26	18		13
Cobalt	µg/g	0.01	21	11				14	10		6.3
Copper	µg/g	0.1	92	32				70	32		18
Lead	µg/g	0.1	120	13				63	14		49
Molybdenum	µg/g	0.1	2	0.6				1.4	0.7		1.8
Nickel	µg/g	0.5	82	24				31	22		15

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Kevin Sue
Samplers: T Alston

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

	Sample Number	16	17	18	19	20	21	22	23
	Sample Name	BH19-03-2	BH19-03-4	BH19-03-6	BH19-03-8	BH19-03-9	BH19-302	BH19-304	BH19-04 (MW)-1
	Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date	15/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics (continued)									
Silver	µg/g	0.05	0.5	< 0.05				0.11	< 0.05		< 0.05
Thallium	µg/g	0.02	1	0.15				0.19	0.14		0.15
Uranium	µg/g	0.002	2.5	0.57				0.60	0.54		0.75
Vanadium	µg/g	3	86	25				28	24		17
Zinc	µg/g	0.7	290	65				170	83		290
Water Soluble Boron	µg/g	0.5		< 0.5				1.3	< 0.5		< 0.5

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

	Sample Number	24	25	26	27	28	29	30	31
	Sample Name	BH19-04 (MW)-6	BH19-04 (MW)-10	BH19-04 (MW)-13	BH19-400	BH19-05-1	BH19-05-3	BH19-05-4	BH19-05-8
	Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date	16/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	17/10/2019	17/10/2019	17/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics									
Moisture Content	%	-		11.5	12.4		11.6	14.8	13.2	12.8	11.7
Grain Size	%	-				71.8% fine					
Barium	µg/g	0.1	220	95				130		130	
Beryllium	µg/g	0.02	2.5	0.57				0.57		0.58	
Boron	µg/g	1	36	10				8		9	
Cadmium	µg/g	0.02	1.2	0.08				0.11		0.10	
Chromium	µg/g	0.5	70	22				23		22	
Cobalt	µg/g	0.01	21	14				13		14	
Copper	µg/g	0.1	92	37				30		44	
Lead	µg/g	0.1	120	11				13		12	

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Kevin Sue
Samplers: T Alston

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Sample Number			24	25	26	27	28	29	30	31
Sample Name			BH19-04 (MW)-6	BH19-04 (MW) -10	BH19-04 (MW) -13	BH19-400	BH19-05-1	BH19-05-3	BH19-05-4	BH19-05-8
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date			16/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	17/10/2019	17/10/2019	17/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics (continued)										
Molybdenum	µg/g	0.1	2	0.6				0.5		0.6
Nickel	µg/g	0.5	82	28				28		33
Silver	µg/g	0.05	0.5	< 0.05				< 0.05		< 0.05
Thallium	µg/g	0.02	1	0.17				0.18		0.19
Uranium	µg/g	0.002	2.5	0.78				0.60		0.65
Vanadium	µg/g	3	86	27				28		28
Zinc	µg/g	0.7	290	59				59		60
Water Soluble Boron	µg/g	0.5		< 0.5				< 0.5		< 0.5

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Sample Number			32	33	34	35	36	
Sample Name			BH19-508	BH19-06-5	BH19-06-9	BH19-07-2	BH19-07-5	
Sample Matrix			Soil	Soil	Soil	Soil	Soil	
Sample Date			17/10/2019	15/10/2019	16/10/2019	17/10/2019	17/10/2019	
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	
Metals and Inorganics								
Moisture Content	%	-		11.9	12.0	11.7	15.5	13.2	
Barium	µg/g	0.1	220		85	88	140		
Beryllium	µg/g	0.02	2.5		0.55	0.53	0.56		
Boron	µg/g	1	36		9	9	9		
Cadmium	µg/g	0.02	1.2		0.09	0.07	0.08		
Chromium	µg/g	0.5	70		22	20	22		
Cobalt	µg/g	0.01	21		12	11	13		
Copper	µg/g	0.1	92		35	34	31		

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Kevin Sue
Samplers: T Alston

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

	Sample Number			32	33	34	35	36	
	Sample Name			BH19-508	BH19-06-5	BH19-06-9	BH19-07-2	BH19-07-5	
	Sample Matrix			Soil	Soil	Soil	Soil	Soil	
	Sample Date			17/10/2019	15/10/2019	16/10/2019	17/10/2019	17/10/2019	
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	
Metals and Inorganics (continued)									
Lead	µg/g	0.1	120		9.7	9.5	12		
Molybdenum	µg/g	0.1	2		0.6	0.6	0.5		
Nickel	µg/g	0.5	82		26	26	27		
Silver	µg/g	0.05	0.5		< 0.05	< 0.05	< 0.05		
Thallium	µg/g	0.02	1		0.13	0.15	0.17		
Uranium	µg/g	0.002	2.5		0.78	0.70	0.58		
Vanadium	µg/g	3	86		27	25	29		
Zinc	µg/g	0.7	290		58	54	55		
Water Soluble Boron	µg/g	0.5			< 0.5	< 0.5	< 0.5		

Client: Watters Environmental Group Inc.

Project: 19-0087.02.02

Project Manager: Kevin Sue

Samplers: T Alston

PACKAGE: **REG153 - Other (ORP)** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

	Sample Number	8	10	12	13	15	16	20	21
	Sample Name	BH19-01 (MW)-2	BH19-01 (MW)-14	BH19-102	BH19-02 (MW)-1	BH19-02 (MW)-5	BH19-03-2	BH19-03-9	BH19-302
	Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date	17/10/2019	17/10/2019	17/10/2019	15/10/2019	15/10/2019	15/10/2019	16/10/2019	16/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Other (ORP)										
Mercury	µg/g	0.05	0.27	0.17	< 0.05	0.21	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Sodium Adsorption Ratio	---	0.2	2.4	4.6	1.0	4.4	14.8	0.7	7.8	3.9	7.2
SAR Calcium	mg/L	0.09		17.2	245	15.9	12.7	33.4	11.9	43.2	13.6
SAR Magnesium	mg/L	0.02		5.4	25.5	7.1	2.2	11.7	2.0	10.2	2.2
SAR Sodium	mg/L	0.15		93.1	60.1	91.6	210	18.3	109	108	106
Conductivity	mS/cm	0.002	0.57	0.53	1.7	0.53	1.2	0.41	0.62	0.89	0.63
pH	pH Units	0.05		7.82	8.36	7.89	7.91	7.83	7.83	7.79	7.71
Chromium VI	µg/g	0.2	0.66	0.4	0.9	0.4	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Free Cyanide	µg/g	0.05	0.051	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Kevin Sue
Samplers: T Alston

PACKAGE: **REG153 - Other (ORP)** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Sample Number				23	24	28	30	33	34	35
Sample Name				BH19-04 (MW)-1	BH19-04 (MW)-6	BH19-05-1	BH19-05-4	BH19-06-5	BH19-06-9	BH19-07-2
Sample Matrix				Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date				16/10/2019	16/10/2019	17/10/2019	17/10/2019	17/10/2019	16/10/2019	17/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Other (ORP)										
Mercury	µg/g	0.05	0.27	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Sodium Adsorption Ratio	---	0.2	2.4	5.9	0.4	3.0	1.9	0.3	0.2	0.5
SAR Calcium	mg/L	0.09		8.9	26.6	13.7	25.3	27.6	9.8	37.1
SAR Magnesium	mg/L	0.02		1.6	15.4	2.5	5.0	14.8	14.8	7.3
SAR Sodium	mg/L	0.15		71.3	11.8	66.5	40.8	6.9	4.8	11.6
Conductivity	mS/cm	0.002	0.57	0.42	0.34	0.37	0.41	0.34	0.22	0.32
pH	pH Units	0.05		7.86	7.92	7.80	7.78	7.87	8.14	7.77
Chromium VI	µg/g	0.2	0.66	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Free Cyanide	µg/g	0.05	0.051	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Kevin Sue
Samplers: T Alston

PACKAGE: **REG153 - PAHs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Sample Number			8	11	12	13	15	17	20	22
Sample Name			BH19-01 (MW)-2	BH19-01 (MW)-16	BH19-102	BH19-02 (MW)-1	BH19-02 (MW)-5	BH19-03-4	BH19-03-9	BH19-304
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date			17/10/2019	17/10/2019	17/10/2019	15/10/2019	15/10/2019	16/10/2019	16/10/2019	16/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
PAHs											
Acenaphthene	µg/g	0.05	0.072	< 0.05	< 0.05	0.05	< 0.05	< 0.05	2.74	< 0.05	4.25
Acenaphthylene	µg/g	0.05	0.093	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	0.07
Anthracene	µg/g	0.05	0.16	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	2.51	< 0.05	3.50
Benzo(a)anthracene	µg/g	0.05	0.36	0.09	< 0.05	0.13	< 0.05	< 0.05	11.0	< 0.05	13.5
Benzo(a)pyrene	µg/g	0.05	0.3	0.08	< 0.05	0.14	< 0.05	< 0.05	14.2	< 0.05	17.3
Benzo(b+j)fluoranthene	µg/g	0.05	0.47	0.11	< 0.05	0.22	< 0.05	< 0.05	17.4	< 0.05	20.8
Benzo(ghi)perylene	µg/g	0.1	0.68	< 0.1	< 0.1	0.11	< 0.1	< 0.1	8.30	< 0.1	9.99
Benzo(k)fluoranthene	µg/g	0.05	0.48	< 0.05	< 0.05	0.07	< 0.05	< 0.05	6.00	< 0.05	6.41
Chrysene	µg/g	0.05	2.8	0.08	< 0.05	0.12	< 0.05	< 0.05	9.98	< 0.05	12.9
Dibenzo(a,h)anthracene	µg/g	0.06	0.1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	1.51	< 0.06	1.90
Fluoranthene	µg/g	0.05	0.56	0.19	< 0.05	0.26	< 0.05	< 0.05	16.8	< 0.05	20.5
Fluorene	µg/g	0.05	0.12	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.83	< 0.05	1.18
Indeno(1,2,3-cd)pyrene	µg/g	0.1	0.23	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	5.78	< 0.1	7.75
1-Methylnaphthalene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.09	< 0.05	0.08
2-Methylnaphthalene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.15	< 0.05	0.15
Methylnaphthalene, 2-(1-)	µg/g	0.05	0.59	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.24	< 0.05	0.23
Naphthalene	µg/g	0.05	0.09	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.42	< 0.05	0.64
Phenanthrene	µg/g	0.05	0.69	0.12	< 0.05	0.16	< 0.05	< 0.05	9.83	< 0.05	12.6
Pyrene	µg/g	0.05	1	0.16	< 0.05	0.22	< 0.05	< 0.05	18.2	< 0.05	22.5

Client: Watters Environmental Group Inc.

Project: 19-0087.02.02

Project Manager: Kevin Sue

Samplers: T Alston

PACKAGE: **REG153 - PAHs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Sample Number			23	24	28	30	33	34	35
Sample Name			BH19-04 (MW)-1	BH19-04 (MW)-6	BH19-05-1	BH19-05-4	BH19-06-5	BH19-06-9	BH19-07-2
Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date			16/10/2019	16/10/2019	17/10/2019	17/10/2019	17/10/2019	16/10/2019	17/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
PAHs										
Acenaphthene	µg/g	0.05	0.072	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/g	0.05	0.093	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	µg/g	0.05	0.16	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/g	0.05	0.36	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	µg/g	0.05	0.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b+j)fluoranthene	µg/g	0.05	0.47	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	µg/g	0.1	0.68	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/g	0.05	0.48	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	µg/g	0.05	2.8	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzo(a,h)anthracene	µg/g	0.06	0.1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluoranthene	µg/g	0.05	0.56	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/g	0.05	0.12	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.1	0.23	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1-Methylnaphthalene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methylnaphthalene, 2-(1-)	µg/g	0.05	0.59	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/g	0.05	0.09	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/g	0.05	0.69	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	µg/g	0.05	1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Kevin Sue
Samplers: T Alston

PACKAGE: **REG153 - PHCs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

				Sample Number	9	11	15	18	19	25	27	29
				Sample Name	BH19-01 (MW)-7	BH19-01 (MW)-16	BH19-02 (MW)-5	BH19-03-6	BH19-03-8	BH19-04 (MW)-10	BH19-400	BH19-05-3
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	17/10/2019	17/10/2019	15/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	17/10/2019
Parameter	**Units**	**RL**	**L1**		**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
PHCs												
F1 (C6-C10)	µg/g	10	25		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
F1-BTEX (C6-C10)	µg/g	10			< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
F2 (C10-C16)	µg/g	10	10		< 10	< 10	< 10	< 10	< 10	13	18	< 10
F3 (C16-C34)	µg/g	50	240		< 50	< 50	< 50	452	< 50	80	90	59
F4 (C34-C50)	µg/g	50	120		< 50	< 50	< 50	836	< 50	< 50	< 50	59
F4G-sg (GHH)	µg/g	200	120					2810				
Chromatogram returned to baseline at nC50	Yes / No	-			YES	YES	YES	NO	YES	YES	YES	YES

PACKAGE: **REG153 - PHCs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

				Sample Number	31	32	33	34	36
				Sample Name	BH19-05-8	BH19-508	BH19-06-5	BH19-06-9	BH19-07-5
				Sample Matrix	Soil	Soil	Soil	Soil	Soil
				Sample Date	17/10/2019	17/10/2019	15/10/2019	16/10/2019	16/10/2019
Parameter	**Units**	**RL**	**L1**		**Result**	**Result**	**Result**	**Result**	**Result**
PHCs									
F1 (C6-C10)	µg/g	10	25		< 10	< 10	< 10	< 10	< 10
F1-BTEX (C6-C10)	µg/g	10			< 10	< 10	< 10	< 10	< 10
F2 (C10-C16)	µg/g	10	10		19	19	14	21	< 10
F3 (C16-C34)	µg/g	50	240		89	87	70	88	< 50
F4 (C34-C50)	µg/g	50	120		50	< 50	< 50	< 50	< 50
Chromatogram returned to baseline at nC50	Yes / No	-			YES	YES	YES	YES	YES

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Kevin Sue
Samplers: T Alston

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

	Sample Number			8	11	12	13	15	17	20	22
	Sample Name			BH19-01 (MW)-2	BH19-01 (MW)-16	BH19-102	BH19-02 (MW)-1	BH19-02 (MW)-5	BH19-03-4	BH19-03-9	BH19-304
	Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date			17/10/2019	17/10/2019	17/10/2019	15/10/2019	15/10/2019	16/10/2019	16/10/2019	16/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
SVOC Surrogates											
Surr Nitrobenzene-d5	Surr Rec %	-		93	136	96	87	99	118	104	117
Surr 2-Fluorobiphenyl	Surr Rec %	-		85	101	83	68	83	84	71	77
Surr 4-Terphenyl-d14	Surr Rec %	-		92	90	91	71	82	106	78	99
Surr 2-Fluorophenol	Surr Rec %	-		79	70	80	63	79	79	63	71
Surr Phenol-d6	Surr Rec %	-		94	108	93	82	90	97	84	93
Surr 2,4,6-Tribromophenol	Surr Rec %	-		84	75	81	61	66	85	53	60

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

	Sample Number			23	24	28	30	33	34	35	
	Sample Name			BH19-04 (MW)-1	BH19-04 (MW)-6	BH19-05-1	BH19-05-4	BH19-06-5	BH19-06-9	BH19-07-2	
	Sample Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil	
	Sample Date			16/10/2019	16/10/2019	17/10/2019	17/10/2019	17/10/2019	16/10/2019	17/10/2019	
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	
SVOC Surrogates											
Surr Nitrobenzene-d5	Surr Rec %	-		101	75	66	92	69	79	84	
Surr 2-Fluorobiphenyl	Surr Rec %	-		108	77	79	95	72	85	83	
Surr 4-Terphenyl-d14	Surr Rec %	-		111	82	78	101	76	91	92	
Surr 2-Fluorophenol	Surr Rec %	-		88	72	73	79	66	75	85	
Surr Phenol-d6	Surr Rec %	-		100	77	75	88	70	82	91	
Surr 2,4,6-Tribromophenol	Surr Rec %	-		85	77	77	92	69	82	86	

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Parameter	Units	RL	L1	Sample Number	9	11	15	18	19	25	27	29
				Sample Name	BH19-01 (MW)-7	BH19-01 (MW)-16	BH19-02 (MW)-5	BH19-03-6	BH19-03-8	BH19-04 (MW)-10	BH19-400	BH19-05-3
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	17/10/2019	17/10/2019	15/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	17/10/2019
					Result	Result	Result	Result	Result	Result	Result	Result
THMs (VOC)												
Bromodichloromethane	µg/g	0.05	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromoform	µg/g	0.05	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibromochloromethane	µg/g	0.05	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Parameter	Units	RL	L1	Sample Number	31	32	33	34	36
				Sample Name	BH19-05-8	BH19-508	BH19-06-5	BH19-06-9	BH19-07-5
				Sample Matrix	Soil	Soil	Soil	Soil	Soil
				Sample Date	17/10/2019	17/10/2019	15/10/2019	16/10/2019	16/10/2019
					Result	Result	Result	Result	Result
THMs (VOC)									
Bromodichloromethane	µg/g	0.05	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromoform	µg/g	0.05	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibromochloromethane	µg/g	0.05	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Parameter	Units	RL	L1	Sample Number	9	11	15	18	19	25	27	29
				Sample Name	BH19-01 (MW)-7	BH19-01 (MW)-16	BH19-02 (MW)-5	BH19-03-6	BH19-03-8	BH19-04 (MW)-10	BH19-400	BH19-05-3
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	17/10/2019	17/10/2019	15/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	17/10/2019
					Result	Result	Result	Result	Result	Result	Result	Result
VOC Surrogates												
Surr 1,2-Dichloroethane-d4	Surr Rec %	-			102	102	100	102	98	100	100	103
Surr 4-Bromofluorobenzene	Surr Rec %	-			93	93	93	92	91	92	93	92

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Kevin Sue
Samplers: T Alston

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

				Sample Number	9	11	15	18	19	25	27	29
				Sample Name	BH19-01 (MW)-7	BH19-01 (MW)-16	BH19-02 (MW)-5	BH19-03-6	BH19-03-8	BH19-04 (MW)-10	BH19-400	BH19-05-3
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	17/10/2019	17/10/2019	15/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	17/10/2019
Parameter	**Units**	**RL**	**L1**		**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
VOC Surrogates (continued)												
Surr 2-Bromo-1-Chloropropane	Surr Rec %	-			92	91	90	93	91	85	89	94

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

				Sample Number	31	32	33	34	36
				Sample Name	BH19-05-8	BH19-508	BH19-06-5	BH19-06-9	BH19-07-5
				Sample Matrix	Soil	Soil	Soil	Soil	Soil
				Sample Date	17/10/2019	17/10/2019	15/10/2019	16/10/2019	16/10/2019
Parameter	**Units**	**RL**	**L1**		**Result**	**Result**	**Result**	**Result**	**Result**
VOC Surrogates									
Surr 1,2-Dichloroethane-d4	Surr Rec %	-			102	102	100	101	104
Surr 4-Bromofluorobenzene	Surr Rec %	-			92	92	92	93	93
Surr 2-Bromo-1-Chloropropane	Surr Rec %	-			93	93	92	92	93

PACKAGE: **REG153 - VOCs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

				Sample Number	9	11	15	18	19	25	27	29
				Sample Name	BH19-01 (MW)-7	BH19-01 (MW)-16	BH19-02 (MW)-5	BH19-03-6	BH19-03-8	BH19-04 (MW)-10	BH19-400	BH19-05-3
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	17/10/2019	17/10/2019	15/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	17/10/2019
Parameter	**Units**	**RL**	**L1**		**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
VOCs												
Acetone	µg/g	0.5	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	µg/g	0.05	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Carbon tetrachloride	µg/g	0.05	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chlorobenzene	µg/g	0.05	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Client: Watters Environmental Group Inc.

