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Screening Level Risk Assessment – Lower Beverley Lake Park Road, Delta, Ontario

July 30, 2024

Prepared for:
Township of Rideau Lake

Cambium Reference: 17181-001

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Executive Summary

The Township of Rideau Lakes (Client) retained Cambium Inc. (Cambium) to complete a Screening Level Risk Assessment (SLRA) for the property at Lower Beverley Lake Park Road, Delta, Ontario (Site). The Site is currently developed with a vacant commercial/industrial building that was historically used as a maple syrup refining factory, and metal canoe manufacturing.

The SLRA was completed using a screening level approach, in general accordance with Ontario Regulation (O.Reg.) 153/04. Cambium understands that the future development plans are not known at this time; however, it is anticipated that the site will be redeveloped for commercial and/or community use. As such, a Record of Site Condition (RSC) with the Ontario Ministry of the Environment, Conservation and Parks (Ministry) under O.Reg. 153/04 is not required at this time. It is noted that the SLRA will not be suitable for submission to the Ministry for the purpose of filing an RSC, if an RSC is required for future property use. Environmental investigations were completed by Cambium in 2023 and 2024, providing information relied upon in the completion of the SLRA.

Previous investigations completed by Cambium identified exceedances of appropriate criteria for petroleum hydrocarbons (PHCs), polycyclic aromatic hydrocarbons (PAHs) and select metals in soil. As such, Cambium completed a SLRA to evaluate the potential adverse effects associated with exposure to identified on-site contaminants of concern (COCs) in soil and groundwater, for both human health and the environment.

Cambium completed the SLRA for anticipated future commercial and/or community use, as well as potential future residential, parkland, and/or institutional (RPI) use. It is noted that the SLRA was completed with a screening level approach and does not meet the requirements of O.Reg. 153/04. A risk assessment completed in accordance with O.Reg. 153/04 may have separate conclusions regarding on and off-site risks and/or required Risk Management Measures (RMMs) for RPI land use.

The Human Health Risk Assessment (HHRA) identified potential unacceptable risk for the following human receptors in a commercial and community land use scenario:

- Outdoor workers exposed to COCs via direct contact with soil.

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To effectively mitigate the human health risks described above, risk management in the form of a hard or fill cap are required.

In addition to the above noted unacceptable risk, for potential future residential land use, the HHRA identified potential unacceptable risk for human receptors in a residential land use scenario:

- Residents exposed to COCs via direct contact with soil.
- Residents exposed to COCs via inhalation of indoor air.

Given that the areas north of the on-site building is forested and the soil there is relatively inaccessible to visitors and workers, the potential for exposure to COCs in soil is considered less than what would be expected in a more accessible environment such as the area east of the building. As such, if the north portion of the Site is redeveloped, unacceptable risk would be anticipated for direct contact with soil for the outdoor worker and thus risk management would be required in the form of a hard or fill cap.

In a residential land use scenario only, future buildings must be constructed with the following RMM to mitigate migration of vapours to indoor air and to ensure this pathway does not represent a concern to future residents. Exceedances of COCs that result in potential unacceptable risk of inhalation of indoor air for residents could be delineated and remediated to concentrations below risk-based criteria or further assessment through a soil vapour/indoor air assessment could be completed as an alternative to implementing RMMs to mitigate migration of vapours to indoor air.

The Ecological Risk Assessment (ERA) identified potential unacceptable risks for the following ecological receptors:

- Plants and soil organisms exposed to COCs via direct and indirect contact with soil.
- Mammals and birds exposed to COCs via direct and indirect contact with soil.
- Sediment dwelling organisms exposed to COCs via surface runoff of impacted soil to off-site surface water bodies.

Risks identified above are minimal based on the current configuration of the Site and the presence of the forested area in the north portion of the Site. However, to effectively mitigate

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the ecological risks described above during future redevelopment of the Site, risk management in the form of a hard or fill cap are required. If in the future this vegetative cover is removed or significantly reduced, additional assessment of surface water and/or sediment quality could be completed to confirm surface soil runoff is not occurring.