Project: 19-0087.02.02

Project Manager: Kevin Sue

Samplers: T Alston

PACKAGE: **REG153 - VOCs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Sample Number				9	11	15	18	19	25	27	29
Sample Name				BH19-01 (MW)-7	BH19-01 (MW)-16	BH19-02 (MW)-5	BH19-03-6	BH19-03-8	BH19-04 (MW)-10	BH19-400	BH19-05-3
Sample Matrix				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date				17/10/2019	17/10/2019	15/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	17/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)											
Chloroform	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dichlorodifluoromethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1-Dichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1-Dichloroethylene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
trans-1,2-Dichloroethylene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
cis-1,2-Dichloroethylene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichloropropane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
cis-1,3-dichloropropene	µg/g	0.03		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
trans-1,3-dichloropropene	µg/g	0.03		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
1,3-dichloropropene (total)	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Ethylenedibromide	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
n-Hexane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methyl ethyl ketone	µg/g	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl isobutyl ketone	µg/g	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl-t-butyl Ether	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methylene Chloride	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Styrene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tetrachloroethylene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1,1,2-Tetrachloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

PACKAGE: **REG153 - VOCs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

	Sample Number	9	11	15	18	19	25	27	29
	Sample Name	BH19-01 (MW)-7	BH19-01 (MW)-16	BH19-02 (MW)-5	BH19-03-6	BH19-03-8	BH19-04 (MW)-10	BH19-400	BH19-05-3
	Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Sample Date	17/10/2019	17/10/2019	15/10/2019	16/10/2019	16/10/2019	16/10/2019	16/10/2019	17/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)											
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1,1-Trichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1,2-Trichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Trichloroethylene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Trichlorofluoromethane	µg/g	0.05	0.25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Vinyl Chloride	µg/g	0.02	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02

PACKAGE: **REG153 - VOCs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

	Sample Number	31	32	33	34	36			
	Sample Name	BH19-05-8	BH19-508	BH19-06-5	BH19-06-9	BH19-07-5			
	Sample Matrix	Soil	Soil	Soil	Soil	Soil			
	Sample Date	17/10/2019	17/10/2019	15/10/2019	16/10/2019	16/10/2019			
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	
VOCs									
Acetone	µg/g	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Bromomethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Carbon tetrachloride	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Chlorobenzene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Chloroform	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
1,2-Dichlorobenzene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
1,3-Dichlorobenzene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
1,4-Dichlorobenzene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Dichlorodifluoromethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
1,1-Dichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Kevin Sue
Samplers: T Alston

PACKAGE: **REG153 - VOCs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

	Sample Number	31	32	33	34	36		
	Sample Name	BH19-05-8	BH19-508	BH19-06-5	BH19-06-9	BH19-07-5		
	Sample Matrix	Soil	Soil	Soil	Soil	Soil		
	Sample Date	17/10/2019	17/10/2019	15/10/2019	16/10/2019	16/10/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)								
1,2-Dichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1-Dichloroethylene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
trans-1,2-Dichloroethylene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
cis-1,2-Dichloroethylene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichloropropane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
cis-1,3-dichloropropene	µg/g	0.03		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
trans-1,3-dichloropropene	µg/g	0.03		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
1,3-dichloropropene (total)	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Ethylenedibromide	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
n-Hexane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methyl ethyl ketone	µg/g	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl isobutyl ketone	µg/g	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl-t-butyl Ether	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methylene Chloride	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Styrene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tetrachloroethylene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1,1,2-Tetrachloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1,1-Trichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1,2-Trichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Trichloroethylene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Trichlorofluoromethane	µg/g	0.05	0.25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Vinyl Chloride	µg/g	0.02	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED L1
BH19-01 (MW)-2				
Antimony	EPA 3050/EPA 200.8	µg/g	2.7	1.3
Barium	EPA 3050/EPA 200.8	µg/g	240	220
Cadmium	EPA 3050/EPA 200.8	µg/g	3.2	1.2
Copper	EPA 3050/EPA 200.8	µg/g	210	92
Lead	EPA 3050/EPA 200.8	µg/g	450	120
Molybdenum	EPA 3050/EPA 200.8	µg/g	3.8	2
Silver	EPA 3050/EPA 200.8	µg/g	0.86	0.5
Zinc	EPA 3050/EPA 200.8	µg/g	690	290
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	4.6	2.4
BH19-01 (MW)-14				
Antimony	EPA 3050/EPA 200.8	µg/g	84	1.3
Arsenic	EPA 3050/EPA 200.8	µg/g	87	18
Barium	EPA 3050/EPA 200.8	µg/g	480	220
Boron	EPA 3050/EPA 200.8	µg/g	69	36
Cadmium	EPA 3050/EPA 200.8	µg/g	3.5	1.2
Chromium	EPA 3050/EPA 200.8	µg/g	100	70
Cobalt	EPA 3050/EPA 200.8	µg/g	31	21
Copper	EPA 3050/EPA 200.8	µg/g	6900	92
Lead	EPA 3050/EPA 200.8	µg/g	3700	120
Molybdenum	EPA 3050/EPA 200.8	µg/g	20	2
Nickel	EPA 3050/EPA 200.8	µg/g	170	82
Silver	EPA 3050/EPA 200.8	µg/g	34	0.5
Zinc	EPA 3050/EPA 200.8	µg/g	3000	290
Conductivity	EPA 6010/SM 2510	mS/cm	1.7	0.57
Chromium VI	EPA218.6/EPA3060A	µg/g	0.9	0.66
BH19-102				
Antimony	EPA 3050/EPA 200.8	µg/g	4.1	1.3
Barium	EPA 3050/EPA 200.8	µg/g	240	220
Cadmium	EPA 3050/EPA 200.8	µg/g	2.8	1.2
Copper	EPA 3050/EPA 200.8	µg/g	200	92
Lead	EPA 3050/EPA 200.8	µg/g	440	120
Molybdenum	EPA 3050/EPA 200.8	µg/g	4.9	2
Silver	EPA 3050/EPA 200.8	µg/g	0.97	0.5
Zinc	EPA 3050/EPA 200.8	µg/g	650	290
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	4.4	2.4
BH19-02 (MW)-1				
Conductivity	EPA 6010/SM 2510	mS/cm	1.2	0.57
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	14.8	2.4

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED L1
BH19-03-2				
Conductivity	EPA 6010/SM 2510	mS/cm	0.62	0.57
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	7.8	2.4
BH19-03-4				
Acenaphthene	EPA 3541/8270D	µg/g	2.74	0.072
Anthracene	EPA 3541/8270D	µg/g	2.51	0.16
Benz(a)anthracene	EPA 3541/8270D	µg/g	11.0	0.36
Benzo(a)pyrene	EPA 3541/8270D	µg/g	14.2	0.3
Benzo(b+j)fluoranthene	EPA 3541/8270D	µg/g	17.4	0.47
Benzo(g,h,i)perylene	EPA 3541/8270D	µg/g	8.30	0.68
Benzo(k)fluoranthene	EPA 3541/8270D	µg/g	6.00	0.48
Chrysene	EPA 3541/8270D	µg/g	9.98	2.8
Dibenz(a,h)anthracene	EPA 3541/8270D	µg/g	1.51	0.1
Fluoranthene	EPA 3541/8270D	µg/g	16.8	0.56
Fluorene	EPA 3541/8270D	µg/g	0.83	0.12
Indeno(1,2,3-cd)pyrene	EPA 3541/8270D	µg/g	5.78	0.23
Naphthalene	EPA 3541/8270D	µg/g	0.42	0.09
Phenanthrene	EPA 3541/8270D	µg/g	9.83	0.69
Pyrene	EPA 3541/8270D	µg/g	18.2	1
BH19-03-6				
F3 (C16 to C34)	CCME Tier 1	µg/g	452	240
F4 (C34 to C50)	CCME Tier 1	µg/g	836	120
Gravimetric Heavy Hydrocarbons	CCME Tier 1	µg/g	2810	120
BH19-03-9				
Conductivity	EPA 6010/SM 2510	mS/cm	0.89	0.57
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	3.9	2.4
BH19-302				
Conductivity	EPA 6010/SM 2510	mS/cm	0.63	0.57
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	7.2	2.4
BH19-304				
Acenaphthene	EPA 3541/8270D	µg/g	4.25	0.072
Anthracene	EPA 3541/8270D	µg/g	3.50	0.16
Benz(a)anthracene	EPA 3541/8270D	µg/g	13.5	0.36
Benzo(a)pyrene	EPA 3541/8270D	µg/g	17.3	0.3
Benzo(b+j)fluoranthene	EPA 3541/8270D	µg/g	20.8	0.47
Benzo(g,h,i)perylene	EPA 3541/8270D	µg/g	9.99	0.68
Benzo(k)fluoranthene	EPA 3541/8270D	µg/g	6.41	0.48

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED L1
BH19-304 (continued)				
Chrysene	EPA 3541/8270D	µg/g	12.9	2.8
Dibenz(a,h)anthracene	EPA 3541/8270D	µg/g	1.90	0.1
Fluoranthene	EPA 3541/8270D	µg/g	20.5	0.56
Fluorene	EPA 3541/8270D	µg/g	1.18	0.12
Indeno(1,2,3-cd)pyrene	EPA 3541/8270D	µg/g	7.75	0.23
Naphthalene	EPA 3541/8270D	µg/g	0.64	0.09
Phenanthrene	EPA 3541/8270D	µg/g	12.6	0.69
Pyrene	EPA 3541/8270D	µg/g	22.5	1
BH19-04 (MW)-1				
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	5.9	2.4
BH19-04 (MW)-10				
F2 (C10 to C16)	CCME Tier 1	µg/g	13	10
BH19-400				
F2 (C10 to C16)	CCME Tier 1	µg/g	18	10
BH19-05-1				
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	µg/g	3.0	2.4
BH19-05-8				
F2 (C10 to C16)	CCME Tier 1	µg/g	19	10
BH19-508				
F2 (C10 to C16)	CCME Tier 1	µg/g	19	10
BH19-06-5				
F2 (C10 to C16)	CCME Tier 1	µg/g	14	10
BH19-06-9				
F2 (C10 to C16)	CCME Tier 1	µg/g	21	10

QC SUMMARY

Conductivity

Method: EPA 6010/SM 2510 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0410-OCT19	mS/cm	0.002	<0.002	0	10	99	90	110	NA		

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Free Cyanide	SKA5109-OCT19	µg/g	0.05	<0.05	NV	20	98	80	120	78	75	125

Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-IENVISKA-LAK-AN-012

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA5111-OCT19	ug/g	0.2	<0.2	ND	20	102	80	120	104	75	125

QC SUMMARY

Mercury by CVAAS

Method: EPA 7471A/EPA 245 | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury	EMS0149-OCT19	µg/g	0.05	<0.05	ND	20	93	80	120	97	70	130

Metals in aqueous samples - ICP-OES

Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-IENVISPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
SAR Calcium	ESG0071-OCT19	mg/L	0.09	<0.09	3	20	97	80	120	96	70	130
SAR Magnesium	ESG0071-OCT19	mg/L	0.02	<0.02	3	20	95	80	120	93	70	130
SAR Sodium	ESG0071-OCT19	mg/L	0.15	<0.15	ND	20	94	80	120	92	70	130

QC SUMMARY

Metals in Soil - Aqua-regia/ICP-MS

Method: EPA 3050/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0149-OCT19	ug/g	0.05	<0.05	ND	20	93	70	130	92	70	130
Arsenic	EMS0149-OCT19	µg/g	0.5	<0.5	4	20	99	70	130	98	70	130
Barium	EMS0149-OCT19	ug/g	0.1	<0.1	5	20	107	70	130	100	70	130
Beryllium	EMS0149-OCT19	µg/g	0.02	<0.02	4	20	96	70	130	91	70	130
Boron	EMS0149-OCT19	µg/g	1	<1	7	20	93	70	130	90	70	130
Cadmium	EMS0149-OCT19	µg/g	0.02	<0.02	16	20	103	70	130	108	70	130
Cobalt	EMS0149-OCT19	µg/g	0.01	<0.01	0	20	105	70	130	111	70	130
Chromium	EMS0149-OCT19	µg/g	0.5	<0.5	1	20	108	70	130	117	70	130
Copper	EMS0149-OCT19	µg/g	0.1	<0.1	3	20	109	70	130	107	70	130
Molybdenum	EMS0149-OCT19	µg/g	0.1	<0.1	18	20	101	70	130	122	70	130
Nickel	EMS0149-OCT19	ug/g	0.5	<0.5	2	20	105	70	130	108	70	130
Lead	EMS0149-OCT19	µg/g	0.1	<0.1	0	20	106	70	130	101	70	130
Antimony	EMS0149-OCT19	µg/g	0.8	<0.8	ND	20	102	70	130	108	70	130
Selenium	EMS0149-OCT19	µg/g	0.7	<0.7	ND	20	105	70	130	101	70	130
Thallium	EMS0149-OCT19	µg/g	0.02	<0.02	9	20	106	70	130	107	70	130
Uranium	EMS0149-OCT19	µg/g	0.002	<0.002	1	20	103	70	130	95	70	130
Vanadium	EMS0149-OCT19	µg/g	3	<3	1	20	106	70	130	112	70	130
Zinc	EMS0149-OCT19	µg/g	0.7	<0.7	3	20	103	70	130	101	70	130

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 I Internal ref.: ME-CA-[ENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0343-OCT19	µg/g	10	<10	ND	30	92	80	120	100	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 I Internal ref.: ME-CA-[ENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0355-OCT19	µg/g	10	<10	ND	30	109	80	120	117	60	140
F3 (C16-C34)	GCM0355-OCT19	µg/g	50	<50	ND	30	109	80	120	117	60	140
F4 (C34-C50)	GCM0355-OCT19	µg/g	50	<50	ND	30	109	80	120	117	60	140

QC SUMMARY

Petroleum Hydrocarbons (F4G)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F4G-sg (GHH)	GCM0394-OCT19	µg/g	200	<200	NA	30	96	80	120	NA	60	140

pH

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	ARD0091-OCT19	pH Units	0.05		0	20	100	80	120			

Polychlorinated Biphenyls

Method: EPA 3570/8082A/8270C | Internal ref.: ME-CA-[ENV]GC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0382-OCT19	µg/g	0.3	< 0.3	ND	40	93	60	140	101	60	140

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3541/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1-Methylnaphthalene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	82	50	140	81	50	140
2-Methylnaphthalene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	78	50	140	77	50	140
Acenaphthene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	102	50	140	95	50	140
Acenaphthylene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	94	50	140	88	50	140
Anthracene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	92	50	140	90	50	140
Benzo(a)anthracene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	93	50	140	93	50	140
Benzo(a)pyrene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	87	50	140	91	50	140
Benzo(b+j)fluoranthene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	86	50	140	93	50	140
Benzo(ghi)perylene	GCM0358-OCT19	µg/g	0.1	< 0.1	ND	40	86	50	140	86	50	140
Benzo(k)fluoranthene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	93	50	140	97	50	140
Chrysene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	97	50	140	91	50	140
Dibenzo(a,h)anthracene	GCM0358-OCT19	µg/g	0.06	< 0.06	ND	40	84	50	140	86	50	140
Fluoranthene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	98	50	140	98	50	140
Fluorene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	94	50	140	90	50	140
Indeno(1,2,3-cd)pyrene	GCM0358-OCT19	µg/g	0.1	< 0.1	ND	40	84	50	140	88	50	140
Naphthalene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	95	50	140	87	50	140
Phenanthrene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	96	50	140	91	50	140
Pyrene	GCM0358-OCT19	µg/g	0.05	< 0.05	ND	40	97	50	140	96	50	140

QC SUMMARY

Volatile Organics

Method: EPA 5035A/5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	89	60	130	95	50	140
1,1,1-Trichloroethane	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	80	60	130	89	50	140
1,1,2,2-Tetrachloroethane	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	90	60	130	87	50	140
1,1,2-Trichloroethane	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	89	60	130	93	50	140
1,1-Dichloroethane	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	79	60	130	85	50	140
1,1-Dichloroethylene	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	79	60	130	86	50	140
1,2-Dichlorobenzene	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	90	60	130	95	50	140
1,2-Dichloroethane	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	87	60	130	93	50	140
1,2-Dichloropropane	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	87	60	130	91	50	140
1,3-Dichlorobenzene	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	89	60	130	94	50	140
1,4-Dichlorobenzene	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	88	60	130	94	50	140
Acetone	GCM0342-OCT19	µg/g	0.5	< 0.5	ND	50	91	50	140	95	50	140
Benzene	GCM0342-OCT19	µg/g	0.02	< 0.02	ND	50	86	60	130	93	50	140
Bromodichloromethane	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	88	60	130	94	50	140
Bromoform	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	86	60	130	92	50	140
Bromomethane	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	80	50	140	72	50	140
Carbon tetrachloride	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	84	60	130	94	50	140
Chlorobenzene	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	88	60	130	94	50	140
Chloroform	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	87	60	130	94	50	140
cis-1,2-Dichloroethylene	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	87	60	130	92	50	140

QC SUMMARY

Volatile Organics (continued)

Method: EPA 5035A/5030B/8260C | Internal ref.: ME-CA-[ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-dichloropropene	GCM0342-OCT19	µg/g	0.03	< 0.03	ND	50	88	60	130	88	50	140
Dibromochloromethane	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	88	60	130	94	50	140
Dichlorodifluoromethane	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	50	50	140	51	50	140
Ethylbenzene	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	88	60	130	94	50	140
Ethylenedibromide	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	90	60	130	95	50	140
n-Hexane	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	84	60	130	79	50	140
m/p-xylene	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	89	60	130	95	50	140
Methyl ethyl ketone	GCM0342-OCT19	µg/g	0.5	< 0.5	ND	50	89	50	140	90	50	140
Methyl isobutyl ketone	GCM0342-OCT19	µg/g	0.5	< 0.5	ND	50	91	50	140	92	50	140
Methyl-t-butyl Ether	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	91	60	130	96	50	140
Methylene Chloride	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	84	60	130	89	50	140
o-xylene	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	89	60	130	95	50	140
Styrene	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	90	60	130	96	50	140
Tetrachloroethylene	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	86	60	130	93	50	140
Toluene	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	87	60	130	93	50	140
trans-1,2-Dichloroethylene	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	79	60	130	84	50	140
trans-1,3-dichloropropene	GCM0342-OCT19	µg/g	0.03	< 0.03	ND	50	88	60	130	88	50	140
Trichloroethylene	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	87	60	130	98	50	140
Trichlorofluoromethane	GCM0342-OCT19	µg/g	0.05	< 0.05	ND	50	81	50	140	92	50	140
Vinyl Chloride	GCM0342-OCT19	µg/g	0.02	< 0.02	ND	50	73	50	140	76	50	140

QC SUMMARY

Water Soluble Boron

Method: O.Reg. 153/04 | Internal ref.: ME-CA-IENVI SPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Water Soluble Boron	ESG0068-OCT19	µg/g	0.5	<0.5	ND	20	105	80	120	93	70	130

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

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

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

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

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-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 008608

Laboratory Information Section - Lab use only

Received By: Scott Rem
Received By (signature): S
Received Date (mm/dd/yyyy): 10/18/19 (mm\dd\yy)
Custody Seal Present: ☑
Cooling Agent Present: ☐
Received Time: 17:55
Custody Seal Intact: ☑
Temperature Upon Receipt (°C): 9°C + 3 (ice)
LAB LIMS #: CA14605-Oct19

REPORT INFORMATION	INVOICE INFORMATION	PROJECT INFORMATION
Company: Wattersenvironmental	☑ (same as Report Information)	Quotation #:
Contact: Kevin Sue + Basil Wong	Company:	P.O. #:
Address: 9135 Keele St Unit A1	Contact:	Project #: 19-0087.02.02
Concord ON L4K0J4	Address:	Site Location/ID:
Phone: 416-361-2407		
Email: KSue@wattersenvironmental.com	Phone:	
Email: BWong@wattersenviron	Email: ap@wattersenvironmental.com	

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days) — TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date: Rush Confirmation ID:

REGULATIONS

Regulation 153/04: ☐ Table 1 ☑ R/P/I ☐ Table 2 ☐ I/C/C ☑ Table 3 ☐ A/O ☐ Table ____ — Soil Texture: ☐ Coarse ☑ Medium ☐ Fine

Other Regulations: ☐ Reg 347/558 (3 Day min TAT) ☐ PWQO ☐ MMER ☐ CCME ☐ Other: ☐ MISA

Sewer By-Law: ☐ Sanitary ☐ Storm Municipality:

RECORD OF SITE CONDITION (RSC) ☑ YES ☐ NO

NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	PAH ☑ ABN ☐ SVOC(all) ☐	PCB Total ☐ Aroclor ☐	PHC F1-F4 ☑ VOC ☐ BTEX ☑ BTEX/F1 ☑ F2-F4 ☑	VOC ☐ BTEX ☐ THM ☐	Pesticides OC ☐ OP ☐	TCLP M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit. ☐	Water Pkg Gen. ☐ Ext. ☐	Sewer Use:	Grain size	COMMENTS:
1	BH 19-01(MW) - 2	2019-10-17	11:10	2	Soil		✓	✓									
2	BH 19-01(MW) - 7	"	11:55	3	"					✓							
3	BH 19-01(MW) - 14	"	13:55	1	"		✓										
4	BH 19-01(MW) - 16	"	14:00	4	"			✓		✓							
5	BH 19-102	"	10:10	2	"		✓	✓									
6	BH 19-02(MW) - 1	2019-10-15	10:30	2	"		✓	✓									
7	BH 19-02(MW) - 3	"	10:40	1	"											✓	
8	BH 19-02(MW) - 5	2019-10-15	10:50	5	"		✓	✓		✓							
9	BH 19-03 2	2019-10-16	15:40	1	"		✓										
10	BH 19-03 - 4	2019-10-16	16:15	1	"			✓									
11	BH 19-03 - 6	"	16:30	3	"					✓							
12	BH 19-03 - 8	"	16:45	4	"					✓							

Observations/Comments/Special Instructions

Sampled By (NAME): T Alston	Signature:	Date: 10/17/19 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): T. Alston	Signature:	Date: 10/18/19. (mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.1
Date of Issue: 04 April, 2018

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 008607 Page 2 of 3

Laboratory Information Section - Lab use only

Received By: Scott Ron
Received Date (mm/dd/yyyy): 10/18/19 (mm\dd\yy)
Received Time: 17:55
Received By (signature): Scott
Custody Seal Present: ☑
Custody Seal Intact: ☑
Cooling Agent Present: ☑ ice
Temperature Upon Receipt (°C): 9.2 x 3
LAB LIMS #:

REPORT INFORMATION

Company: Wattles Environmental
Contact: Kevin Sue + Basil Wang
Address: 9135 Keele St Unit A1
Concord ON L4K 0S4
Phone: 416-361-2407
Email: Ksue@wattlesenvironmental.com
Email: BWang@wattlesenvironmental.com

INVOICE INFORMATION

☑ (same as Report Information)
Company:
Contact:
Address:
Phone:
Email: ap@wattlesenvironmental.com

PROJECT INFORMATION

Project # / Quotation #: 19-0087.02.02
P.O. #:
Project #: 8
Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)
TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day
RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION
Specify Due Date:
Rush Confirmation ID:

REGULATIONS

Regulation 153/04: ☐ Table 1 ☑ R/P/I ☐ Table 2 ☐ I/C/C ☑ Table 3 ☐ A/O ☐ Table ____
Soil Texture: ☐ Coarse ☑ Medium ☑ Fine
Other Regulations: ☐ Reg 347/558 (3 Day min TAT) ☐ PWQO ☐ MMER ☐ CCME ☐ Other: ☐ MISA
Sewer By-Law: ☐ Sanitary ☐ Storm Municipality:

NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

RECORD OF SITE CONDITION (RSC) ☑ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	PAH ☑ ABN ☐ SVOC(all) ☐	PCB Total ☐ Aroclor ☐	PHC F1-F4 ☑ VOC ☐ BTEX ☑ BTEX/F1 ☑ F2-F4 ☐	VOC ☐ BTEX ☐ THM ☐	Pesticides OC ☐ OP ☐	TCLP M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit. ☐	Water Pkg Gen. ☐ Ext. ☐	Sewer Use:	Brain Size					COMMENTS:
1	BH19-03-9	2019-10-16	16:55	2	soil					✓											
2	BH19-302	"	14:50	1	"		✓														
3	BH19-304	"	15:15	1	"			✓													
4	BH19-04(MW)-1	2019-10-16		2	"		✓	✓		✓											
5	BH19-04(MW)-6	"	10:50	2	"		✓	✓													
6	BH19-04(MW)-10	"	12:20	3	"					✓											
7	BH19-04(MW)-13	"	13:50	1	"					✓						✓					
8	BH19-400	"	11:20	3	"					✓											
9	BH19-05-1	2019-10-17	8:35	2	"		✓	✓													
10	BH19-05-3	"	8:55	3	"					✓											
11	BH19-05-4	"	9:05	2	"		✓	✓													
12	BH19-05-8	"	9:45	3	"					✓											

Observations/Comments/Special Instructions

Sampled By (NAME): T Alsafar
Signature:
Date: 10/17/19 (mm/dd/yy)

Relinquished by (NAME): T Alsafar
Signature:
Date: 10/18/19. (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.1
Date of Issue: 04 April, 2018

Request for Laboratory Services and CHAIN OF CUSTODY

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- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 009896
Page 3 of 3

Laboratory Information Section - Lab use only

Received By: Sue Ti, Ren
Received Date (mm/dd/yyyy): 10/18/19 (mm\dd\yy)
Received Time: 17 : 55
Received By (signature):
Custody Seal Present: ✓
Custody Seal Intact: ✓
Cooling Agent Present: ✓ Ice
Temperature Upon Receipt (°C): 9°C x 3
LAB LIMS #:

REPORT INFORMATION

Company: Watters
Contact: K. Sue + B. Wong
Address: Same as Pag 1
Phone:
Email:
Email:

INVOICE INFORMATION

☑ (same as Report Information)
Company:
Contact:
Address: Same as Pg 1
Phone:
Email:

PROJECT INFORMATION

Quotation #:
P.O. #:
Project #: 19-0087.02.02
Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)
TAT's are quoted in business days (exclude statutory holidays & weekends).
Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION
Specify Due Date:
Rush Confirmation ID:

REGULATIONS

Regulation 153/04:
☐ Table 1 ☑ R/P/I Soil Texture: ☐ Coarse
☐ Table 2 ☐ I/C/C ☑ Medium
☑ Table 3 ☐ A/O ☑ Fine
☐ Table ____

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality:

RECORD OF SITE CONDITION (RSC) ☑ YES ☐ NO

NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	PAH ☑ ABN ☐ SVOC(all) ☐	PCB Total ☑ Aroclor ☐	PHC F1-F4 ☐ VOC ☑ BTEX ☑ BTEX/F1 ☐ F2-F4 ☐	VOC ☐ BTEX ☐ THM ☐	Pesticides OC ☐ OP ☐	TCLP M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit. ☐	Water Pkg Gen. ☐ Ext. ☐	Sewer Use:	COMMENTS:
1	BH 19-508	2019/10/17	7:45	3	Soil					✓						
2	BH 19-06-5	2019/10/15	15:25	5	"		✓	✓		✓						
3	BH 19-06-9	2019/10/16	9:25	5	"		✓	✓		✓						
4	BH 19-07-2	2019/10/17	16:15	2	"		✓	✓								
5	BH 19-07-5	2019/10/17	16:50	5	"					✓						
6	TP19-100-1	2019/10/15	15:00	1	"				✓							
7	TP19-100-1	"	13:00	1	"				✓							
8																
9																
10																
11																
12																

Observations/Comments/Special Instructions

Sampled By (NAME): T Alston	Signature:	Date: 10/17/19	(mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): T Alston	Signature:	Date: 10/18/19	(mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.1
Date of Issue: 04 April, 2018





FINAL REPORT

CA14701-OCT19 R2

19-0087.02.02

Prepared for

Watters Environmental Group Inc.

FINAL REPORT

CA14701-OCT19 R2

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Watters Environmental Group Inc.	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	9135 Keele St Unit A1 Concord, ON L4K 0J4. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Basil Wong	Telephone	2165
Telephone	(416) 361-2407	Facsimile	705-652-6365
Facsimile	(416) 361-2410	Email	jill.campbell@sgs.com
Email	Bwong@wattersenvironmental.com; labcerts@wattersenvironm	SGS Reference	CA14701-OCT19
Project	19-0087.02.02	Received	10/22/2019
Order Number		Approved	10/28/2019
Samples	Ground Water (5)	Report Number	CA14701-OCT19 R2
		Date Reported	04/24/2020

COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Temperature of Sample upon Receipt: 14 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:010327

Styrene matrix spike recovery is outside control limits due to sample matrix; the overall quality control for this analysis has been assessed and meets method acceptibility criteria.

SIGNATORIES

Jill Campbell, B.Sc.,GISAS



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Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Basil Wong
Samplers: Thomas Alston

PACKAGE: **REG153 - BTEX** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10	11		
	Sample Name	BH19-01 (MW)	BH19-02 (MW)	BH19-04 (MW)	BH1000 (MW)	Trip Blank		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	22/10/2019	22/10/2019	22/10/2019	22/10/2019	22/10/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
BTEX								
Benzene	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	0.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Xylene (total)	µg/L	0.5	72	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m/p-xylene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
o-xylene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

PACKAGE: **REG153 - Hydrides** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10			
	Sample Name	BH19-01 (MW)	BH19-02 (MW)	BH19-04 (MW)	BH1000 (MW)			
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water			
	Sample Date	22/10/2019	22/10/2019	22/10/2019	22/10/2019			
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	
Hydrides								
Antimony	µg/L	0.09	1.5	21.4	0.89	0.46	21.4	
Arsenic	µg/L	0.2	13	8.9	1.3	1.3	9.1	
Selenium	µg/L	0.04	5	10.6	1.25	0.64	10.4	

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Basil Wong
Samplers: Thomas Alston

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

L1 = REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9	10
Sample Name				BH19-01 (MW)	BH19-02 (MW)	BH19-04 (MW)	BH1000 (MW)
Sample Matrix				Ground Water	Ground Water	Ground Water	Ground Water
Sample Date				22/10/2019	22/10/2019	22/10/2019	22/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics							
Barium	µg/L	0.02	610	17.3	137	72.6	17.5
Beryllium	µg/L	0.007	0.5	< 0.007	< 0.007	< 0.007	< 0.007
Boron	µg/L	2	1700	5980	160	245	3210
Cadmium	µg/L	0.003	0.5	0.133	0.012	0.010	0.139
Chromium	µg/L	0.08	11	8.40	0.21	0.20	8.20
Cobalt	µg/L	0.004	3.8	0.056	0.833	1.44	0.057
Copper	µg/L	0.2	5	1.6	1.3	1.3	1.5
Lead	µg/L	0.01	1.9	0.53	0.04	0.04	0.53
Molybdenum	µg/L	0.04	23	146	14.6	6.20	147
Nickel	µg/L	0.1	14	0.9	2.3	3.2	0.9
Silver	µg/L	0.002	0.3	0.025	0.009	0.003	0.004
Thallium	µg/L	0.005	0.5	0.048	0.068	0.051	0.050
Uranium	µg/L	0.002	8.9	0.166	4.84	12.3	0.093
Vanadium	µg/L	0.01	3.9	1.50	1.36	1.25	1.49
Zinc	µg/L	2	160	< 2	2	4	< 2

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Basil Wong
Samplers: Thomas Alston

PACKAGE: **REG153 - Na** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9	10
Sample Name				BH19-01 (MW)	BH19-02 (MW)	BH19-04 (MW)	BH1000 (MW)
Sample Matrix				Ground Water	Ground Water	Ground Water	Ground Water
Sample Date				22/10/2019	22/10/2019	22/10/2019	22/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
Na							
Sodium	µg/L	10	490000	564000	43900	55000	547000

PACKAGE: **REG153 - Other (ORP)** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9	10
Sample Name				BH19-01 (MW)	BH19-02 (MW)	BH19-04 (MW)	BH1000 (MW)
Sample Matrix				Ground Water	Ground Water	Ground Water	Ground Water
Sample Date				22/10/2019	22/10/2019	22/10/2019	22/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
Other (ORP)							
Mercury (total)	µg/L	0.01	0.1	< 0.01	< 0.01	< 0.01	< 0.01
pH	no unit	0.05		9.10	7.64	7.45	9.10
Chloride	µg/L	200	790000	1000000	260000	140000	960000
Chromium VI	µg/L	0.2	25	5.7	0.2	0.4	6.1
Cyanide (free)	µg/L	2	5	< 2	< 2	< 2	< 2

PACKAGE: **REG153 - PAHs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9	10
Sample Name				BH19-01 (MW)	BH19-02 (MW)	BH19-04 (MW)	BH1000 (MW)
Sample Matrix				Ground Water	Ground Water	Ground Water	Ground Water
Sample Date				22/10/2019	22/10/2019	22/10/2019	22/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
PAHs							
Acenaphthene	µg/L	0.1	4.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	µg/L	0.1	1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	µg/L	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Basil Wong
Samplers: Thomas Alston

PACKAGE: **REG153 - PAHs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9	10
Sample Name				BH19-01 (MW)	BH19-02 (MW)	BH19-04 (MW)	BH1000 (MW)
Sample Matrix				Ground Water	Ground Water	Ground Water	Ground Water
Sample Date				22/10/2019	22/10/2019	22/10/2019	22/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
PAHs (continued)							
Benzo(a)pyrene	µg/L	0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b+j)fluoranthene	µg/L	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(k)fluoranthene	µg/L	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	µg/L	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	µg/L	0.1	0.4	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	µg/L	0.1	120	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2
1-Methylnaphthalene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5
2-Methylnaphthalene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5
Methylnaphthalene, 2-(1-)	µg/L	0.5	2	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	µg/L	0.5	7	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	µg/L	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	µg/L	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Basil Wong
Samplers: Thomas Alston

PACKAGE: **REG153 - PHCs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10		
	Sample Name	BH19-01 (MW)	BH19-02 (MW)	BH19-04 (MW)	BH1000 (MW)		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	22/10/2019	22/10/2019	22/10/2019	22/10/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
PHCs							
F1 (C6-C10)	µg/L	25	420	< 25	< 25	< 25	< 25
F1-BTEX (C6-C10)	µg/L	25		< 25	< 25	< 25	< 25
F2 (C10-C16)	µg/L	100	150	< 100	< 100	< 100	< 100
F3 (C16-C34)	µg/L	200	500	< 200	< 200	< 200	< 200
F4 (C34-C50)	µg/L	200	500	< 200	< 200	< 200	< 200
Chromatogram returned to baseline at nC50	Yes / No	-		YES	YES	YES	YES

PACKAGE: **REG153 - SVOC Surrogates** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10		
	Sample Name	BH19-01 (MW)	BH19-02 (MW)	BH19-04 (MW)	BH1000 (MW)		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	22/10/2019	22/10/2019	22/10/2019	22/10/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**
SVOC Surrogates							
Surr 2-Methylnaphthalene-D10	Surr Rec %	-		72	73	70	65
Surr Fluoranthene-D10	Surr Rec %	-		89	89	90	84
Surr 2-Fluorobiphenyl	Surr Rec %	-		73	73	71	66
Surr 4-Terphenyl-d14	Surr Rec %	-		94	92	93	89

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Basil Wong
Samplers: Thomas Alston

PACKAGE: **REG153 - THMs (VOC)** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED

				Sample Number	7	8	9	10	11
				Sample Name	BH19-01 (MW)	BH19-02 (MW)	BH19-04 (MW)	BH1000 (MW)	Trip Blank
				Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
				Sample Date	22/10/2019	22/10/2019	22/10/2019	22/10/2019	22/10/2019
Parameter	**Units**	**RL**	**L1**		**Result**	**Result**	**Result**	**Result**	**Result**
THMs (VOC)									
Bromodichloromethane	µg/L	0.5	2		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	µg/L	0.5	5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	µg/L	0.5	2		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

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

L1 = REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED

				Sample Number	7	8	9	10	11
				Sample Name	BH19-01 (MW)	BH19-02 (MW)	BH19-04 (MW)	BH1000 (MW)	Trip Blank
				Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
				Sample Date	22/10/2019	22/10/2019	22/10/2019	22/10/2019	22/10/2019
Parameter	**Units**	**RL**	**L1**		**Result**	**Result**	**Result**	**Result**	**Result**
VOC Surrogates									
Surr 1,2-Dichloroethane-d4	Surr Rec %	-			102	102	102	100	101
Surr 2-Bromo-1-Chloropropane	Surr Rec %	-			95	93	94	93	91
Surr 4-Bromofluorobenzene	Surr Rec %	-			95	94	95	96	96

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED

				Sample Number	7	8	9	10	11
				Sample Name	BH19-01 (MW)	BH19-02 (MW)	BH19-04 (MW)	BH1000 (MW)	Trip Blank
				Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
				Sample Date	22/10/2019	22/10/2019	22/10/2019	22/10/2019	22/10/2019
Parameter	**Units**	**RL**	**L1**		**Result**	**Result**	**Result**	**Result**	**Result**
VOCs									
Acetone	µg/L	30	2700		< 30	< 30	< 30	< 30	< 30
Bromomethane	µg/L	0.5	0.89		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon tetrachloride	µg/L	0.2	0.2		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	µg/L	0.5	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Basil Wong
Samplers: Thomas Alston

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED

	Sample Number	7	8	9	10	11		
	Sample Name	BH19-01 (MW)	BH19-02 (MW)	BH19-04 (MW)	BH1000 (MW)	Trip Blank		
	Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water		
	Sample Date	22/10/2019	22/10/2019	22/10/2019	22/10/2019	22/10/2019		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)								
Chloroform	µg/L	0.5	2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2.0	590	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethane	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethylene	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-Dichloroethene	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethene	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-dichloropropene (total)	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylenedibromide	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
n-Hexane	µg/L	1.0	5	< 1	< 1	< 1	< 1	< 1
Methyl ethyl ketone	µg/L	20	400	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	640	< 20	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2.0	15	< 2	< 2	< 2	< 2	< 2
Methylene Chloride	µg/L	0.5	5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene (perchloroethylene)	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	1.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Basil Wong
Samplers: Thomas Alston

PACKAGE: **REG153 - VOCs** (WATER)

L1 = REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9	10	11
Sample Name				BH19-01 (MW)	BH19-02 (MW)	BH19-04 (MW)	BH1000 (MW)	Trip Blank
Sample Matrix				Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Sample Date				22/10/2019	22/10/2019	22/10/2019	22/10/2019	22/10/2019
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)								
1,1,2,2-Tetrachloroethane	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5.0	150	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	µg/L	0.2	0.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	REG153 / GROUND WATER / FINE - TABLE 1 - All Types of Property Uses - UNDEFINED L1
BH19-01 (MW)				
Chloride	EPA300/MA300-Ions1.3	µg/L	1000000	790000
Antimony	SM 3030/EPA 200.8	µg/L	21.4	1.5
Boron	SM 3030/EPA 200.8	µg/L	5980	1700
Molybdenum	SM 3030/EPA 200.8	µg/L	146	23
Selenium	SM 3030/EPA 200.8	µg/L	10.6	5
Sodium	SM 3030/EPA 200.8	µg/L	564000	490000
BH19-04 (MW)				
Uranium	SM 3030/EPA 200.8	µg/L	12.3	8.9
BH1000 (MW)				
Chloride	EPA300/MA300-Ions1.3	µg/L	960000	790000
Antimony	SM 3030/EPA 200.8	µg/L	21.4	1.5
Boron	SM 3030/EPA 200.8	µg/L	3210	1700
Molybdenum	SM 3030/EPA 200.8	µg/L	147	23
Selenium	SM 3030/EPA 200.8	µg/L	10.4	5
Sodium	SM 3030/EPA 200.8	µg/L	547000	490000

HOLDING TIME SUMMARY

Sample Name	QC Batch Reference	Sample Number	Sampled	Received	Extracted/ Prepared	Analysed	Holding Time	Approved
Anions by IC								
Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENV]IC-LAK-AN-001								
BH19-01 (MW)	DIO0469-OCT19	7	10/22/2019	10/22/2019	10/24/2019	10/24/2019	11/19/2019	10/28/2019
BH19-02 (MW)	DIO0469-OCT19	8	10/22/2019	10/22/2019	10/24/2019	10/24/2019	11/19/2019	10/28/2019
BH19-04 (MW)	DIO0506-OCT19	9	10/22/2019	10/22/2019	10/24/2019	10/24/2019	11/19/2019	10/28/2019
BH1000 (MW)	DIO0469-OCT19	10	10/22/2019	10/22/2019	10/24/2019	10/24/2019	11/19/2019	10/28/2019
Cyanide by SFA								
Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005								
BH19-01 (MW)	SKA0202-OCT19	7	10/22/2019	10/22/2019	10/23/2019	10/23/2019	11/05/2019	10/23/2019
BH19-02 (MW)	SKA0202-OCT19	8	10/22/2019	10/22/2019	10/23/2019	10/23/2019	11/05/2019	10/23/2019
BH19-04 (MW)	SKA0202-OCT19	9	10/22/2019	10/22/2019	10/23/2019	10/23/2019	11/05/2019	10/23/2019
BH1000 (MW)	SKA0202-OCT19	10	10/22/2019	10/22/2019	10/23/2019	10/23/2019	11/05/2019	10/23/2019
Hexavalent Chromium by SFA								
Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENV]SKA-LAK-AN-012								
BH19-01 (MW)	SKA0204-OCT19	7	10/22/2019	10/22/2019	10/23/2019	10/23/2019	11/05/2019	10/23/2019
BH19-02 (MW)	SKA0204-OCT19	8	10/22/2019	10/22/2019	10/23/2019	10/23/2019	11/05/2019	10/23/2019
BH19-04 (MW)	SKA0204-OCT19	9	10/22/2019	10/22/2019	10/23/2019	10/23/2019	11/05/2019	10/23/2019
BH1000 (MW)	SKA0204-OCT19	10	10/22/2019	10/22/2019	10/23/2019	10/23/2019	11/05/2019	10/23/2019
Mercury by CVAAS								
Method: SM 3112/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004								
BH19-01 (MW)	EHG0028-OCT19	7	10/22/2019	10/22/2019	10/24/2019	10/24/2019	11/19/2019	10/25/2019
BH19-02 (MW)	EHG0028-OCT19	8	10/22/2019	10/22/2019	10/24/2019	10/24/2019	11/19/2019	10/25/2019
BH19-04 (MW)	EHG0028-OCT19	9	10/22/2019	10/22/2019	10/24/2019	10/24/2019	11/19/2019	10/25/2019
BH1000 (MW)	EHG0028-OCT19	10	10/22/2019	10/22/2019	10/24/2019	10/24/2019	11/19/2019	10/25/2019
Metals in aqueous samples - ICP-MS								
Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006								
BH19-01 (MW)	EMS0187-OCT19	7	10/22/2019	10/22/2019	10/25/2019	10/25/2019	12/21/2019	10/28/2019
BH19-02 (MW)	EMS0157-OCT19	8	10/22/2019	10/22/2019	10/25/2019	10/25/2019	12/21/2019	10/28/2019
BH19-04 (MW)	EMS0157-OCT19	9	10/22/2019	10/22/2019	10/25/2019	10/25/2019	12/21/2019	10/28/2019
BH1000 (MW)	EMS0187-OCT19	10	10/22/2019	10/22/2019	10/25/2019	10/25/2019	12/21/2019	10/28/2019
Petroleum Hydrocarbons (F1)								
Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010								
BH19-01 (MW)	GCM0415-OCT19	7	10/22/2019	10/22/2019	10/25/2019	10/25/2019	11/05/2019	10/25/2019
BH19-02 (MW)	GCM0415-OCT19	8	10/22/2019	10/22/2019	10/25/2019	10/25/2019	11/05/2019	10/25/2019
BH19-04 (MW)	GCM0415-OCT19	9	10/22/2019	10/22/2019	10/25/2019	10/25/2019	11/05/2019	10/25/2019
BH1000 (MW)	GCM0415-OCT19	10	10/22/2019	10/22/2019	10/25/2019	10/25/2019	11/05/2019	10/25/2019