The ERA also identified potential unacceptable risks for aquatic biota exposed to COCs via leaching from soil to groundwater and subsequent migration to off-site surface water bodies. Based on the inspection of Cowans Creek completed during the Phase One and Two ESA, significant leaching of COCs to the surface water body was not evident at the time of the assessment. In the absence of RMMs to address this potential risk, additional assessment of groundwater or surface water could be completed to confirm leaching of COCs from surficial soil to groundwater is not occurring. Additional assessment should be considered if the site development plan includes deforestation along the creek bank north of the Site.

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1.0 Introduction

The Client retained Cambium to a complete an SLRA for the property located at Lower Beverley Lake Park Road, Delta (the Site; Figure 1).

Cambium understands that the SLRA was completed to support the development of the property in the future. It is noted that the development plans for the Site are currently unknown, however, commercial and/or community development is anticipated. The SLRA was thus completed to assess the risks to human health and the environment for future development scenarios that include commercial and community land use. As the development plans are not confirmed at this time, Cambium also considered potential future RPI land use in the SLRA. The SLRA was completed with a due diligence, screening level approach in general accordance with O.Reg. 153/04; however, this assessment is not suitable for submission to the Ministry for the purpose of filing an RSC. As such, a risk assessment completed in accordance with O.Reg. 153/04 may have separate conclusions regarding on- and off-site risks and/or required RMMs for RPI land use.

1.1 Property Information

The Site consists of a 0.87 ha irregular parcel on the northwest corner of Lower Beverley Lake Park Road and King Street, adjacent to and behind the Old Town Hall in Delta, Ontario. The Universal Transverse Mercator (UTM) coordinates for the centroid of the Site are Zone 18T, 410,905 m east, 4,940,361 m north. The site plan is shown on Figure 3. The Site is currently developed with a vacant commercial/industrial building that was historically used as a maple syrup refining factory and metal canoe manufacturing facility. It is Cambium's understanding that the future use of the Site is currently unconfirmed, however, commercial and/or community development is anticipated, which does not constitute a change to a more sensitive land use, as per O.Reg. 153/04. Although commercial and/or community development is anticipated, Cambium also completed screening for potential future use as residential, parkland, and/or institutional use to outline potential RMMs for the Site if an RSC is desired. As previously

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noted, a risk assessment completed in accordance with O.Reg. 153/04 may have separate conclusions regarding on and off-site risks and/or required RMMs for RPI land use.

1.2 Review of Existing Reports

The following reports were reviewed by Cambium prior to completing the SLRA:

- *Phase One Environmental Site Assessment – Lower Beverley Lake Park Road, Delta, Ontario.* Cambium Inc. July 12, 2023.
- *Phase Two Environmental Site Assessment – Lower Beverley Lake Park Road, Delta, Ontario.* Cambium Inc. June 26, 2024.

A summary of the above listed reports as they relate to the current configuration of the Site is provided below.

Phase One ESA (Cambium, 2023)

In July 2023, Cambium completed a Phase One ESA in accordance with O.Reg. 153/04. A review of aerial photographs, city directories, fire insurance plans, and property ownership information was completed to determine the first developed land use for the Site. The first developed land use at the site was for industrial purposes in 1941. The Site reportedly operated as a maple syrup factory until the late 1980s, and also produced metal canoes between about the 1950s to the 1960s. Review of the aerial photographs indicated that the Site was developed for industrial usage sometime between 1925 and 1959. Prior to 1925 the southwest and north portions of the Site was utilized for agricultural purposes. There was a large addition constructed to the north portion of the site building by 1964. The Site was closed in the 1990s, and the building has been non-operational and vacant since.

Ten potentially contaminating activities (PCAs) were identified within the Phase One Study Area, consisting of five on-site and five off-site. Refer to Table 2 for PCA descriptions and Figure 2 for PCA locations. The five on-site PCAs and one of the off-site PCAs contributed to areas of potential environmental concern (APECs), described below. Refer to Table 2 for APEC descriptions and Figure 3 for APEC locations.

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APEC 1 – Driveways and former parking areas, associated with PCA 1, #30 - Importation of fill material of unknown quality. COPCs include petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), metals, hydride-forming metals, and other regulated parameters (ORPs) including hot water soluble boron, hexavalent chromium (CrVI), mercury (Hg), cyanide (CN), electrical conductivity (EC), and sodium adsorption ratio (SAR) in soil.

APEC 2 – Driveways, walkways, and former parking areas, associated with PCA 2, *Other - Salt application for pedestrian and vehicle safety*. COPCs include EC and SAR in soil.

APEC 3 – Central-east portion of the building, adjacent to the boiler, associated with PCA 3, *#28 - Gasoline and associated product storage in fixed tanks*. COPCs include BTEX, PHCs, PAHs, and metals in soil and groundwater

APEC 4 – Central portion of the building, associated with PCA 4, *#34 - Metal fabrication*. COPCs include VOCs, metals, hydride-forming metals, and Cr(VI) in soil and groundwater

APEC 5 – Central-east portion of the building, associated with PCA 5, *Other - Staining*. COPCs include BTEX, PHCs, PAHs, and metals in soil and groundwater

APEC 6 – Northeast portion of the Site, adjacent to 34 King Street (Highway/County Road 42), associated with PCA 6, *Other – Coal-fired heating*. COPCs include BTEX, PHCs, PAHs, metals, and Hg in soil and groundwater

Based on the observations and information obtained during the Phase One ESA, Cambium concluded that a Phase Two ESA was required.

Phase Two ESA (Cambium, 2024)

From October 2023 to June 2024, Cambium completed a Phase Two ESA in accordance with O.Reg. 153/04. The Phase Two ESA included the advancement of 19 boreholes, five of which were completed as groundwater monitoring wells to investigate the identified APECs. Boreholes were completed to depths ranging from 0.9 to 6.1 m below ground surface (mbgs).

The initial drilling investigation (100-series boreholes) was completed on October 2 and 10, 2023. Seven boreholes were advanced into overburden to a maximum depth of 6.1 mbgs, one

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borehole into bedrock to a maximum depth of 6.7 mbgs, and one hand augered borehole to 0.9 mbgs. The delineation drilling investigation (200-series boreholes) was completed on May 3, 2024, which included the advancement of seven boreholes into overburden to a maximum depth of 4.6 mbgs and three hand auger boreholes to 0.9 mbgs.

Cowans Creek is partially on-site, adjacent on the north and northwest boundary of Site. The Natural Heritage Information Centre (NHIC) identified habitat potential for endangered or threatened species within the 1 km grid overlapping the Site (MNR, 2023). As defined in Section 1 and 41 of O.Reg. 153/04, if habitat for endangered or threatened species are identified within, adjacent to, or within 30 m from the Site, it is considered environmentally sensitive; therefore, a review of the Site by an ecologist was completed. A field investigation was conducted by Cambium on May 3, 2024, as part of the Phase Two ESA, to inspect the Site and surrounding properties for natural heritage features and potential species at risk habitat. A detailed habitat suitability analysis of Species of Conservation Concern Screening was completed and provided in the Phase Two ESA. At the time of the site inspection and screening, the Site was not found to provide protected habitat for any species at risk.

The applicable site condition standards (SCS) in the Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011b) for the Site were the Table 8 Generic Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Potable Groundwater Condition for residential/parkland/institutional/ industrial/commercial/community (RPIICC) property use and medium/fine-textured soil (Table 8 SCS).