HOLDING TIME SUMMARY

Sample Name	QC Batch Reference	Sample Number	Sampled	Received	Extracted/ Prepared	Analysed	Holding Time	Approved
Petroleum Hydrocarbons (F2-F4)								
Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010								
BH19-01 (MW)	GCM0423-OCT19	7	10/22/2019	10/22/2019	10/25/2019	10/25/2019	11/05/2019	10/28/2019
BH19-02 (MW)	GCM0423-OCT19	8	10/22/2019	10/22/2019	10/25/2019	10/25/2019	11/05/2019	10/28/2019
BH19-04 (MW)	GCM0423-OCT19	9	10/22/2019	10/22/2019	10/25/2019	10/25/2019	11/05/2019	10/28/2019
BH1000 (MW)	GCM0423-OCT19	10	10/22/2019	10/22/2019	10/25/2019	10/25/2019	11/05/2019	10/28/2019
pH								
Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006								
BH19-01 (MW)	EWL0420-OCT19	7	10/22/2019	10/22/2019	10/23/2019	10/23/2019	10/29/2019	10/24/2019
BH19-02 (MW)	EWL0420-OCT19	8	10/22/2019	10/22/2019	10/23/2019	10/23/2019	10/29/2019	10/24/2019
BH19-04 (MW)	EWL0420-OCT19	9	10/22/2019	10/22/2019	10/23/2019	10/23/2019	10/29/2019	10/24/2019
BH1000 (MW)	EWL0420-OCT19	10	10/22/2019	10/22/2019	10/23/2019	10/23/2019	10/29/2019	10/24/2019
Semi-Volatile Organics								
Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005								
BH19-01 (MW)	GCM0424-OCT19	7	10/22/2019	10/22/2019	10/25/2019	10/25/2019	11/05/2019	10/28/2019
BH19-02 (MW)	GCM0424-OCT19	8	10/22/2019	10/22/2019	10/25/2019	10/25/2019	11/05/2019	10/28/2019
BH19-04 (MW)	GCM0424-OCT19	9	10/22/2019	10/22/2019	10/25/2019	10/25/2019	11/05/2019	10/28/2019
BH1000 (MW)	GCM0424-OCT19	10	10/22/2019	10/22/2019	10/25/2019	10/25/2019	11/05/2019	10/28/2019
Volatile Organics								
Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENV]GC-LAK-AN-004								
BH19-01 (MW)	GCM0392-OCT19	7	10/22/2019	10/22/2019	10/23/2019	10/23/2019	11/05/2019	10/25/2019
BH19-02 (MW)	GCM0392-OCT19	8	10/22/2019	10/22/2019	10/23/2019	10/23/2019	11/05/2019	10/25/2019
BH19-04 (MW)	GCM0392-OCT19	9	10/22/2019	10/22/2019	10/23/2019	10/23/2019	11/05/2019	10/25/2019
BH1000 (MW)	GCM0392-OCT19	10	10/22/2019	10/22/2019	10/23/2019	10/23/2019	11/05/2019	10/25/2019
Trip Blank	GCM0392-OCT19	11	10/22/2019	10/22/2019	10/23/2019	10/23/2019	11/05/2019	10/25/2019

QC SUMMARY

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENV]IC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO0469-OCT19	µg/L	200	<200	1	20	96	80	120	116	75	125
Chloride	DIO0506-OCT19	µg/L	200	<200	ND	20	98	80	120	110	75	125

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (free)	SKA0202-OCT19	µg/L	2	<2	ND	10	103	90	110	80	75	125

Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENV]SKA-LAK-AN-012

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA0204-OCT19	ug/L	0.2	<0.2	6	20	108	80	120	95	75	125

QC SUMMARY

Mercury by CVAAS

Method: SM 3112/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0028-OCT19	ug/L	0.01	<0.01	ND	20	102	80	120	118	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0157-OCT19	µg/L	0.002	<0.05	ND	20	100	90	110	99	70	130
Arsenic	EMS0157-OCT19	µg/L	0.2	<0.2	ND	20	100	90	110	100	70	130
Barium	EMS0157-OCT19	µg/L	0.02	<0.02	3	20	99	90	110	NV	70	130
Beryllium	EMS0157-OCT19	µg/L	0.007	<0.007	ND	20	102	90	110	102	70	130
Boron	EMS0157-OCT19	µg/L	2	<2	ND	20	104	90	110	NV	70	130
Cadmium	EMS0157-OCT19	µg/L	0.003	<0.003	ND	20	102	90	110	102	70	130
Cobalt	EMS0157-OCT19	µg/L	0.004	<0.004	0	20	100	90	110	96	70	130
Chromium	EMS0157-OCT19	ug/L	0.08	<0.08	20	20	97	90	110	92	70	130
Copper	EMS0157-OCT19	ug/L	0.2	<0.2	5	20	100	90	110	98	70	130
Molybdenum	EMS0157-OCT19	ug/L	0.04	<0.04	16	20	107	90	110	93	70	130
Sodium	EMS0157-OCT19	µg/L	10	< 10	1	20	105	90	110	NV	70	130
Nickel	EMS0157-OCT19	µg/L	0.1	<0.1	11	20	100	90	110	94	70	130
Lead	EMS0157-OCT19	µg/L	0.01	<0.01	4	20	99	90	110	92	70	130
Antimony	EMS0157-OCT19	ug/L	0.09	9	6	20	103	90	110	93	70	130
Selenium	EMS0157-OCT19	µg/L	0.04	<0.04	ND	20	108	90	110	125	70	130
Thallium	EMS0157-OCT19	µg/L	0.005	<0.005	ND	20	98	90	110	92	70	130
Uranium	EMS0157-OCT19	µg/L	0.002	<0.002	ND	20	98	90	110	90	70	130
Vanadium	EMS0157-OCT19	µg/L	0.01	<0.01	1	20	103	90	110	104	70	130
Zinc	EMS0157-OCT19	µg/L	2	<2	3	20	106	90	110	107	70	130
Boron	EMS0187-OCT19	µg/L	2	<2	ND	20	102	90	110	NV	70	130

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0415-OCT19	µg/L	25	<25	ND	30	104	60	140	100	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0423-OCT19	µg/L	100	<100	ND	30	76	60	140	101	60	140
F3 (C16-C34)	GCM0423-OCT19	µg/L	200	<200	ND	30	76	60	140	101	60	140
F4 (C34-C50)	GCM0423-OCT19	µg/L	200	<200	ND	30	76	60	140	101	60	140

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0420-OCT19	no unit	0.05	NA	0		101			NA		

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1-Methylnaphthalene	GCM0424-OCT19	µg/L	0.5	< 0.5	ND	30	83	50	140	89	50	140
2-Methylnaphthalene	GCM0424-OCT19	µg/L	0.5	< 0.5	ND	30	84	50	140	91	50	140
Acenaphthene	GCM0424-OCT19	µg/L	0.1	< 0.1	ND	30	85	50	140	87	50	140
Acenaphthylene	GCM0424-OCT19	µg/L	0.1	< 0.1	ND	30	85	50	140	90	50	140
Anthracene	GCM0424-OCT19	µg/L	0.1	< 0.1	ND	30	78	50	140	83	50	140
Benzo(a)anthracene	GCM0424-OCT19	µg/L	0.1	< 0.1	ND	30	90	50	140	94	50	140
Benzo(a)pyrene	GCM0424-OCT19	ug/L	0.01	< 0.01	ND	30	75	50	140	78	50	140
Benzo(b+j)fluoranthene	GCM0424-OCT19	ug/L	0.1	< 0.1	ND	30	85	50	140	81	50	140
Benzo(ghi)perylene	GCM0424-OCT19	µg/L	0.2	< 0.2	ND	30	85	50	140	84	50	140
Benzo(k)fluoranthene	GCM0424-OCT19	µg/L	0.1	< 0.1	ND	30	80	50	140	81	50	140
Chrysene	GCM0424-OCT19	µg/L	0.1	< 0.1	ND	30	88	50	140	89	50	140
Dibenzo(a,h)anthracene	GCM0424-OCT19	µg/L	0.1	< 0.1	ND	30	71	50	140	75	50	140
Fluoranthene	GCM0424-OCT19	ug/L	0.1	< 0.1	ND	30	81	50	140	87	50	140
Fluorene	GCM0424-OCT19	µg/L	0.1	< 0.1	ND	30	85	50	140	91	50	140
Indeno(1,2,3-cd)pyrene	GCM0424-OCT19	µg/L	0.2	< 0.2	ND	30	77	50	140	80	50	140
Naphthalene	GCM0424-OCT19	µg/L	0.5	< 0.5	ND	30	87	50	140	91	50	140
Phenanthrene	GCM0424-OCT19	µg/L	0.1	< 0.1	ND	30	83	50	140	85	50	140
Pyrene	GCM0424-OCT19	µg/L	0.1	< 0.1	ND	30	89	50	140	89	50	140

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	101	60	130	96	50	140
1,1,1-Trichloroethane	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	96	60	130	91	50	140
1,1,2,2-Tetrachloroethane	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	99	60	130	96	50	140
1,1,2-Trichloroethane	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	98	60	130	93	50	140
1,1-Dichloroethane	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	92	60	130	86	50	140
1,1-Dichloroethylene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	94	60	130	91	50	140
1,2-Dichlorobenzene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	100	60	130	97	50	140
1,2-Dichloroethane	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	96	60	130	90	50	140
1,2-Dichloropropane	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	99	60	130	93	50	140
1,3-Dichlorobenzene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	100	60	130	96	50	140
1,4-Dichlorobenzene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	100	60	130	96	50	140
Acetone	GCM0392-OCT19	µg/L	30	<30	ND	30	114	60	130	93	50	140
Benzene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	99	60	130	93	50	140
Bromodichloromethane	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	98	60	130	95	50	140
Bromoform	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	100	60	130	97	50	140
Bromomethane	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	98	50	140	90	50	140
Carbon tetrachloride	GCM0392-OCT19	µg/L	0.2	<0.2	ND	30	100	60	130	95	50	140
Chlorobenzene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	100	60	130	95	50	140
Chloroform	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	99	60	130	95	50	140
cis-1,2-Dichloroethene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	99	60	130	94	50	140

QC SUMMARY

Volatile Organics (continued)

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-Dichloropropene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	98	60	130	91	50	140
Dibromochloromethane	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	99	60	130	95	50	140
Dichlorodifluoromethane	GCM0392-OCT19	µg/L	2.0	<2	ND	30	92	50	140	87	50	140
Ethylbenzene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	102	60	130	97	50	140
Ethylenedibromide	GCM0392-OCT19	µg/L	0.2	<0.2	ND	30	98	60	130	94	50	140
n-Hexane	GCM0392-OCT19	µg/L	1.0	<1	ND	30	106	60	130	91	50	140
m/p-xylene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	103	60	130	98	50	140
Methyl ethyl ketone	GCM0392-OCT19	ug/L	20	<20	ND	30	103	60	130	93	50	140
Methyl Isobutyl Ketone	GCM0392-OCT19	µg/L	20	<20	ND	30	100	50	140	92	50	140
Methyl-t-butyl Ether	GCM0392-OCT19	µg/L	2.0	<2	ND	30	103	60	130	96	50	140
Methylene Chloride	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	109	60	130	105	50	140
o-xylene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	101	60	130	97	50	140
Styrene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	104	60	130	24	50	140
Tetrachloroethylene (perchloroethylene)	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	101	60	130	97	50	140
Toluene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	100	60	130	95	50	140
trans-1,2-Dichloroethene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	92	60	130	86	50	140
trans-1,3-Dichloropropene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	97	60	130	91	50	140
Trichloroethylene	GCM0392-OCT19	µg/L	0.5	<0.5	ND	30	98	60	130	92	50	140
Trichlorofluoromethane	GCM0392-OCT19	µg/L	5.0	<5	ND	30	102	50	140	98	50	140
Vinyl Chloride	GCM0392-OCT19	µg/L	0.2	<0.2	ND	30	94	60	130	91	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

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

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-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 010327 Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Kim Sneed
Received Date (mm/dd/yyyy): 10/22/19 (mm\dd\yy)
Received Time: 17:40
Received By (signature):
Custody Seal Present: ☑ yes
Custody Seal Intact: ☑ yes
Cooling Agent Present: ☑ ice
Temperature Upon Receipt (°C): 14x3
LAB LIMS #: CA-14701-OCT19

REPORT INFORMATION

Company: Watters Environmental
Contact: Keegan Sue Basil Wang
Address: 9135 Keele St. Unit N
Concord ON
Phone: 416 361 2407
Email: KSue@wattersenvironmental.com
Email: BWang@wattersenvironmental.com

INVOICE INFORMATION

☑ (same as Report Information)
Company:
Contact:
Address:
Phone:
Email: ap@wattersenvironmental.com

PROJECT INFORMATION

Quotation #: P.O. #:
Project #: 19-0087.02.02 Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days) TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date: Rush Confirmation ID:

REGULATIONS

Regulation 153/04: ☐ Table 1 ☑ R/P/I ☐ Table 2 ☐ I/C/C ☑ Table 3 ☐ A/O ☐ Table ____ Soil Texture: ☐ Coarse ☑ Medium ☑ Fine

Other Regulations: ☐ Reg 347/558 (3 Day min TAT) ☐ PWQO ☐ MMER ☐ CCME ☐ Other: ☐ MISA

Sewer By-Law: ☐ Sanitary ☐ Storm Municipality:

RECORD OF SITE CONDITION (RSC) ☑ YES ☐ NO

NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	PAH ☑ ABN ☐ SVOC(all) ☐	PCB Total ☐ Aroclor ☐	PHC F1-F4 ☑ VOC ☑ BTEX ☑ BTEX/F1 ☑ F2-F4 ☑	VOC ☑ BTEX ☐ THM ☐	Pesticides OC ☐ OP ☐	TCLP M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit. ☐	Water Pkg Gen. ☐ Ext. ☐	Sewer Use:	COMMENTS:
1	BH19-01(MW)	2019/10/22	13:10	14	GW	Y	✓	✓		✓						
2	BH19-02(MW)	2019/10/22	14:40	14	GW	Y	✓	✓		✓						
3	BH19-04(MW)	2019/10/22	16:00	14	GW	Y	✓	✓		✓						
4	BH1000(MW)	2019/10/22	12:10	14	GW	Y	✓	✓		✓						
5	Trip Blank			2							✓					
6																
7																
8																
9																
10																
11																
12																

Observations/Comments/Special Instructions

Sampled By (NAME): Thomas Alston Signature: Date: 10/22/19 (mm/dd/yy) Pink Copy - Client

Relinquished by (NAME): Thomas Alston Signature: Date: 10/22/19 (mm/dd/yy) Yellow & White Copy - SGS

Revision #: 1.1
Date of Issue: 04 April, 2018





FINAL REPORT

CA14904-NOV20 R

19-0087.02.02

Prepared for

Watters Environmental Group Inc.

FINAL REPORT

CA14904-NOV20 R

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Watters Environmental Group Inc.	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	9135 Keele St Unit A1 Concord, ON L4K 0J4. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Basil Wong	Telephone	705-652-2143
Telephone	(416) 361-2407	Facsimile	705-652-6365
Facsimile	(416) 361-2410	Email	brad.moore@sgs.com
Email	Bwong@wattersenvironmental.com; labcerts@wattersenvironm	SGS Reference	CA14904-NOV20
Project	19-0087.02.02	Received	11/04/2020
Order Number		Approved	11/06/2020
Samples	soil (2)	Report Number	CA14904-NOV20 R
		Date Reported	11/06/2020

COMMENTS

Temperature of Sample upon Receipt: 6 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:018121

SIGNATORIES

Brad Moore Hon. B.Sc

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CA14904-NOV20 R

Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Basil Wong
Samplers: Tom Alston

PACKAGE: **REG153 - Other (ORP)** (SOIL)

Sample Number	8	9
Sample Name	TP20-2021	TP20-2000
Sample Matrix	soil	soil
Sample Date	04/11/2020	04/11/2020

Parameter	Units	RL		Result	Result
Other (ORP)					
pH	pH Units	0.05		7.58	7.60

HOLDING TIME SUMMARY

Sample Name	QC Batch Reference	Sample Number	Sampled	Received	Extracted/ Prepared	Analysed	Holding Time	Approved
pH								
Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-001								
TP20-2021	ARD0024-NOV20	8	11/04/2020	11/04/2020	11/05/2020	11/05/2020	12/04/2020	11/06/2020
TP20-2000	ARD0024-NOV20	9	11/04/2020	11/04/2020	11/05/2020	11/05/2020	12/04/2020	11/06/2020

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	ARD0024-NOV20	pH Units	0.05		0	20	100	80	120			

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Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

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

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

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

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-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 018121 Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Kim Sheard
Received By (signature):
Received Date: 11 / 04 / 20 (mm/dd/yy)
Received Time: 13 : 00 (hr : min)
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: ice
Temperature Upon Receipt (°C) 6 . 6 . 6
LAB LIMS #: CA-14904-Nov20

REPORT INFORMATION	INVOICE INFORMATION
Company: Wattles Environmental	☑ (same as Report Information)
Contact: Basil Wong	Company:
Address: 9135 Keele St unit N Concord ON L4K 0J4	Contact:
Phone: 416-361-2407	Address:
Fax: Bwong@wattlesenvironmental.com	Phone:
Email: labcert@wattlesenvironmental.com	Email: cpo@wattlesenvironmental.com

Quotation #:
P.O. #:
Project #: 19-0087.02.02
Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)
TAT's are quoted in business days (exclude statutory holidays & weekends).
Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:
*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☑ O.Reg 153/04 ☐ O.Reg 406/19
☑ Table 1 ☑ Res/Park Soil Texture:
☐ Table 2 ☐ Ind/Com ☐ Coarse
☐ Table 3 ☐ Agri/Other ☑ Medium/Fine
☐ Table ____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA
☐ ODWS Not Reportable *See note

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality:

RECORD OF SITE CONDITION (RSC) ☑ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX
1	TP20-202-1	2020/11/04	13:25	1	soil
2	TP20-2000	2020/11/04	12:35	1	soil
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

	M & I				SVOC		PCB	PHC		VOC		Pest	Other (please specify)							TCLP	COMMENTS:
	Field Filtered (Y/N)	Metals & Inorganics incl CrVI, CN, Hg pH,(B(HWS),EC,SAR–soil) (Cl, Na–water)	Full Metals Suite ICP metals plus B(HWS-soil only) Hg, CrVI	ICP Metals only Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,	PAHs only	SVOCs all incl PAHs, ABNs, CPs	PCBs ☐ Total ☐ Aroclor	F1-F4 + BTEX	F1-F4 only no BTEX	VOCs all incl BTEX	BTEX only	Pesticides Organochlorine or specify other					Appendix 2: 406/19 Leachate Screening Levels Table :	Sewer Use: Specify pkg.	Water Characterization Pkg ☐ Extended ☐ General	Specify TCLP tests ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.	
1													pH								
2													✓								
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Observations/Comments/Special Instructions

Sampled By (NAME): Tom Alston Signature: Date: 11 / 04 / 20 (mm/dd/yy)
Relinquished by (NAME): Tom Alston Signature: Date: 11 / 04 / 20 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

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





FINAL REPORT

CA14905-NOV20 R

19-0087.02.02

Prepared for

Watters Environmental Group Inc.

FINAL REPORT

CA14905-NOV20 R

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Watters Environmental Group Inc.	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	9135 Keele St Unit A1 Concord, ON L4K 0J4. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Basil Wong	Telephone	2165
Telephone	(416) 361-2407	Facsimile	705-652-6365
Facsimile	(416) 361-2410	Email	jill.campbell@sgs.com
Email	Bwong@wattersenvironmental.com; labcerts@wattersenvironm	SGS Reference	CA14905-NOV20
Project	19-0087.02.02	Received	11/04/2020
Order Number		Approved	11/10/2020
Samples	soil (1)	Report Number	CA14905-NOV20 R
		Date Reported	11/10/2020

COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

Benzo(b)fluoranthene results for comparison to the standard are reported as benzo(b+j)fluoranthene. Benzo(b)fluoranthene and benzo(j)fluoranthene co-elute and cannot be reported individually by the analytical method used.

Temperature of Sample upon Receipt: 6 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:018123

PHC F2(C10-C16). F3(C16-C34), F4(C34-C50) - Duplicate: RPD for these parameters are outside control limits. The average of the two duplicates for each fraction is less than five times the RL, therefore a greater uncertainty is expected.