Stratigraphy at the Site consisted of topsoil or fill, overlying silty clay and clay between 0.6 to 1.5 mbgs. There was a thin layer of topsoil observed at BH101 to BH104, an asphalt surface at BH105 to BH107, and BH109, and a concrete surface at BH108. Silty sand overlaid the native silty clay and clay at BH102. Bedrock was encountered at BH107 at 2.4 mbgs, and BH109 at 1.5 mbgs, bedrock was not encountered at the other boreholes to a maximum depth of 6.1 mbgs. Two soil samples from BH101 at a depth of 0.01 to 0.6 mbgs to 1.52 to 2.43 mbgs were submitted for grain size analysis. Analysis indicates the soil consists of medium/fine soil. It is noted that fill material was underlain by the silty clay at the Site, as such, SCS for coarse

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textured soil were conservatively selected to account for the potential presence of coarse grained fill material.

Measured groundwater depth ranged from 1.53 mbgs to 5.16 mbgs, and from 91.07 m above sea level (asl) to 93.18 masl. Groundwater flow was interpreted to be to the southeast as shown on Figure 4.

Soil and groundwater results are provided in Table 3 to Table 5. Concentrations of all COPCs were less than the Table 8 SCS in the analyzed soil and groundwater samples with the following exceptions:

PHCs in Soil

- BH103 from 0.025 to 0.6 mbgs for PHC fraction 4 (F4). A vertical delineation sample was submitted at BH103 from 1.52 to 3.04 mbgs which met the Table 8 SCS.
- BH109 from 0.12 to 1.5 mbgs for PHC F4. This location is vertically delineated by bedrock at 1.52 mbgs.
- BH107 from 0.025 to 0.1 mbgs met the Tables 8 SCS; however, the duplicate sample taken at this location exceeded for PHC F4 and is therefore considered an exceedance. This location is vertically delineated by a second sample analyzed for PHCs from 1.52 to 2.42 mbgs, which met the Table 8 SCS.
- BH208 from 0 to 0.1 mbgs for xylenes and PHC F4. A vertical delineation sample was submitted at BH208 from 0.6 to 0.9 mbgs which met the Table 8 SCS

  Horizontal delineation extends to the property boundary to the northwest, BH106 and the property boundary to the east, and the west and south property boundaries, as shown on Figure 6 and Figure 7.

PAHs in Soil

- BH102 from 0.01 to 0.60 mbgs for acenaphthylene, benzo(a)pyrene, and indeno(1,2,3-cd)pyrene. This location is vertically delineated by a sample collected from 1.52 to 3.04 mbgs, which met the Table 8 SCS.

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- BH201 from 0.1 to 0.8 mbgs for acenaphthylene. This location is vertically delineated by a second sample analyzed for PAHs from 1.52 to 3.04 mbgs, which met the Table 8 SCS.
- BH203 and BH204 from 0.1 to 0.8 and 0.8 to 1.0 mbgs for various PAHs. This location was not vertically delineated

Horizontal delineation extends to the north, and east property boundaries, BH202 to the west, and BH106 to the south, as shown on Figure 8 and Figure 9.

Metals and Hydride-Forming Metals in Soil

- BH104 from 3.04 to 4.57 mbgs for barium. No sample was available for analysis for vertical delineation.

BH109 from 0.12 to 1.5 mbgs for arsenic, lead, and zinc. However, as allowed by O.Reg. 153/04 (Section 48 (2)), averaging was applied to arsenic, lead, and zinc concentrations reported at BH109 (0.12 to 1.5 mbgs) using an additional sample collected on May 3, 2024, from BH210 at a depth of 0.12 to 1.5 mbgs. It is noted that BH210 is within 1 m of BH109, and soil samples used for averaging were collected within the same stratum as the BH109 (0.12 to 1.5 mbgs) exceedance. The average concentrations of these samples met the Table 8 SCS for lead and zinc, however the average arsenic concentration still exceeded the Table 8 SCS. Average soil concentrations of arsenic, lead, and zinc at BH109 and BH210 are shown on Figure 10 and Figure 11, and values are provided in Table 4

. Arsenic at BH109 is vertically delineated by bedrock at 1.52 mbgs.

- BH209 from 0.12 to 1.52 mbgs for barium and molybdenum. This location is vertically delineated by a second sample analyzed for metals from 1.52 to 1.82 mbgs, which met the Table 8 SCS

Horizontal delineation extends to BH108 and BH103 to the north, and the east, west, and south property boundaries, as shown on Figure 10 and Figure 11.