SIGNATORIES

Jill Campbell, B.Sc.,GISAS



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Client: Watters Environmental Group Inc.
Project: 19-0087.02.02
Project Manager: Basil Wong
Samplers: Tom Alston

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

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Sample Number	8
Sample Name	TP20-201-1
Sample Matrix	soil
Sample Date	04/11/2020

Parameter	Units	RL	L1	Result
Metals and Inorganics				
Moisture Content	%	-		21.4

PACKAGE: **REG153 - PHCs** (SOIL)

L1 = REG153 / SOIL / FINE - TABLE 1 - Residential/Parkland/Industrial - UNDEFINED

Sample Number	8
Sample Name	TP20-201-1
Sample Matrix	soil
Sample Date	04/11/2020

Parameter	Units	RL	L1	Result
PHCs				
F1 (C6-C10)	µg/g	10	25	< 10
F1-BTEX (C6-C10)	µg/g	10		< 10
F2 (C10-C16)	µg/g	10	10	< 10
F3 (C16-C34)	µg/g	50	240	74
F4 (C34-C50)	µg/g	50	120	< 50
Chromatogram returned to baseline at nC50	Yes / No	-		YES

EXCEEDANCE SUMMARY

No exceedances are present above the regulatory limit(s) indicated

HOLDING TIME SUMMARY

Sample Name	QC Batch Reference	Sample Number	Sampled	Received	Extracted/ Prepared	Analysed	Holding Time	Approved
Moisture								
Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010								
TP20-201-1	GCM0114-NOV20	8	11/04/2020	11/04/2020			01/03/2021	11/06/2020
Petroleum Hydrocarbons (F1)								
Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010								
TP20-201-1	GCM0134-NOV20	8	11/04/2020	11/04/2020			11/18/2020	11/10/2020
Petroleum Hydrocarbons (F2-F4)								
Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010								
TP20-201-1	GCM0130-NOV20	8	11/04/2020	11/04/2020			12/14/2020	11/09/2020

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 I Internal ref.: ME-CA-[ENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0134-NOV20	µg/g	10	<10	7	30	101	80	120	100	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 I Internal ref.: ME-CA-[ENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0130-NOV20	µg/g	10	<10	113	30	94	80	120	70	60	140
F3 (C16-C34)	GCM0130-NOV20	µg/g	50	<50	174	30	94	80	120	70	60	140
F4 (C34-C50)	GCM0130-NOV20	µg/g	50	<50	179	30	94	80	120	70	60	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

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

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS	Insufficient sample for analysis.
RL	Reporting Limit.
↑	Reporting limit raised.
↓	Reporting limit lowered.
NA	The sample was not analysed for this analyte
ND	Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. “Temperature Upon Receipt” is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act” published by the Ministry and dated March 9, 2004 as amended.

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

This report must not be reproduced, except in full. This report supersedes all previous versions.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 018123 Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Kim Sheard
Received By (signature):
Received Date: 11/04/20 (mm/dd/yy)
Received Time: 13:06 (hr : min)
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: ice
Temperature Upon Receipt (°C) 6, 6, 6
LAB LIMS #: CA-14905-NOV20

REPORT INFORMATION	INVOICE INFORMATION
Company: Watters Environmental	☑ (same as Report Information)
Contact: Basil Wong	Company:
Address: 9135 Keele St. Unit A1 Concord ON, L4K 0J4	Contact:
Phone: 416-361-2507	Address:
Fax:	Phone:
Email: bwong@wattersenvironmental.com	Email: ap@wattersenvironmental.com

Quotation #: P.O. #:
Project #: 19-008702.02 Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days) TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☑ O.Reg 153/04 ☐ O.Reg 406/19

☑ Table 1 ☑ Res/Park Soil Texture: ☐ Coarse
☐ Table 2 ☐ Ind/Com ☑ Medium/Fine
☐ Table 3 ☐ Agri/Other
☐ Table ____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations: ☐ Reg 347/558 (3 Day min TAT) ☐ PWQO ☐ MMER ☐ CCME ☐ Other: ☐ MISA ☑ ODWS Not Reportable *See note

Sewer By-Law: ☐ Sanitary ☐ Storm Municipality:

RECORD OF SITE CONDITION (RSC) ☑ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX
1	TP20-201-1	2020/11/04	13:20	3	soil
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

	Field Filtered (Y/N)	M & I: Metals & Inorganics incl CrVI, CN, Hg pH, (B(HWS), EC, SAR--soil) (Cl, Na-water)	M & I: Full Metals Suite ICP metals plus B(HWS-soil only) Hg, CrVI	M & I: ICP Metals only Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,	SVOC: PAHs only	SVOC: SVOCs all incl PAHs, ABNs, CPs	PCB: PCBs ☐ Total ☐ Aroclor	PHC: F1-F4 + BTEX	PHC: F1-F4 only no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides Organochlorine or specify other	Other (please specify)	Other	Other	Other	Other: Appendix 2: 406/19 Leachate Screening Levels Table :	Other: Sewer Use: Specify pkg	Other: Water Characterization Pkg General ☐ Extended	TCLP: Specify TCLP tests ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.	COMMENTS:
1									✓											

Observations/Comments/Special Instructions

Sampled By (NAME): Tom Alston	Signature:	Date: 11/04/20 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): Tom Alston	Signature:	Date: 11/04/20 (mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.4
Date of Issue: 22 May. 2020

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

APPENDIX E

Residue Management

APEX Environmental Services Inc.
293 Saunders Road, Barrie ON L4N 9A3
(705) 725 - 6262 1-800-465-2739
www.apexservices.ca
M.O.E. - Carrier #A840980

CDS ENVIRONMENTAL SERVICES

22444

WORK ORDER / SHIPPING DOCUMENT

DATE Nov/13/2019 SHIPPED PREPAID ____ C.O.D. ____ (COLLECTED $ ____)

SHIPPER Watters
GENERATOR 1600 Kerns Rd
Burlington ON

PHONE # ____
WASTE MANIFEST # ____

INVOICE TO Watters.

POSTAL CODE ____
PHONE # ____
PO # 19-0087.02.02

TIME START (LOADING) ____ AM/PM TIME FINISHED (LOADING) ____ AM/PM

DG	PIN/UN/NA	PROPER SHIPPING NAME	CLASS	PG	M.O.E.	VOLUME	UNITS
		Cutting Soils (non Haz)				3600	Kg
						12	drums

SPECIAL INSTRUCTIONS ____

SHIPPER'S SIGNATURE ____

PLACARDS REQUIRED ____ CLASS ____ SHIPPER'S NAME ____

INTENDED RECEIVER CDS/Apex
293/305 Saunders Rd
Barrie ON
L4N 9A3

RECEIVER # A620200
PHONE # 705-725-6262

TIME IN (UNLOADING) ____ AM/PM FINISHED (UNLOADING) ____ AM/PM

DATE ____

RECEIVER'S SIGNATURE ____

RECEIVER'S NAME Denise Kruger

WEIGHT EMPTY ____ LBS/KG
LOADED ____ LBS/KG
TOTAL WEIGHT OF LOAD 3600 LBS/KG

TRUCK 2116 TRAILER ____

DRIVER Curtis

THANK YOU FOR THIS OPPORTUNITY TO SERVE YOU

APPENDIX F

Soil Samples Compared to the SCS

APPENDIX F ALL SOIL SAMPLES COMPARED TO SCS

1600 KERNS DRIVE, BURLINGTON, ONTARIO
PROJECT NO. 19-0087.02.03

Sampling Event	2011 Standards: Table 1 (µg/g)	Maximum Concentration (µg/g)	EXP 2018 Phase II ESA						
Sample ID:			BH1 SS3	BH1 SS4	BH1 SS11	BH1 SS12	BH2 SS3	BH5 SS2	BH101 SS1
Sample Depth (mbgs):			1.5 - 2.1	2.3 - 2.9	10.7 - 11.3	12.2 - 12.3	1.5 - 2.1	0.8 - 1.4	0.1 - 0.6
Date Sampled:			October 12, 2018	October 12, 2018	October 12, 2018	December 10, 2018	October 12, 2018	October 11, 2018	November 28, 2018
Date Analyzed:			October 26, 2018 October 27, 2018 October 28, 2018 October 29, 2018 October 30, 2018	October 25, 2018 October 26, 2018 October 28, 2018 October 29, 2018 October 30, 2018	November 30, 2018 December 3, 2018 December 4, 2018	December 7, 2018 December 8, 2018 December 10, 2018	October 26, 2018 October 28, 2018 October 29, 2018 October 30, 2018	October 25, 2018 October 26, 2018 October 28, 2018 October 29, 2018 October 30, 2018	November 30, 2018
Lab Certificate Number:			B8S1950	B8S1950	B8V8488	B8W5556	B8S1950	B8S1950	B8V8488
PHCs									
F1 (C6-C10)	25	<10	-	<10	-	-	-	<10	-
F1-BTEX (C6-C10 Hydrocarbons)	25	<10	-	<10	-	-	-	<10	-
F2 (C10-C16 Hydrocarbons)	10	**21**	-	<10	-	-	-	<10	-
F3 (C16-C34 Hydrocarbons)	240	**452**	-	<50	-	-	-	<50	-
F4 (C34-C50 Hydrocarbons)	120	**2810**	-	<50	-	-	-	<50	-
BTEX (VOCs)									
Benzene	0.02	< 0.02	-	<0.02	-	-	-	<0.02	-
Ethylbenzene	0.05	< 0.05	-	<0.02	-	-	-	<0.02	-
Toluene	0.2	< 0.05	-	<0.02	-	-	-	<0.02	-
p+m-Xylene	NV	< 0.05	-	<0.04	-	-	-	<0.04	-
o-Xylene	NV	< 0.05	-	<0.02	-	-	-	<0.02	-
Xylene (Total)	0.05	< 0.05	-	<0.04	-	-	-	<0.04	-
THMs (VOCs)									
Bromodichloromethane	0.05	< 0.05	-	-	-	-	-	-	-
Bromoform	0.05	< 0.05	-	-	-	-	-	-	-
Dibromochloromethane	0.05	< 0.05	-	-	-	-	-	-	-
VOCs									
Acetone	0.5	< 0.5	-	-	-	-	-	-	-
Bromomethane	0.05	< 0.05	-	-	-	-	-	-	-
Carbon Tetrachloride	0.05	< 0.05	-	-	-	-	-	-	-
Chlorobenzene	0.05	< 0.05	-	-	-	-	-	-	-
Chloroform	0.05	< 0.05	-	-	-	-	-	-	-
1,2-Dichlorobenzene	0.05	< 0.05	-	-	-	-	-	-	-
1,3-Dichlorobenzene	0.05	< 0.05	-	-	-	-	-	-	-
1,4-Dichlorobenzene	0.05	< 0.05	-	-	-	-	-	-	-
Dichlorodifluoromethane	0.05	< 0.05	-	-	-	-	-	-	-
1,1-Dichloroethane	0.05	< 0.05	-	-	-	-	-	-	-
1,2-Dichloroethane	0.05	< 0.05	-	-	-	-	-	-	-
1,1-Dichloroethylene	0.05	< 0.05	-	-	-	-	-	-	-
trans-1,2-Dichloroethylene	0.05	< 0.05	-	-	-	-	-	-	-
cis-1,2-Dichloroethylene	0.05	< 0.05	-	-	-	-	-	-	-
1,2-Dichloropropane	0.05	< 0.05	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	NV	< 0.03	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	NV	< 0.03	-	-	-	-	-	-	-
1,3-Dichloropropene (cis+trans)	0.05	< 0.05	-	-	-	-	-	-	-
Ethylene Dibromide	0.05	< 0.05	-	-	-	-	-	-	-
n-Hexane	0.05	< 0.05	-	-	-	-	-	-	-
Methyl Ethyl Ketone	0.5	< 0.5	-	-	-	-	-	-	-
Methyl Isobutyl Ketone	0.5	< 0.5	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	0.05	< 0.05	-	-	-	-	-	-	-
Methylene Chloride	0.05	< 0.05	-	-	-	-	-	-	-
Styrene	0.05	< 0.05	-	-	-	-	-	-	-
Tetrachloroethylene	0.05	< 0.05	-	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane	0.05	< 0.05	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	0.05	< 0.05	-	-	-	-	-	-	-
1,1,1-Trichloroethane	0.05	< 0.05	-	-	-	-	-	-	-
1,1,2-Trichloroethane	0.05	< 0.05	-	-	-	-	-	-	-
Trichloroethylene	0.05	< 0.05	-	-	-	-	-	-	-
Trichlorofluoromethane	0.25	< 0.05	-	-	-	-	-	-	-
Vinyl Chloride	0.02	< 0.02	-	-	-	-	-	-	-
Inorganics (Other Regulated Parameters)									
Sodium Adsorption Ratio	2.4	**14.8**	0.95	3.1	2.1	**2.9**	0.6	**4.8**	-
Conductivity (mS/cm)	0.57	**2.1**	**1.6**	**1.2**	**2.1**	0.51	**0.63**	**0.71**	-
pH	5-9 surface	7.64 - 7.91	-	-	-	-	-	7.9	7.64
pH	5-11 subsurface	7.35 - 8.36	7.67	8.05	7.35	8.07	7.85	-	-
Boron (Hot Water Soluble)	NV	7.7	7.7	6.4	7.7	5	0.19	0.096	-
Chromium VI	0.66	**3.7**	<0.2	**3.7**	<0.2	<0.2	<0.2	<0.2	-
Free Cyanide	0.051	**0.07**	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Mercury	0.27	**0.51**	**0.51**	0.14	**0.45**	<0.05	<0.05	<0.05	-
Hydride Metals									
Antimony	1.3	**84**	**9.3**	**74**	**4.7**	0.38	<0.2	<0.2	-
Arsenic	18	**87**	**25**	**33**	16	3	3.1	4.2	-
Selenium	1.5	**4.4**	1	**4.4**	<0.5	<0.5	<0.5	<0.5	-
Metals									
Barium	220	**930**	**520**	**680**	**930**	85	150	160	-
Beryllium	2.5	0.8	0.67	0.76	0.8	0.71	0.63	0.68	-
Boron	36	**69**	33	**61**	34	27	10	11	-
Cadmium	1.2	**12**	**5.1**	**12**	**4.3**	0.28	<0.1	<0.1	-
Chromium	70	**100**	61	**91**	52	20	22	22	-
Cobalt	21	**31**	15	20	18	12	10	11	-
Copper	92	**6900**	**360**	**720**	**290**	21	25	30	-
Lead	120	**4300**	**1100**	**4300**	**430**	43	11	15	-
Molybdenum	2	**20**	**6.6**	**9.6**	**5.3**	0.76	<0.5	<0.5	-
Nickel	82	**170**	75	66	63	27	23	25	-
Silver	0.5	**34**	**4.9**	**5**	0.36	<0.2	<0.2	<0.2	-
Thallium	1	0.93	0.14	0.93	0.14	0.09	0.13	0.15	-
Uranium	2.5	0.93	0.76	0.79	0.52	0.72	0.93	0.66	-
Vanadium	86	36	30	36	32	24	28	28	-
Zinc	290	**3400**	**1600**	**3400**	**2400**	87	55	59	-
PAHs									
Acenaphthene	0.072	**4.25**	-	-	-	<0.005	-	-	-
Acenaphthylene	0.093	0.07	-	-	-	<0.005	-	-	-
Anthracene	0.16	**3.5**	-	-	-	<0.005	-	-	-
Benzo(a)anthracene	0.36	**13.5**	-	-	-	<0.005	-	-	-
Benzo(a)pyrene	0.3	**17.3**	-	-	-	<0.005	-	-	-
Benzo(b,j)fluoranthene	0.47	**20.8**	-	-	-	<0.005	-	-	-
Benzo(g,h,i)perylene	0.68	**9.99**	-	-	-	<0.005	-	-	-
Benzo(k)fluoranthene	0.48	**6.41**	-	-	-	<0.005	-	-	-
Chrysene	2.8	**12.9**	-	-	-	<0.005	-	-	-
Dibenz(a,h)anthracene	0.1	**1.9**	-	-	-	<0.005	-	-	-
Fluoranthene	0.56	**20.5**	-	-	-	<0.005	-	-	-
Fluorene	0.12	**1.18**	-	-	-	<0.005	-	-	-
Indeno(1,2,3-cd)pyrene	0.23	**7.75**	-	-	-	<0.005	-	-	-
1-Methylnaphthalene	0.59	0.09	-	-	-	<0.005	-	-	-
2-Methylnaphthalene	0.59	0.15	-	-	-	<0.005	-	-	-
Methylnaphthalene, 2-(1-)	0.59	0.24	-	-	-	<0.0071	-	-	-
Naphthalene	0.09	**0.64**	-	-	-	<0.005	-	-	-
Phenanthrene	0.69	**12.6**	-	-	-	<0.005	-	-	-
Pyrene	1	**22.5**	-	-	-	<0.005	-	-	-
PCBs	0.3	<0.3	-	-	-	-	-	-	-

Notes: Table 1 - Full Depth Background Site Condition Standards
All concentrations in µg/g unless otherwise noted
NV - No Value
mbgs - metres below ground surface
Red Shaded Values - Exceed the Table 1 Standards
153/04
BH19-02(MW)-3 & BH19-04(MW)-13 - grain size distribution

APPENDIX F ALL SOIL SAMPLES COMPARED TO SCS

1600 KERNS DRIVE, BURLINGTON, ONTARIO
PROJECT NO. 19-0087.02.03

Sampling Event	2011 Standards: Table 1 (µg/g)	Maximum Concentration (µg/g)	EXP 2018 Phase II ESA						
Sample ID:			BH101 SS3	BH101 SS5	BH101 SS9	BH102 SS4	BH102 SS5	BH102 SS5 DUP 1	BH102 SS10
Sample Depth (mbgs):			1.5 - 2.1	3.1 - 3.7	6.1 - 6.7	2.3 - 2.9	3.1 - 3.7	3.1 - 3.7	7.6 - 8.2
Date Sampled:			November 28, 2018	November 28, 2018	November 28, 2018	November 28, 2018	November 28, 2018	November 28, 2018	December 10, 2018
Date Analyzed:			November 30, 2018 December 1, 2018 December 3, 2018 December 4, 2018	November 30, 2018 Deember 2, 2018	November 30, 2018	November 30, 2018 Deember 1, 2018 December 3, 2018 December 4, 2018	November 30, 2018 December 2, 2018	November 30, 2018	December 7, 2018 December 8, 2018 December 10, 2018
Lab Certificate Number:			B8V8488	B8V8488	B8V8488	B8V8488	B8V8488	B8V8488	B8W5556
PHCs									
F1 (C6-C10)	25	<10	-	<10	-	-	<10	<10	-
F1-BTEX (C6-C10 Hydrocarbons)	25	<10	-	<10	-	-	<10	<10	-
F2 (C10-C16 Hydrocarbons)	10	**21**	-	<10	-	-	<10	-	-
F3 (C16-C34 Hydrocarbons)	240	**452**	-	<50	-	-	<50	-	-
F4 (C34-C50 Hydrocarbons)	120	**2810**	-	<50	-	-	<50	-	-
BTEX (VOCs)									
Benzene	0.02	< 0.02	-	<0.02	-	-	<0.02	<0.02	-
Ethylbenzene	0.05	< 0.05	-	<0.02	-	-	<0.02	<0.02	-
Toluene	0.2	< 0.05	-	<0.02	-	-	<0.02	<0.02	-
p+m-Xylene	NV	< 0.05	-	<0.04	-	-	<0.04	<0.04	-
o-Xylene	NV	< 0.05	-	<0.02	-	-	<0.02	<0.02	-
Xylene (Total)	0.05	< 0.05	-	<0.04	-	-	<0.04	<0.04	-
THMs (VOCs)									
Bromodichloromethane	0.05	< 0.05	-	-	-	-	-	-	-
Bromoform	0.05	< 0.05	-	-	-	-	-	-	-
Dibromochloromethane	0.05	< 0.05	-	-	-	-	-	-	-
VOCs									
Acetone	0.5	< 0.5	-	-	-	-	-	-	-
Bromomethane	0.05	< 0.05	-	-	-	-	-	-	-
Carbon Tetrachloride	0.05	< 0.05	-	-	-	-	-	-	-
Chlorobenzene	0.05	< 0.05	-	-	-	-	-	-	-
Chloroform	0.05	< 0.05	-	-	-	-	-	-	-
1,2-Dichlorobenzene	0.05	< 0.05	-	-	-	-	-	-	-
1,3-Dichlorobenzene	0.05	< 0.05	-	-	-	-	-	-	-
1,4-Dichlorobenzene	0.05	< 0.05	-	-	-	-	-	-	-
Dichlorodifluoromethane	0.05	< 0.05	-	-	-	-	-	-	-
1,1-Dichloroethane	0.05	< 0.05	-	-	-	-	-	-	-
1,2-Dichloroethane	0.05	< 0.05	-	-	-	-	-	-	-
1,1-Dichloroethylene	0.05	< 0.05	-	-	-	-	-	-	-
trans-1,2-Dichloroethylene	0.05	< 0.05	-	-	-	-	-	-	-
cis-1,2-Dichloroethylene	0.05	< 0.05	-	-	-	-	-	-	-
1,2-Dichloropropane	0.05	< 0.05	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	NV	< 0.03	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	NV	< 0.03	-	-	-	-	-	-	-
1,3-Dichloropropene (cis+trans)	0.05	< 0.05	-	-	-	-	-	-	-
Ethylene Dibromide	0.05	< 0.05	-	-	-	-	-	-	-
n-Hexane	0.05	< 0.05	-	-	-	-	-	-	-
Methyl Ethyl Ketone	0.5	< 0.5	-	-	-	-	-	-	-
Methyl Isobutyl Ketone	0.5	< 0.5	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)	0.05	< 0.05	-	-	-	-	-	-	-
Methylene Chloride	0.05	< 0.05	-	-	-	-	-	-	-
Styrene	0.05	< 0.05	-	-	-	-	-	-	-
Tetrachloroethylene	0.05	< 0.05	-	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane	0.05	< 0.05	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	0.05	< 0.05	-	-	-	-	-	-	-
1,1,1-Trichloroethane	0.05	< 0.05	-	-	-	-	-	-	-
1,1,2-Trichloroethane	0.05	< 0.05	-	-	-	-	-	-	-
Trichloroethylene	0.05	< 0.05	-	-	-	-	-	-	-
Trichlorofluoromethane	0.25	< 0.05	-	-	-	-	-	-	-
Vinyl Chloride	0.02	< 0.02	-	-	-	-	-	-	-
Inorganics (Other Regulated Parameters)									
Sodium Adsorption Ratio	2.4	**14.8**	**6.5**	-	-	1.5	-	-	1.7
Conductivity (mS/cm)	0.57	**2.1**	**1.3**	-	-	**1.1**	-	-	0.5
pH	5-9 surface	7.64 - 7.91	-	-	-	-	-	-	-
pH	5-11 subsurface	7.35 - 8.36	7.86	-	7.72	7.85	-	-	7.71
Boron (Hot Water Soluble)	NV	7.7	0.51	-	-	1.6	-	-	0.25
Chromium VI	0.66	**3.7**	**1.3**	-	-	**1.1**	-	-	<0.2
Free Cyanide	0.051	**0.07**	<0.01	-	-	**0.07**	-	-	<0.01
Mercury	0.27	**0.51**	**0.39**	-	-	0.11	-	-	<0.05
Hydride Metals									
Antimony	1.3	**84**	**9.8**	-	-	**5.7**	-	-	0.24
Arsenic	18	**87**	**41**	-	-	11	-	-	3.8
Selenium	1.5	**4.4**	0.58	-	-	<0.5	-	-	<0.5
Metals									
Barium	220	**930**	**370**	-	-	**500**	-	-	120
Beryllium	2.5	0.8	0.43	-	-	0.42	-	-	0.66
Boron	36	**69**	**57**	-	-	34	-	-	10
Cadmium	1.2	**12**	**3**	-	-	**3.3**	-	-	<0.1
Chromium	70	**100**	**74**	-	-	64	-	-	21
Cobalt	21	**31**	13	-	-	7.2	-	-	11
Copper	92	**6900**	**300**	-	-	91	-	-	36
Lead	120	**4300**	**1100**	-	-	**410**	-	-	17
Molybdenum	2	**20**	**7.3**	-	-	**3.8**	-	-	0.65
Nickel	82	**170**	67	-	-	23	-	-	26
Silver	0.5	**34**	**1.2**	-	-	0.35	-	-	<0.2
Thallium	1	0.93	0.1	-	-	0.11	-	-	0.13
Uranium	2.5	0.93	0.6	-	-	0.83	-	-	0.69
Vanadium	86	36	22	-	-	24	-	-	27
Zinc	290	**3400**	**1600**	-	-	**3100**	-	-	69
PAHs									
Acenaphthene	0.072	**4.25**	<0.005	-	-	**0.13**	-	-	<0.005
Acenaphthylene	0.093	0.07	<0.005	-	-	0.021	-	-	<0.005
Anthracene	0.16	**3.5**	<0.005	-	-	**0.34**	-	-	<0.005
Benzo(a)anthracene	0.36	**13.5**	<0.005	-	-	**0.56**	-	-	<0.005
Benzo(a)pyrene	0.3	**17.3**	<0.005	-	-	**0.45**	-	-	<0.005
Benzo(b,j)fluoranthene	0.47	**20.8**	<0.005	-	-	**0.52**	-	-	<0.005
Benzo(g,h,i)perylene	0.68	**9.99**	0.008	-	-	0.3	-	-	0.008
Benzo(k)fluoranthene	0.48	**6.41**	<0.005	-	-	0.19	-	-	<0.005
Chrysene	2.8	**12.9**	<0.005	-	-	0.42	-	-	0.006
Dibenz(a,h)anthracene	0.1	**1.9**	<0.005	-	-	0.063	-	-	<0.005
Fluoranthene	0.56	**20.5**	0.0063	-	-	**1.4**	-	-	0.0063
Fluorene	0.12	**1.18**	<0.005	-	-	**0.2**	-	-	<0.005
Indeno(1,2,3-cd)pyrene	0.23	**7.75**	<0.005	-	-	**0.31**	-	-	<0.005
1-Methylnaphthalene	0.59	0.09	<0.005	-	-	0.028	-	-	0.005
2-Methylnaphthalene	0.59	0.15	<0.005	-	-	0.039	-	-	<0.005
Methylnaphthalene, 2-(1-)	0.59	0.24	<0.0071	-	-	0.067	-	-	<0.0071
Naphthalene	0.09	**0.64**	<0.005	-	-	**0.1**	-	-	<0.005
Phenanthrene	0.69	**12.6**	0.01	-	-	**1.4**	-	-	<0.005
Pyrene	1	**22.5**	0.0077	-	-	**1.2**	-	-	0.0085
PCBs	0.3	<0.3	-	-	-	-	-	-	-

Notes: Table 1 - Full Depth Background Site Condition Standards
All concentrations in µg/g unless otherwise noted
NV - No Value
mbgs - metres below ground surface
Red Shaded Values - Exceed the Table 1 Standards
153/04
BH19-02(MW)-3 & BH19-04(MW)-13 - grain size distribution

APPENDIX F ALL SOIL SAMPLES COMPARED TO SCS

1600 KERNS DRIVE, BURLINGTON, ONTARIO
PROJECT NO. 19-0087.02.03

Sampling Event	2011 Standards: Table 1 (µg/g)	Maximum Concentration (µg/g)	Watters Environmental Phase II ESA						
Sample ID:			BH19-01 (MW)-2	BH19-01 (MW)-7	BH19-01 (MW)-14	BH19-01 (MW)-16	BH19-102 [dup of BH19-01(MW)-2]	BH19-02 (MW)-1	BH19-02 (MW)-3
Sample Depth (mbgs):			0.76 - 1.37	4.57 - 5.18	9.90 - 10.51	11.43 - 11.79	0.76 - 1.37	0 - 0.61	1.52 - 2.13
Date Sampled:			October 17, 2019	October 17, 2019	October 17, 2019	October 17, 2019	October 17, 2019	October 15, 2019	October 15, 2019
Date Analyzed:			October 21, 2019 October 22, 2019 October 23, 2019	October 21, 2019	October 23, 2019	October 21, 2019 October 22, 2019	October 22, 2019 October 23, 2019	October 22, 2019 October 23, 2019	-
Lab Certificate Number:			CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19
PHCs									
F1 (C6-C10)	25	<10	-	<10	-	<10	-	-	-
F1-BTEX (C6-C10 Hydrocarbons)	25	<10	-	<10	-	<10	-	-	-
F2 (C10-C16 Hydrocarbons)	10	**21**	-	<10	-	<10	-	-	-
F3 (C16-C34 Hydrocarbons)	240	**452**	-	<50	-	<50	-	-	-
F4 (C34-C50 Hydrocarbons)	120	**2810**	-	<50	-	<50	-	-	-
BTEX (VOCs)									
Benzene	0.02	< 0.02	-	< 0.02	-	< 0.02	-	-	-
Ethylbenzene	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Toluene	0.2	< 0.05	-	< 0.05	-	< 0.05	-	-	-
p+m-Xylene	NV	< 0.05	-	< 0.05	-	< 0.05	-	-	-
o-Xylene	NV	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Xylene (Total)	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
THMs (VOCs)									
Bromodichloromethane	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Bromoform	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Dibromochloromethane	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
VOCs									
Acetone	0.5	< 0.5	-	< 0.5	-	< 0.5	-	-	-
Bromomethane	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Carbon Tetrachloride	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Chlorobenzene	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Chloroform	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
1,2-Dichlorobenzene	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
1,3-Dichlorobenzene	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
1,4-Dichlorobenzene	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Dichlorodifluoromethane	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
1,1-Dichloroethane	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
1,2-Dichloroethane	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
1,1-Dichloroethylene	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
trans-1,2-Dichloroethylene	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
cis-1,2-Dichloroethylene	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
1,2-Dichloropropane	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
cis-1,3-Dichloropropene	NV	< 0.03	-	< 0.03	-	< 0.03	-	-	-
trans-1,3-Dichloropropene	NV	< 0.03	-	< 0.03	-	< 0.03	-	-	-
1,3-Dichloropropene (cis+trans)	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Ethylene Dibromide	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
n-Hexane	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Methyl Ethyl Ketone	0.5	< 0.5	-	< 0.5	-	< 0.5	-	-	-
Methyl Isobutyl Ketone	0.5	< 0.5	-	< 0.5	-	< 0.5	-	-	-
Methyl t-butyl ether (MTBE)	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Methylene Chloride	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Styrene	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Tetrachloroethylene	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
1,1,1,2-Tetrachloroethane	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
1,1,2,2-Tetrachloroethane	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
1,1,1-Trichloroethane	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
1,1,2-Trichloroethane	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Trichloroethylene	0.05	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Trichlorofluoromethane	0.25	< 0.05	-	< 0.05	-	< 0.05	-	-	-
Vinyl Chloride	0.02	< 0.02	-	< 0.02	-	< 0.02	-	-	-
Inorganics (Other Regulated Parameters)									
Sodium Adsorption Ratio	2.4	**14.8**	**4.6**	-	1.0	-	**4.4**	**14.8**	-
Conductivity (mS/cm)	0.57	**2.1**	0.53	-	**1.7**	-	0.53	**1.2**	-
pH	5-9 surface	7.64 - 7.91	7.82	-	-	-	7.89	7.91	-
pH	5-11 subsurface	7.35 - 8.36	-	-	8.36	-	-	-	-
Boron (Hot Water Soluble)	NV	7.7	< 0.5	-	4.9	-	< 0.5	< 0.5	-
Chromium VI	0.66	**3.7**	0.4	-	**0.9**	-	0.4	< 0.2	-
Free Cyanide	0.051	**0.07**	< 0.05	-	< 0.05	-	< 0.05	< 0.05	-
Mercury	0.27	**0.51**	0.17	-	< 0.05	-	0.21	< 0.05	-
Hydride Metals									
Antimony	1.3	**84**	**2.7**	-	**84**	-	**4.1**	< 0.8	-
Arsenic	18	**87**	9.6	-	**87**	-	10	5.1	-
Selenium	1.5	**4.4**	1.1	-	1.3	-	1.0	< 0.7	-
Metals									
Barium	220	**930**	**240**	-	**480**	-	**240**	140	-
Beryllium	2.5	0.8	0.56	-	0.45	-	0.58	0.56	-
Boron	36	**69**	12	-	**69**	-	11	8	-
Cadmium	1.2	**12**	**3.2**	-	**3.5**	-	**2.8**	0.09	-
Chromium	70	**100**	39	-	**100**	-	39	22	-
Cobalt	21	**31**	12	-	**31**	-	12	14	-
Copper	92	**6900**	**210**	-	**6900**	-	**200**	34	-
Lead	120	**4300**	**450**	-	**3700**	-	**440**	12	-
Molybdenum	2	**20**	**3.8**	-	**20**	-	**4.9**	1.3	-
Nickel	82	**170**	36	-	**170**	-	37	33	-
Silver	0.5	**34**	**0.86**	-	**34**	-	**0.97**	< 0.05	-
Thallium	1	0.93	0.17	-	0.02	-	0.17	0.22	-
Uranium	2.5	0.93	0.65	-	0.45	-	0.64	0.62	-
Vanadium	86	36	28	-	15	-	28	30	-
Zinc	290	**3400**	**690**	-	**3000**	-	**650**	63	-
PAHs									
Acenaphthene	0.072	**4.25**	< 0.05	-	-	< 0.05	0.05	< 0.05	-
Acenaphthylene	0.093	0.07	< 0.05	-	-	< 0.05	< 0.05	< 0.05	-
Anthracene	0.16	**3.5**	< 0.05	-	-	< 0.05	< 0.05	< 0.05	-
Benzo(a)anthracene	0.36	**13.5**	0.09	-	-	< 0.05	0.13	< 0.05	-
Benzo(a)pyrene	0.3	**17.3**	0.08	-	-	< 0.05	0.14	< 0.05	-
Benzo(b,j)fluoranthene	0.47	**20.8**	0.11	-	-	< 0.05	0.22	< 0.05	-
Benzo(g,h,i)perylene	0.68	**9.99**	< 0.1	-	-	< 0.1	0.11	< 0.1	-
Benzo(k)fluoranthene	0.48	**6.41**	< 0.05	-	-	< 0.05	0.07	< 0.05	-
Chrysene	2.8	**12.9**	0.08	-	-	< 0.05	0.12	< 0.05	-
Dibenz(a,h)anthracene	0.1	**1.9**	< 0.06	-	-	< 0.06	< 0.06	< 0.06	-
Fluoranthene	0.56	**20.5**	0.19	-	-	< 0.05	0.26	< 0.05	-
Fluorene	0.12	**1.18**	< 0.05	-	-	< 0.05	< 0.05	< 0.05	-
Indeno(1,2,3-cd)pyrene	0.23	**7.75**	< 0.1	-	-	< 0.1	< 0.1	< 0.1	-
1-Methylnaphthalene	0.59	0.09	< 0.05	-	-	< 0.05	< 0.05	< 0.05	-
2-Methylnaphthalene	0.59	0.15	< 0.05	-	-	< 0.05	< 0.05	< 0.05	-
Methylnaphthalene, 2-(1-)	0.59	0.24	< 0.05	-	-	< 0.05	< 0.05	< 0.05	-
Naphthalene	0.09	**0.64**	< 0.05	-	-	< 0.05	< 0.05	< 0.05	-
Phenanthrene	0.69	**12.6**	0.12	-	-	< 0.05	0.16	< 0.05	-
Pyrene	1	**22.5**	0.16	-	-	< 0.05	0.22	< 0.05	-
PCBs	0.3	<0.3	-	-	-	-	-	-	-

Notes: Table 1 - Full Depth Background Site Condition Standards
All concentrations in µg/g unless otherwise noted
NV - No Value
mbgs - metres below ground surface
Red Shaded Values - Exceed the Table 1 Standards
153/04
BH19-02(MW)-3 & BH19-04(MW)-13 - grain size distribution

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APPENDIX F ALL SOIL SAMPLES COMPARED TO SCS

1600 KERNS DRIVE, BURLINGTON, ONTARIO
PROJECT NO. 19-0087.02.03

Sampling Event	2011 Standards: Table 1 (µg/g)	Maximum Concentration (µg/g)	Watters Environmental Phase II ESA					
Sample ID:			BH19-02 (MW)-5	BH19-03-2	BH19-03-4	BH19-03-6	BH19-03-8	BH19-03-9
Sample Depth (mbgs):			3.05 - 3.66	0.76 - 1.37	2.29 - 2.90	3.81 - 4.42	5.33 - 5.94	6.10 - 6.71
Date Sampled:			October 15, 2019	October 15, 2019	October 16, 2019	October 16, 2019	October 16, 2019	October 16, 2019
Date Analyzed:			October 21, 2019 October 22, 2019 October 23, 2019	October 23, 2019	October 22, 2019	October 21, 2019	October 21, 2019	October 22, 2019 October 23, 2019
Lab Certificate Number:			CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19
PHCs								
F1 (C6-C10)	25	<10	<10	-	-	< 10	<10	-
F1-BTEX (C6-C10 Hydrocarbons)	25	<10	<10	-	-	< 10	<10	-
F2 (C10-C16 Hydrocarbons)	10	**21**	<10	-	-	< 10	<10	-
F3 (C16-C34 Hydrocarbons)	240	**452**	<50	-	-	**452**	<50	-
F4 (C34-C50 Hydrocarbons)	120	**2810**	<50	-	-	**2810**	<50	-
BTEX (VOCs)								
Benzene	0.02	< 0.02	< 0.02	-	-	< 0.02	< 0.02	-
Ethylbenzene	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Toluene	0.2	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
p+m-Xylene	NV	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
o-Xylene	NV	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Xylene (Total)	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
THMs (VOCs)								
Bromodichloromethane	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Bromoform	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Dibromochloromethane	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
VOCs								
Acetone	0.5	< 0.5	< 0.5	-	-	< 0.5	< 0.5	-
Bromomethane	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Carbon Tetrachloride	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Chlorobenzene	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Chloroform	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
1,2-Dichlorobenzene	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
1,3-Dichlorobenzene	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
1,4-Dichlorobenzene	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Dichlorodifluoromethane	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
1,1-Dichloroethane	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
1,2-Dichloroethane	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
1,1-Dichloroethylene	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
trans-1,2-Dichloroethylene	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
cis-1,2-Dichloroethylene	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
1,2-Dichloropropane	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
cis-1,3-Dichloropropene	NV	< 0.03	< 0.03	-	-	< 0.03	< 0.03	-
trans-1,3-Dichloropropene	NV	< 0.03	< 0.03	-	-	< 0.03	< 0.03	-
1,3-Dichloropropene (cis+trans)	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Ethylene Dibromide	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
n-Hexane	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Methyl Ethyl Ketone	0.5	< 0.5	< 0.5	-	-	< 0.5	< 0.5	-
Methyl Isobutyl Ketone	0.5	< 0.5	< 0.5	-	-	< 0.5	< 0.5	-
Methyl t-butyl ether (MTBE)	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Methylene Chloride	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Styrene	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Tetrachloroethylene	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
1,1,1,2-Tetrachloroethane	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
1,1,2,2-Tetrachloroethane	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
1,1,1-Trichloroethane	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
1,1,2-Trichloroethane	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Trichloroethylene	0.05	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Trichlorofluoromethane	0.25	< 0.05	< 0.05	-	-	< 0.05	< 0.05	-
Vinyl Chloride	0.02	< 0.02	< 0.02	-	-	< 0.02	< 0.02	-
Inorganics (Other Regulated Parameters)								
Sodium Adsorption Ratio	2.4	**14.8**	0.7	**7.8**	-	-	-	**3.9**
Conductivity (mS/cm)	0.57	**2.1**	0.41	**0.62**	-	-	-	**0.89**
pH	5-9 surface	7.64 - 7.91	-	7.83	-	-	-	-
pH	5-11 subsurface	7.35 - 8.36	7.83	-	-	-	-	7.79
Boron (Hot Water Soluble)	NV	7.7	< 0.5	< 0.5	-	-	-	1.3
Chromium VI	0.66	**3.7**	< 0.2	< 0.2	-	-	-	< 0.2
Free Cyanide	0.051	**0.07**	< 0.05	< 0.05	-	-	-	< 0.05
Mercury	0.27	**0.51**	< 0.05	< 0.05	-	-	-	< 0.05
Hydride Metals								
Antimony	1.3	**84**	< 0.8	< 0.8	-	-	-	< 0.8
Arsenic	18	**87**	4.1	4.3	-	-	-	6.8
Selenium	1.5	**4.4**	< 0.7	< 0.7	-	-	-	< 0.7
Metals								
Barium	220	**930**	87	100	-	-	-	170
Beryllium	2.5	0.8	0.58	0.51	-	-	-	0.57
Boron	36	**69**	9	7	-	-	-	13
Cadmium	1.2	**12**	0.10	0.15	-	-	-	0.34
Chromium	70	**100**	22	19	-	-	-	26
Cobalt	21	**31**	12	11	-	-	-	14
Copper	92	**6900**	38	32	-	-	-	70
Lead	120	**4300**	11	13	-	-	-	63
Molybdenum	2	**20**	0.6	0.6	-	-	-	1.4
Nickel	82	**170**	26	24	-	-	-	31
Silver	0.5	**34**	< 0.05	< 0.05	-	-	-	0.11
Thallium	1	0.93	0.17	0.15	-	-	-	0.19
Uranium	2.5	0.93	0.63	0.57	-	-	-	0.60
Vanadium	86	36	28	25	-	-	-	28
Zinc	290	**3400**	61	65	-	-	-	170
PAHs								
Acenaphthene	0.072	**4.25**	< 0.05	-	**2.74**	-	-	< 0.05
Acenaphthylene	0.093	0.07	< 0.05	-	0.06	-	-	< 0.05
Anthracene	0.16	**3.5**	< 0.05	-	**2.51**	-	-	< 0.05
Benzo(a)anthracene	0.36	**13.5**	< 0.05	-	**11.0**	-	-	< 0.05
Benzo(a)pyrene	0.3	**17.3**	< 0.05	-	**14.2**	-	-	< 0.05
Benzo(b,j)fluoranthene	0.47	**20.8**	< 0.05	-	**17.4**	-	-	< 0.05
Benzo(g,h,i)perylene	0.68	**9.99**	< 0.1	-	**8.30**	-	-	< 0.1
Benzo(k)fluoranthene	0.48	**6.41**	< 0.05	-	**6.00**	-	-	< 0.05
Chrysene	2.8	**12.9**	< 0.05	-	**9.98**	-	-	< 0.05
Dibenz(a,h)anthracene	0.1	**1.9**	< 0.06	-	**1.51**	-	-	< 0.06
Fluoranthene	0.56	**20.5**	< 0.05	-	**16.8**	-	-	< 0.05
Fluorene	0.12	**1.18**	< 0.05	-	**0.83**	-	-	< 0.05
Indeno(1,2,3-cd)pyrene	0.23	**7.75**	< 0.1	-	**5.78**	-	-	< 0.1
1-Methylnaphthalene	0.59	0.09	< 0.05	-	0.09	-	-	< 0.05
2-Methylnaphthalene	0.59	0.15	< 0.05	-	0.15	-	-	< 0.05
Methylnaphthalene, 2-(1-)	0.59	0.24	< 0.05	-	0.24	-	-	< 0.05
Naphthalene	0.09	**0.64**	< 0.05	-	**0.42**	-	-	< 0.05
Phenanthrene	0.69	**12.6**	< 0.05	-	**9.83**	-	-	< 0.05
Pyrene	1	**22.5**	< 0.05	-	**18.2**	-	-	< 0.05
PCBs	0.3	<0.3	-	-	-	-	-	-

Notes: Table 1 - Full Depth Background Site Condition Standards
All concentrations in µg/g unless otherwise noted
NV - No Value
mbgs - metres below ground surface
Red Shaded Values - Exceed the Table 1 Standards
153/04
BH19-02(MW)-3 & BH19-04(MW)-13 - grain size distribution

APPENDIX F ALL SOIL SAMPLES COMPARED TO SCS

1600 KERNS DRIVE, BURLINGTON, ONTARIO
PROJECT NO. 19-0087.02.03

Sampling Event	2011 Standards: Table 1 (µg/g)	Maximum Concentration (µg/g)	Watters Environmental Phase II ESA						
Sample ID:			BH19-302 [dup of BH19-03-2]	BH19-304 [dup of BH19-03-4]	BH19-04 (MW)-1	BH19-04 (MW)-6	BH19-04 (MW)-10	BH19-04 (MW)-13	BH19-400 [dup of BH19-04(MW)-10]
Sample Depth (mbgs):			0.76 - 1.37	2.29 - 2.90	0 - 0.61	3.81 - 4.42	6.86 - 7.47	9.14 - 9.75	6.86 - 7.47
Date Sampled:			October 16, 2019	October 16, 2019	October 16, 2019	October 16, 2019	October 16, 2019	October 16, 2019	October 16, 2019
Date Analyzed:			October 23, 2019	October 22, 2019	October 22, 2019 October 23, 2019	October 22, 2019 October 23, 2019	October 21, 2019	-	October 21, 2019
Lab Certificate Number:			CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19
PHCs									
F1 (C6-C10)	25	<10	-	-	-	-	< 10	-	< 10
F1-BTEX (C6-C10 Hydrocarbons)	25	<10	-	-	-	-	< 10	-	< 10
F2 (C10-C16 Hydrocarbons)	10	**21**	-	-	-	-	**13**	-	**18**
F3 (C16-C34 Hydrocarbons)	240	**452**	-	-	-	-	80	-	90
F4 (C34-C50 Hydrocarbons)	120	**2810**	-	-	-	-	< 50	-	< 50
BTEX (VOCs)									
Benzene	0.02	< 0.02	-	-	-	-	< 0.02	-	< 0.02
Ethylbenzene	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Toluene	0.2	< 0.05	-	-	-	-	< 0.05	-	< 0.05
p+m-Xylene	NV	< 0.05	-	-	-	-	< 0.05	-	< 0.05
o-Xylene	NV	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Xylene (Total)	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
THMs (VOCs)									
Bromodichloromethane	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Bromoform	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Dibromochloromethane	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
VOCs									
Acetone	0.5	< 0.5	-	-	-	-	< 0.5	-	< 0.5
Bromomethane	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Carbon Tetrachloride	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Chlorobenzene	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Chloroform	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
1,2-Dichlorobenzene	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
1,3-Dichlorobenzene	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
1,4-Dichlorobenzene	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Dichlorodifluoromethane	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
1,1-Dichloroethane	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
1,2-Dichloroethane	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
1,1-Dichloroethylene	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
trans-1,2-Dichloroethylene	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
cis-1,2-Dichloroethylene	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
1,2-Dichloropropane	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
cis-1,3-Dichloropropene	NV	< 0.03	-	-	-	-	< 0.03	-	< 0.03
trans-1,3-Dichloropropene	NV	< 0.03	-	-	-	-	< 0.03	-	< 0.03
1,3-Dichloropropene (cis+trans)	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Ethylene Dibromide	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
n-Hexane	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Methyl Ethyl Ketone	0.5	< 0.5	-	-	-	-	< 0.5	-	< 0.5
Methyl Isobutyl Ketone	0.5	< 0.5	-	-	-	-	< 0.5	-	< 0.5
Methyl t-butyl ether (MTBE)	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Methylene Chloride	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Styrene	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Tetrachloroethylene	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
1,1,1,2-Tetrachloroethane	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
1,1,2,2-Tetrachloroethane	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
1,1,1-Trichloroethane	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
1,1,2-Trichloroethane	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Trichloroethylene	0.05	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Trichlorofluoromethane	0.25	< 0.05	-	-	-	-	< 0.05	-	< 0.05
Vinyl Chloride	0.02	< 0.02	-	-	-	-	< 0.02	-	< 0.02
Inorganics (Other Regulated Parameters)									
Sodium Adsorption Ratio	2.4	**14.8**	**7.2**	-	**5.9**	0.4	-	-	-
Conductivity (mS/cm)	0.57	**2.1**	**0.63**	-	0.42	0.34	-	-	-
pH	5-9 surface	7.64 - 7.91	7.71	-	7.86	-	-	-	-
pH	5-11 subsurface	7.35 - 8.36	-	-	-	7.92	-	-	-
Boron (Hot Water Soluble)	NV	7.7	< 0.5	-	< 0.5	< 0.5	-	-	-
Chromium VI	0.66	**3.7**	< 0.2	-	< 0.2	< 0.2	-	-	-
Free Cyanide	0.051	**0.07**	< 0.05	-	< 0.05	< 0.05	-	-	-
Mercury	0.27	**0.51**	< 0.05	-	< 0.05	< 0.05	-	-	-
Hydride Metals									
Antimony	1.3	**84**	< 0.8	-	< 0.8	< 0.8	-	-	-
Arsenic	18	**87**	4.3	-	3.5	5.1	-	-	-
Selenium	1.5	**4.4**	< 0.7	-	< 0.7	< 0.7	-	-	-
Metals									
Barium	220	**930**	98	-	68	95	-	-	-
Beryllium	2.5	0.8	0.49	-	0.32	0.57	-	-	-
Boron	36	**69**	7	-	7	10	-	-	-
Cadmium	1.2	**12**	0.17	-	0.46	0.08	-	-	-
Chromium	70	**100**	18	-	13	22	-	-	-
Cobalt	21	**31**	10	-	6.3	14	-	-	-
Copper	92	**6900**	32	-	18	37	-	-	-
Lead	120	**4300**	14	-	49	11	-	-	-
Molybdenum	2	**20**	0.7	-	1.8	0.6	-	-	-
Nickel	82	**170**	22	-	15	28	-	-	-
Silver	0.5	**34**	< 0.05	-	< 0.05	< 0.05	-	-	-
Thallium	1	0.93	0.14	-	0.15	0.17	-	-	-
Uranium	2.5	0.93	0.54	-	0.75	0.78	-	-	-
Vanadium	86	36	24	-	17	27	-	-	-
Zinc	290	**3400**	83	-	290	59	-	-	-
PAHs									
Acenaphthene	0.072	**4.25**	-	**4.25**	< 0.05	< 0.05	-	-	-
Acenaphthylene	0.093	0.07	-	0.07	< 0.05	< 0.05	-	-	-
Anthracene	0.16	**3.5**	-	**3.50**	< 0.05	< 0.05	-	-	-
Benzo(a)anthracene	0.36	**13.5**	-	**13.5**	< 0.05	< 0.05	-	-	-
Benzo(a)pyrene	0.3	**17.3**	-	**17.3**	< 0.05	< 0.05	-	-	-
Benzo(b,j)fluoranthene	0.47	**20.8**	-	**20.8**	< 0.05	< 0.05	-	-	-
Benzo(g,h,i)perylene	0.68	**9.99**	-	**9.99**	< 0.1	< 0.1	-	-	-
Benzo(k)fluoranthene	0.48	**6.41**	-	**6.41**	< 0.05	< 0.05	-	-	-
Chrysene	2.8	**12.9**	-	**12.9**	< 0.05	< 0.05	-	-	-
Dibenz(a,h)anthracene	0.1	**1.9**	-	**1.90**	< 0.06	< 0.06	-	-	-
Fluoranthene	0.56	**20.5**	-	**20.5**	< 0.05	< 0.05	-	-	-
Fluorene	0.12	**1.18**	-	**1.18**	< 0.05	< 0.05	-	-	-
Indeno(1,2,3-cd)pyrene	0.23	**7.75**	-	**7.75**	< 0.1	< 0.1	-	-	-
1-Methylnaphthalene	0.59	0.09	-	0.08	< 0.05	< 0.05	-	-	-
2-Methylnaphthalene	0.59	0.15	-	0.15	< 0.05	< 0.05	-	-	-
Methylnaphthalene, 2-(1-)	0.59	0.24	-	0.23	< 0.05	< 0.05	-	-	-
Naphthalene	0.09	**0.64**	-	**0.64**	< 0.05	< 0.05	-	-	-
Phenanthrene	0.69	**12.6**	-	**12.6**	< 0.05	< 0.05	-	-	-
Pyrene	1	**22.5**	-	**22.5**	< 0.05	< 0.05	-	-	-
PCBs	0.3	<0.3	-	-	-	-	-	-	-

Notes: Table 1 - Full Depth Background Site Condition Standards
All concentrations in µg/g unless otherwise noted
NV - No Value
mbgs - metres below ground surface
Red Shaded Values - Exceed the Table 1 Standards
153/04
BH19-02(MW)-3 & BH19-04(MW)-13 - grain size distribution

APPENDIX F ALL SOIL SAMPLES COMPARED TO SCS

1600 KERNS DRIVE, BURLINGTON, ONTARIO
PROJECT NO. 19-0087.02.03

Sampling Event	2011 Standards: Table 1 (µg/g)	Maximum Concentration (µg/g)	Watters Environmental Phase II ESA					
Sample ID:			BH19-05-1	BH19-05-3	BH19-05-4	BH19-05-8	BH19-508 [dup of BH19-05-8]	BH19-06-5
Sample Depth (mbgs):			0 - 0.61	1.52 - 2.13	2.29 - 2.90	5.33 - 5.94	5.33 - 5.94	3.05 - 3.66
Date Sampled:			October 17, 2019	October 17, 2019	October 17, 2019	October 17, 2019	October 17, 2019	October 16, 2019
Date Analyzed:			October 22, 2019 October 23, 2019	October 21, 2019	October 22, 2019 October 23, 2019	October 21, 2019	October 21, 2019	October 21, 2019 October 22, 2019 October 23, 2019
Lab Certificate Number:			CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19
PHCs								
F1 (C6-C10)	25	<10	-	< 10	-	< 10	< 10	< 10
F1-BTEX (C6-C10 Hydrocarbons)	25	<10	-	< 10	-	< 10	< 10	< 10
F2 (C10-C16 Hydrocarbons)	10	**21**	-	< 10	-	**19**	**19**	**14**
F3 (C16-C34 Hydrocarbons)	240	**452**	-	59	-	89	87	70
F4 (C34-C50 Hydrocarbons)	120	**2810**	-	59	-	50	< 50	< 50
BTEX (VOCs)								
Benzene	0.02	< 0.02	-	< 0.02	-	< 0.02	< 0.02	< 0.02
Ethylbenzene	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Toluene	0.2	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
p+m-Xylene	NV	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
o-Xylene	NV	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Xylene (Total)	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
THMs (VOCs)								
Bromodichloromethane	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Bromoform	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Dibromochloromethane	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
VOCs								
Acetone	0.5	< 0.5	-	< 0.5	-	< 0.5	< 0.5	< 0.5
Bromomethane	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Carbon Tetrachloride	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Chlorobenzene	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Chloroform	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Dichlorodifluoromethane	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
1,1-Dichloroethane	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
1,2-Dichloroethane	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
1,1-Dichloroethylene	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
trans-1,2-Dichloroethylene	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
cis-1,2-Dichloroethylene	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
1,2-Dichloropropane	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
cis-1,3-Dichloropropene	NV	< 0.03	-	< 0.03	-	< 0.03	< 0.03	< 0.03
trans-1,3-Dichloropropene	NV	< 0.03	-	< 0.03	-	< 0.03	< 0.03	< 0.03
1,3-Dichloropropene (cis+trans)	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Ethylene Dibromide	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
n-Hexane	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Methyl Ethyl Ketone	0.5	< 0.5	-	< 0.5	-	< 0.5	< 0.5	< 0.5
Methyl Isobutyl Ketone	0.5	< 0.5	-	< 0.5	-	< 0.5	< 0.5	< 0.5
Methyl t-butyl ether (MTBE)	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Methylene Chloride	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Styrene	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Tetrachloroethylene	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
1,1,1,2-Tetrachloroethane	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
1,1,2,2-Tetrachloroethane	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
1,1,1-Trichloroethane	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
1,1,2-Trichloroethane	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Trichloroethylene	0.05	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Trichlorofluoromethane	0.25	< 0.05	-	< 0.05	-	< 0.05	< 0.05	< 0.05
Vinyl Chloride	0.02	< 0.02	-	< 0.02	-	< 0.02	< 0.02	< 0.02
Inorganics (Other Regulated Parameters)								
Sodium Adsorption Ratio	2.4	**14.8**	**3.0**	-	1.9	-	-	0.3
Conductivity (mS/cm)	0.57	**2.1**	0.37	-	0.41	-	-	0.34
pH	5-9 surface	7.64 - 7.91	7.80	-	-	-	-	-
pH	5-11 subsurface	7.35 - 8.36	-	-	7.78	-	-	7.87
Boron (Hot Water Soluble)	NV	7.7	< 0.5	-	< 0.5	-	-	< 0.5
Chromium VI	0.66	**3.7**	< 0.2	-	< 0.2	-	-	< 0.2
Free Cyanide	0.051	**0.07**	< 0.05	-	< 0.05	-	-	< 0.05
Mercury	0.27	**0.51**	< 0.05	-	< 0.05	-	-	< 0.05
Hydride Metals								
Antimony	1.3	**84**	< 0.8	-	< 0.8	-	-	< 0.8
Arsenic	18	**87**	4.0	-	4.9	-	-	3.5
Selenium	1.5	**4.4**	< 0.7	-	< 0.7	-	-	< 0.7
Metals								
Barium	220	**930**	130	-	130	-	-	85
Beryllium	2.5	0.8	0.57	-	0.58	-	-	0.55
Boron	36	**69**	8	-	9	-	-	9
Cadmium	1.2	**12**	0.11	-	0.10	-	-	0.09
Chromium	70	**100**	23	-	22	-	-	22
Cobalt	21	**31**	13	-	14	-	-	12
Copper	92	**6900**	30	-	44	-	-	35
Lead	120	**4300**	13	-	12	-	-	9.7
Molybdenum	2	**20**	0.5	-	0.6	-	-	0.6
Nickel	82	**170**	28	-	33	-	-	26
Silver	0.5	**34**	< 0.05	-	< 0.05	-	-	< 0.05
Thallium	1	0.93	0.18	-	0.19	-	-	0.13
Uranium	2.5	0.93	0.60	-	0.65	-	-	0.78
Vanadium	86	36	28	-	28	-	-	27
Zinc	290	**3400**	59	-	60	-	-	58
PAHs								
Acenaphthene	0.072	**4.25**	< 0.05	-	< 0.05	-	-	< 0.05
Acenaphthylene	0.093	0.07	< 0.05	-	< 0.05	-	-	< 0.05
Anthracene	0.16	**3.5**	< 0.05	-	< 0.05	-	-	< 0.05
Benzo(a)anthracene	0.36	**13.5**	< 0.05	-	< 0.05	-	-	< 0.05
Benzo(a)pyrene	0.3	**17.3**	< 0.05	-	< 0.05	-	-	< 0.05
Benzo(b,j)fluoranthene	0.47	**20.8**	< 0.05	-	< 0.05	-	-	< 0.05
Benzo(g,h,i)perylene	0.68	**9.99**	< 0.1	-	< 0.1	-	-	< 0.1
Benzo(k)fluoranthene	0.48	**6.41**	< 0.05	-	< 0.05	-	-	< 0.05
Chrysene	2.8	**12.9**	< 0.05	-	< 0.05	-	-	< 0.05
Dibenz(a,h)anthracene	0.1	**1.9**	< 0.06	-	< 0.06	-	-	< 0.06
Fluoranthene	0.56	**20.5**	< 0.05	-	< 0.05	-	-	< 0.05
Fluorene	0.12	**1.18**	< 0.05	-	< 0.05	-	-	< 0.05
Indeno(1,2,3-cd)pyrene	0.23	**7.75**	< 0.1	-	< 0.1	-	-	< 0.1
1-Methylnaphthalene	0.59	0.09	< 0.05	-	< 0.05	-	-	< 0.05
2-Methylnaphthalene	0.59	0.15	< 0.05	-	< 0.05	-	-	< 0.05
Methylnaphthalene, 2-(1-)	0.59	0.24	< 0.05	-	< 0.05	-	-	< 0.05
Naphthalene	0.09	**0.64**	< 0.05	-	< 0.05	-	-	< 0.05
Phenanthrene	0.69	**12.6**	< 0.05	-	< 0.05	-	-	< 0.05
Pyrene	1	**22.5**	< 0.05	-	< 0.05	-	-	< 0.05
PCBs	0.3	<0.3	-	-	-	-	-	-

Notes: Table 1 - Full Depth Background Site Condition Standards
All concentrations in µg/g unless otherwise noted
NV - No Value
mbgs - metres below ground surface
Red Shaded Values - Exceed the Table 1 Standards
153/04
BH19-02(MW)-3 & BH19-04(MW)-13 - grain size distribution

APPENDIX F ALL SOIL SAMPLES COMPARED TO SCS

1600 KERNS DRIVE, BURLINGTON, ONTARIO
PROJECT NO. 19-0087.02.03

Sampling Event	2011 Standards: Table 1 (µg/g)	Maximum Concentration (µg/g)	Watters Environmental Phase II ESA						
Sample ID:			BH19-06-9	BH19-07-2	BH19-07-5	TP19-101-1	TP19-100-1 [dup of BH19-101-1]	TP20-201-1	TP-2000 [dup of TP20-201-1]
Sample Depth (mbgs):			6.10 - 6.71	0.76 - 1.37	3.05 - 3.66	0 - 0.15	0 - 0.15	0 - 0.15	0 - 0.15
Date Sampled:			October 16, 2019	October 17, 2019	October 17, 2019	October 15, 2019	October 15, 2019	November 4, 2020	November 4, 2020
Date Analyzed:			October 21, 2019 October 22, 2019 October 23, 2019	October 22, 2019 October 23, 2019	October 21, 2019	October 23, 2019	October 23, 2019	November 10, 2020 November 6, 2020	November 6, 2020
Lab Certificate Number:			CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14605-OCT19	CA14905-NOV20 R	CA14905-NOV R
PHCs									
F1 (C6-C10)	25	<10	< 10	-	<10	-	-	<10	-
F1-BTEX (C6-C10 Hydrocarbons)	25	<10	< 10	-	<10	-	-	<10	-
F2 (C10-C16 Hydrocarbons)	10	**21**	**21**	-	<10	-	-	<10	-
F3 (C16-C34 Hydrocarbons)	240	**452**	88	-	<50	-	-	74	-
F4 (C34-C50 Hydrocarbons)	120	**2810**	< 50	-	<50	-	-	<50	-
BTEX (VOCs)									
Benzene	0.02	< 0.02	< 0.02	-	< 0.02	-	-	-	-
Ethylbenzene	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Toluene	0.2	< 0.05	< 0.05	-	< 0.05	-	-	-	-
p+m-Xylene	NV	< 0.05	< 0.05	-	< 0.05	-	-	-	-
o-Xylene	NV	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Xylene (Total)	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
THMs (VOCs)									
Bromodichloromethane	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Bromoform	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Dibromochloromethane	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
VOCs									
Acetone	0.5	< 0.5	< 0.5	-	< 0.5	-	-	-	-
Bromomethane	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Carbon Tetrachloride	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Chlorobenzene	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Chloroform	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
1,2-Dichlorobenzene	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
1,3-Dichlorobenzene	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
1,4-Dichlorobenzene	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Dichlorodifluoromethane	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
1,1-Dichloroethane	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
1,2-Dichloroethane	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
1,1-Dichloroethylene	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
trans-1,2-Dichloroethylene	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
cis-1,2-Dichloroethylene	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
1,2-Dichloropropane	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
cis-1,3-Dichloropropene	NV	< 0.03	< 0.03	-	< 0.03	-	-	-	-
trans-1,3-Dichloropropene	NV	< 0.03	< 0.03	-	< 0.03	-	-	-	-
1,3-Dichloropropene (cis+trans)	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Ethylene Dibromide	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
n-Hexane	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Methyl Ethyl Ketone	0.5	< 0.5	< 0.5	-	< 0.5	-	-	-	-
Methyl Isobutyl Ketone	0.5	< 0.5	< 0.5	-	< 0.5	-	-	-	-
Methyl t-butyl ether (MTBE)	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Methylene Chloride	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Styrene	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Tetrachloroethylene	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
1,1,1,2-Tetrachloroethane	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
1,1,2,2-Tetrachloroethane	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
1,1,1-Trichloroethane	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
1,1,2-Trichloroethane	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Trichloroethylene	0.05	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Trichlorofluoromethane	0.25	< 0.05	< 0.05	-	< 0.05	-	-	-	-
Vinyl Chloride	0.02	< 0.02	< 0.02	-	< 0.02	-	-	-	-
Inorganics (Other Regulated Parameters)									
Sodium Adsorption Ratio	2.4	**14.8**	0.2	0.5	-	-	-	-	-
Conductivity (mS/cm)	0.57	**2.1**	0.22	0.32	-	-	-	-	-
pH	5-9 surface	7.64 - 7.91	-	7.77	-	-	-	7.58	7.6
pH	5-11 subsurface	7.35 - 8.36	8.14	-	-	-	-	-	-
Boron (Hot Water Soluble)	NV	7.7	< 0.5	< 0.5	-	-	-	-	-
Chromium VI	0.66	**3.7**	< 0.2	< 0.2	-	-	-	-	-
Free Cyanide	0.051	**0.07**	< 0.05	< 0.05	-	-	-	-	-
Mercury	0.27	**0.51**	< 0.05	< 0.05	-	-	-	-	-
Hydride Metals									
Antimony	1.3	**84**	< 0.8	< 0.8	-	-	-	-	-
Arsenic	18	**87**	3.7	4.2	-	-	-	-	-
Selenium	1.5	**4.4**	< 0.7	< 0.7	-	-	-	-	-
Metals									
Barium	220	**930**	88	140	-	-	-	-	-
Beryllium	2.5	0.8	0.53	0.56	-	-	-	-	-
Boron	36	**69**	9	9	-	-	-	-	-
Cadmium	1.2	**12**	0.07	0.08	-	-	-	-	-
Chromium	70	**100**	20	22	-	-	-	-	-
Cobalt	21	**31**	11	13	-	-	-	-	-
Copper	92	**6900**	34	31	-	-	-	-	-
Lead	120	**4300**	9.5	12	-	-	-	-	-
Molybdenum	2	**20**	0.6	0.5	-	-	-	-	-
Nickel	82	**170**	26	27	-	-	-	-	-
Silver	0.5	**34**	< 0.05	< 0.05	-	-	-	-	-
Thallium	1	0.93	0.15	0.17	-	-	-	-	-
Uranium	2.5	0.93	0.70	0.58	-	-	-	-	-
Vanadium	86	36	25	29	-	-	-	-	-
Zinc	290	**3400**	54	55	-	-	-	-	-
PAHs									
Acenaphthene	0.072	**4.25**	< 0.05	< 0.05	-	-	-	-	-
Acenaphthylene	0.093	0.07	< 0.05	< 0.05	-	-	-	-	-
Anthracene	0.16	**3.5**	< 0.05	< 0.05	-	-	-	-	-
Benzo(a)anthracene	0.36	**13.5**	< 0.05	< 0.05	-	-	-	-	-
Benzo(a)pyrene	0.3	**17.3**	< 0.05	< 0.05	-	-	-	-	-
Benzo(b,j)fluoranthene	0.47	**20.8**	< 0.05	< 0.05	-	-	-	-	-
Benzo(g,h,i)perylene	0.68	**9.99**	< 0.1	< 0.1	-	-	-	-	-
Benzo(k)fluoranthene	0.48	**6.41**	< 0.05	< 0.05	-	-	-	-	-
Chrysene	2.8	**12.9**	< 0.05	< 0.05	-	-	-	-	-
Dibenz(a,h)anthracene	0.1	**1.9**	< 0.06	< 0.06	-	-	-	-	-
Fluoranthene	0.56	**20.5**	< 0.05	< 0.05	-	-	-	-	-
Fluorene	0.12	**1.18**	< 0.05	< 0.05	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	0.23	**7.75**	< 0.1	< 0.1	-	-	-	-	-
1-Methylnaphthalene	0.59	0.09	< 0.05	< 0.05	-	-	-	-	-
2-Methylnaphthalene	0.59	0.15	< 0.05	< 0.05	-	-	-	-	-
Methylnaphthalene, 2-(1-)	0.59	0.24	< 0.05	< 0.05	-	-	-	-	-
Naphthalene	0.09	**0.64**	< 0.05	< 0.05	-	-	-	-	-
Phenanthrene	0.69	**12.6**	< 0.05	< 0.05	-	-	-	-	-
Pyrene	1	**22.5**	< 0.05	< 0.05	-	-	-	-	-
PCBs	0.3	<0.3	-	-	-	< 0.3	<0.3	-	-

Notes: Table 1 - Full Depth Background Site Condition Standards
All concentrations in µg/g unless otherwise noted
NV - No Value
mbgs - metres below ground surface
Red Shaded Values - Exceed the Table 1 Standards
153/04
BH19-02(MW)-3 & BH19-04(MW)-13 - grain size distribution

APPENDIX G

Groundwater Samples Compared to the SCS

APPENDIX G
ALL GROUNDWATER SAMPLES COMPARED TO SCS

1600 KERNS ROAD, BURLINGTON, ONTARIO
PROJECT NO. 19-0087.02.03

Sampling Event	2011 Standards: Table 1 (µg/L)	Maximum Concentration (µg/L)	EXP 2018 Phase II ESA	Watters Environmental Phase Two ESA				
Sample ID:			BH5	BH19-01(MW)	BH19-02(MW)	BH19-04(MW)	BH1000(MW) [Dup of BH19-01(MW)]	Trip Blank
Date Sampled:			November 28, 2018	October 22, 2019				
Date Analyzed:			November 30, 2018 December 1, 2018 December 3, 2018	October 23, 2019 October 24, 2019 October 25, 2019 October 26, 2019				
Lab Certificate Number:			B8V8387	CA14701-OCT19R1				
PHCs								
F1 (C6-C10)	420	<25	<25	< 25	< 25	< 25	< 25	-
F1-BTEX (C6-C10 Hydrocarbons)	420	<25	<25	< 25	< 25	< 25	< 25	-
F2 (C10-C16 Hydrocarbons)	150	<100	<100	< 100	< 100	< 100	< 100	-
F3 (C16-C34 Hydrocarbons)	500	<200	<200	< 200	< 200	< 200	< 200	-
F4 (C34-C50 Hydrocarbons)	500	<200	<200	< 200	< 200	< 200	< 200	-
BTEX (VOCs)								
Benzene	0.5	<0.5	<0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.5	<0.5	<0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.8	<0.5	<0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
p+m-Xylene	NV	<0.5	<0.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
o-Xylene	NV	<0.5	<0.2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Xylene (Total)	72	<0.5	<0.4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
THMs (VOCs)								
Bromodichloromethane	2	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibromochloromethane	2	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
VOCs								
Acetone	2700	<30	-	< 30	< 30	< 30	< 30	< 30
Bromomethane	0.89	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	0.2	<0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	0.5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	2	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	0.5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	0.5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	0.5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	590	<2	-	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethane	0.5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	0.5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethylene	0.5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-Dichloroethylene	1.6	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethylene	1.6	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	1	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-Dichloropropene	NV	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	NV	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichloropropene (cis+trans)	0.5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylene Dibromide	0.2	<0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
n-Hexane	5	<1	-	< 1	< 1	< 1	< 1	< 1
Methyl Ethyl Ketone	400	<20	-	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	640	<20	-	< 20	< 20	< 20	< 20	< 20
Methyl t-butyl ether (MTBE)	15	<2	-	< 2	< 2	< 2	< 2	< 2
Methylene Chloride	5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	0.5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	0.5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	1.1	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	0.5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	1	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	0.5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	0.5	<0.5	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	150	<5	-	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	0.5	<0.2	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Inorganics (Other Regulated Parameters)								
Sodium	490000	**564000**	88000	**564000**	43900	55000	**547000**	-
Chloride	790000	**1000000**	120000	**1000000**	260000	140000	**960000**	-
Chromium VI	25	6.1	1.0	5.7	0.2	0.4	6.1	-
Free Cyanide	5	<2	<1	< 2	< 2	< 2	< 2	-
Mercury	0.1	<0.1	<0.1	< 0.01	< 0.01	< 0.01	< 0.01	-
Hydride Metals								
Antimony	1.5	**21.4**	<0.5	**21.4**	0.89	0.46	**21.4**	-
Arsenic	13	9.1	<1.0	8.9	1.3	1.3	9.1	-
Selenium	5	**10.6**	<2.0	**10.6**	1.25	0.64	**10.4**	-
Metals								
Barium	610	137	38	17.3	137	72.6	17.5	-
Beryllium	0.5	<0.5	<0.5	< 0.007	< 0.007	< 0.007	< 0.007	-
Boron	1700	**5980**	120	**5980**	160	245	**3210**	-
Cadmium	0.5	0.139	<0.1	0.133	0.012	0.010	0.139	-
Chromium	11	8.4	<5.0	8.40	0.21	0.20	8.20	-
Cobalt	3.8	1.44	0.92	0.056	0.833	1.44	0.057	-
Copper	5	3.7	3.7	1.6	1.3	1.3	1.5	-
Lead	1.9	0.53	<0.5	0.53	0.04	0.04	0.53	-
Molybdenum	23	**147**	11	**146**	14.6	6.20	**147**	-
Nickel	14	3.2	2.3	0.9	2.3	3.2	0.9	-
Silver	0.3	<0.10	<0.10	0.025	0.009	0.003	0.004	-
Thallium	0.5	0.068	<0.050	0.048	0.068	0.051	0.050	-
Uranium	8.9	**12.3**	3.4	0.166	4.84	**12.3**	0.093	-
Vanadium	3.9	1.5	<0.50	1.50	1.36	1.25	1.49	-
Zinc	160	<5.0	<5.0	< 2	2	4	< 2	-
PAHs								
Acenaphthene	4.1	<0.1	<0.050	< 0.1	< 0.1	< 0.1	< 0.1	-
Acenaphthylene	1	<0.1	<0.050	< 0.1	< 0.1	< 0.1	< 0.1	-
Anthracene	0.1	<0.1	<0.050	< 0.1	< 0.1	< 0.1	< 0.1	-
Benzo(a)anthracene	0.2	<0.1	<0.050	< 0.1	< 0.1	< 0.1	< 0.1	-
Benzo(a)pyrene	0.01	<0.01	<0.010	< 0.01	< 0.01	< 0.01	< 0.01	-
Benzo(b,j)fluoranthene	0.1	<0.1	<0.050	< 0.1	< 0.1	< 0.1	< 0.1	-
Benzo(g,h,i)perylene	0.2	<0.2	<0.050	< 0.2	< 0.2	< 0.2	< 0.2	-
Benzo(k)fluoranthene	0.1	<0.1	<0.050	< 0.1	< 0.1	< 0.1	< 0.1	-
Chrysene	0.1	<0.1	<0.050	< 0.1	< 0.1	< 0.1	< 0.1	-
Dibenz(a,h)anthracene	0.2	<0.1	<0.050	< 0.1	< 0.1	< 0.1	< 0.1	-
Fluoranthene	0.4	<0.1	<0.050	< 0.1	< 0.1	< 0.1	< 0.1	-
Fluorene	120	<0.1	<0.050	< 0.1	< 0.1	< 0.1	< 0.1	-
Indeno(1,2,3-cd)pyrene	0.2	<0.2	<0.050	< 0.2	< 0.2	< 0.2	< 0.2	-
1-Methylnaphthalene	2	<0.5	<0.050	< 0.5	< 0.5	< 0.5	< 0.5	-
2-Methylnaphthalene	2	<0.5	<0.050	< 0.5	< 0.5	< 0.5	< 0.5	-
Methylnaphthalene, 2-(1-)	2	<0.5	<0.071	< 0.5	< 0.5	< 0.5	< 0.5	-
Naphthalene	7	<0.5	0.4	< 0.5	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.1	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	-
Pyrene	0.2	<0.1	<0.050	< 0.1	< 0.1	< 0.1	< 0.1	-

Notes: Table 1 - Full Depth Background Site Condition Standards
All concentrations in µg/L unless otherwise noted
mbgs - metres below ground surface
Red Shaded Values - Exceed the Table 9 Standards
Sodium and Chloride deemed not to exceed Table 9 Standards as per Section 49.1 of O. Reg. 153/04

APPENDIX H

Maximum Soil and Groundwater Concentrations

APPENDIX H MAXIMUM SOIL CONCENTRATIONS

1600 KERNS DRIVE, BURLINGTON, ONTARIO
PROJECT NO. 19-0087.02.03

Parameters	2011 Standards: Table 1 (µg/g)	Maximum Concentration (µg/g)
PHCs		
F1 (C6-C10)	25	<10
F1-BTEX (C6-C10 Hydrocarbons)	25	<10
F2 (C10-C16 Hydrocarbons)	10	**21**
F3 (C16-C34 Hydrocarbons)	240	**452**
F4 (C34-C50 Hydrocarbons)	120	**2810**
BTEX (VOCs)		
Benzene	0.02	< 0.02
Ethylbenzene	0.05	< 0.05
Toluene	0.2	< 0.05
p+m-Xylene	NV	< 0.05
o-Xylene	NV	< 0.05
Xylene (Total)	0.05	< 0.05
THMs (VOCs)		
Bromodichloromethane	0.05	< 0.05
Bromoform	0.05	< 0.05
Dibromochloromethane	0.05	< 0.05
VOCs		
Acetone	0.5	< 0.5
Bromomethane	0.05	< 0.05
Carbon Tetrachloride	0.05	< 0.05
Chlorobenzene	0.05	< 0.05
Chloroform	0.05	< 0.05
1,2-Dichlorobenzene	0.05	< 0.05
1,3-Dichlorobenzene	0.05	< 0.05
1,4-Dichlorobenzene	0.05	< 0.05
Dichlorodifluoromethane	0.05	< 0.05
1,1-Dichloroethane	0.05	< 0.05
1,2-Dichloroethane	0.05	< 0.05
1,1-Dichloroethylene	0.05	< 0.05
trans-1,2-Dichloroethylene	0.05	< 0.05
cis-1,2-Dichloroethylene	0.05	< 0.05
1,2-Dichloropropane	0.05	< 0.05
cis-1,3-Dichloropropene	NV	< 0.03
trans-1,3-Dichloropropene	NV	< 0.03
1,3-Dichloropropene (cis+trans)	0.05	< 0.05
Ethylene Dibromide	0.05	< 0.05
n-Hexane	0.05	< 0.05
Methyl Ethyl Ketone	0.5	< 0.5
Methyl Isobutyl Ketone	0.5	< 0.5
Methyl t-butyl ether (MTBE)	0.05	< 0.05
Methylene Chloride	0.05	< 0.05
Styrene	0.05	< 0.05
Tetrachloroethylene	0.05	< 0.05
1,1,1,2-Tetrachloroethane	0.05	< 0.05
1,1,2,2-Tetrachloroethane	0.05	< 0.05
1,1,1-Trichloroethane	0.05	< 0.05
1,1,2-Trichloroethane	0.05	< 0.05
Trichloroethylene	0.05	< 0.05
Trichlorofluoromethane	0.25	< 0.05
Vinyl Chloride	0.02	< 0.02
Inorganics (Other Regulated Parameters)		
Sodium Adsorption Ratio	2.4	**14.8**
Conductivity (mS/cm)	0.57	**2.1**
pH	5-9 surface	7.64 - 7.91
pH	5-11 subsurface	7.35 - 8.36
Boron (Hot Water Soluble)	NV	7.7
Chromium VI	0.66	**3.7**
Free Cyanide	0.051	**0.07**
Mercury	0.27	**0.51**
Hydride Metals		
Antimony	1.3	**84**
Arsenic	18	**87**
Selenium	1.5	**4.4**
Metals		
Barium	220	**930**
Beryllium	2.5	0.8
Boron	36	**69**
Cadmium	1.2	**12**
Chromium	70	**100**
Cobalt	21	**31**
Copper	92	**6900**
Lead	120	**4300**
Molybdenum	2	**20**
Nickel	82	**170**
Silver	0.5	**34**
Thallium	1	0.93
Uranium	2.5	0.93
Vanadium	86	36
Zinc	290	**3400**
PAHs		
Acenaphthene	0.072	**4.25**
Acenaphthylene	0.093	0.07
Anthracene	0.16	**3.5**
Benzo(a)anthracene	0.36	**13.5**
Benzo(a)pyrene	0.3	**17.3**
Benzo(b,j)fluoranthene	0.47	**20.8**
Benzo(g,h,i)perylene	0.68	**9.99**
Benzo(k)fluoranthene	0.48	**6.41**
Chrysene	2.8	**12.9**
Dibenz(a,h)anthracene	0.1	**1.9**
Fluoranthene	0.56	**20.5**
Fluorene	0.12	**1.18**
Indeno(1,2,3-cd)pyrene	0.23	**7.75**
1-Methylnaphthalene	0.59	0.09
2-Methylnaphthalene	0.59	0.15
Methylnaphthalene, 2-(1-)	0.59	0.24
Naphthalene	0.09	**0.64**
Phenanthrene	0.69	**12.6**
Pyrene	1	**22.5**
PCBs	0.3	<0.3

Notes: Table 1 - Full Depth Background Site Condition Standards
All concentrations in µg/g unless otherwise noted
NV - No Value
mbgs - metres below ground surface
Red Shaded Values - Exceed the Table 1 Standards
EC and SAR deemed not to exceed Table 9 Standards as per Section 49.1 of O. Reg. 153/04
BH19-02(MW)-3 & BH19-04(MW)-13 - grain size distribution

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APPENDIX H
MAXIMUM GROUNDWATER CONCENTRATIONS

1600 KERNS DRIVE, BURLINGTON, ONTARIO
PROJECT NO. 19-0087.02.03

Parameters	2011 Standards: Table 1 (µg/L)	Maximum Concentration (µg/L)
PHCs		
F1 (C6-C10)	420	<25
F1-BTEX (C6-C10 Hydrocarbons)	420	<25
F2 (C10-C16 Hydrocarbons)	150	<100
F3 (C16-C34 Hydrocarbons)	500	<200
F4 (C34-C50 Hydrocarbons)	500	<200
BTEX (VOCs)		
Benzene	0.5	<0.5
Ethylbenzene	0.5	<0.5
Toluene	0.8	<0.5
p+m-Xylene	NV	<0.5
o-Xylene	NV	<0.5
Xylene (Total)	72	<0.5
THMs (VOCs)		
Bromodichloromethane	2	<0.5
Bromoform	5	<0.5
Dibromochloromethane	2	<0.5
VOCs		
Acetone	2700	<30
Bromomethane	0.89	<0.5
Carbon Tetrachloride	0.2	<0.2
Chlorobenzene	0.5	<0.5
Chloroform	2	<0.5
1,2-Dichlorobenzene	0.5	<0.5
1,3-Dichlorobenzene	0.5	<0.5
1,4-Dichlorobenzene	0.5	<0.5
Dichlorodifluoromethane	590	<2
1,1-Dichloroethane	0.5	<0.5
1,2-Dichloroethane	0.5	<0.5
1,1-Dichloroethylene	0.5	<0.5
trans-1,2-Dichloroethylene	1.6	<0.5
cis-1,2-Dichloroethylene	1.6	<0.5
1,2-Dichloropropane	1	<0.5
cis-1,3-Dichloropropene	NV	<0.5
trans-1,3-Dichloropropene	NV	<0.5
1,3-Dichloropropene (cis+trans)	0.5	<0.5
Ethylene Dibromide	0.2	<0.2
n-Hexane	5	<1
Methyl Ethyl Ketone	400	<20
Methyl Isobutyl Ketone	640	<20
Methyl t-butyl ether (MTBE)	15	<2
Methylene Chloride	5	<0.5
Styrene	0.5	<0.5
Tetrachloroethylene	0.5	<0.5
1,1,1,2-Tetrachloroethane	1.1	<0.5
1,1,2,2-Tetrachloroethane	0.5	<0.5
1,1,1-Trichloroethane	1	<0.5
1,1,2-Trichloroethane	0.5	<0.5
Trichloroethylene	0.5	<0.5
Trichlorofluoromethane	150	<5
Vinyl Chloride	0.5	<0.2
Inorganics (Other Regulated Parameters)		
Sodium	490000	**0**
Chloride	790000	**0**
Chromium VI	25	0.0
Free Cyanide	5	<2
Mercury	0.1	<0.1
Hydride Metals		
Antimony	1.5	**0**
Arsenic	13	0
Selenium	5	**0**
Metals		
Barium	610	0
Beryllium	0.5	<0.5
Boron	1700	**0**
Cadmium	0.5	0
Chromium	11	0
Cobalt	3.8	0
Copper	5	0
Lead	1.9	0
Molybdenum	23	**0**
Nickel	14	0
Silver	0.3	<0.10
Thallium	0.5	0
Uranium	8.9	**0**
Vanadium	3.9	0
Zinc	160	<5.0
PAHs		
Acenaphthene	4.1	<0.1
Acenaphthylene	1	<0.1
Anthracene	0.1	<0.1
Benzo(a)anthracene	0.2	<0.1
Benzo(a)pyrene	0.01	<0.01
Benzo(b,j)fluoranthene	0.1	<0.1
Benzo(g,h,i)perylene	0.2	<0.2
Benzo(k)fluoranthene	0.1	<0.1
Chrysene	0.1	<0.1
Dibenz(a,h)anthracene	0.2	<0.1
Fluoranthene	0.4	<0.1
Fluorene	120	<0.1
Indeno(1,2,3-cd)pyrene	0.2	<0.2
1-Methylnaphthalene	2	<0.5
2-Methylnaphthalene	2	<0.5
Methylnaphthalene, 2-(1-)	2	<0.5
Naphthalene	7	<0.5
Phenanthrene	0.1	0
Pyrene	0.2	<0.1

Notes: Table 1 - Full Depth Background Site Condition Standards
All concentrations in µg/L unless otherwise noted
mbgs - metres below ground surface
Red Shaded Values - Exceed the Table 9 Standards
Sodium and Chloride deemed not to exceed Table 9 Standards as per Section 49.1 of O. Reg. 153/04