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ORPs in Soil

- BH109 from 0.12 to 1.5 mbgs exceeded for mercury. This location is vertically delineated by bedrock at 1.52 mbgs. As allowed by O.Reg. 153/04 (Section 48 (2)), averaging was applied to mercury concentrations reported at BH109 (0.12 to 1.5 mbgs) using an additional sample collected on May 3, 2024, from BH210 at a depth of 0.12 to 1.5 mbgs. It is noted that BH210 is within 1 m of BH109, and soil samples used for averaging were collected within the same stratum as the BH109 (0.12 to 1.5 mbgs) exceedance. The average concentration of these samples met the Table 8 SCS for mercury. Average soil concentrations of mercury at BH109 and BH210 are shown on Figure 12 and Figure 13.

Horizontal delineation extends to BH209 to the north, BH105 to the northwest, the east property boundaries, and BH210 to the south, as shown on Figure 12 and Figure 13.

Metals in Groundwater

BH107 exceeded for cobalt in a sampled collected in October 2023. The available water column during groundwater sampling in October 2023 was limited in BH107 (i.e., 0.3 m) and some fine soil particulates may have been entrained in the sample and biased the results. As such, a second groundwater sample was collected at this location in December 2023 to reduce entrained fine particulates to confirm the presence of an exceedance. The resampling met the Table 8 SCS, therefore the results from October 2023 are considered biased and groundwater was considered to meet the Table 8 SCS.

Based on the results of the Phase Two ESA investigation, Cambium concluded that soil at the Site exceeds the Table 8 SCS. As such, Cambium recommended that an SLRA be undertaken for the Phase Two Property to assess the risks to human and ecological receptors.

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1.3 Objectives

The objectives of the SLRA are the following:

- Take a screening level approach to evaluating the potential adverse effects associated with exposure to identified on-site impacts in soil and groundwater, for both human health and the environment
- Provide recommendations for RMMs to mitigate any potentially unacceptable risks

1.4 Risk Assessment Assumptions

The SLRA was conducted based on the following assumptions:

1. The future use of the property will be commercial and/or community use. Cambium also completed the SLRA for potential future residential, parkland, and/or institutional land use. It is noted that the SLRA was completed with a screening level approach and does not meet the requirements of O.Reg. 153/04. A risk assessment completed in accordance with O.Reg. 153/04 may have separate conclusions regarding on and off-site risks and/or required RMMs for RPI land use.
2. The Site is considered to have potable groundwater and coarse textured soil.

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2.0 Contaminants of Concern

2.1 Applicable Standards for Risk Assessment

The following site characteristics were reviewed to determine the applicable SCS in the Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE, 2011a).

- The proposed future use of the Site is not confirmed; however, the Client has indicated it will be repurposed for community and/or commercial use. Consideration was given to potential future RPI land use as the development plans are not finalized at this time.
- The Site is within 30 m of a water body as defined in O.Reg. 153/04. As such, Section 43.1 of O.Reg. 153/04 applies (the nearest surface water body is Cowans Creek, which flows along the northwest property line).
- For groundwater at a property to be considered non-potable, all properties within 250 m of the property must be supplied by a municipal drinking water system that does not obtain its water from a groundwater source. It should be noted that properties within the phase one study area are privately serviced for drinking water. In addition, based on Cambium's regulatory review associated with the Phase One ESA (i.e., ERIS), 56 well records for domestic water supply wells were identified within the phase one study area ranging from about 5 m to 250 m from the Site. Therefore, not all properties within the phase one study area are serviced by the municipal drinking water system, and as such potable standards apply to the Site.
- The property is not located in an area designated in the municipal official plan as a well-head protection area or other designation identified by the municipality for the protection of groundwater.
- The overburden thickness is greater than 2 m based on investigations completed by Cambium; as such, Section 43.1(a) of O.Reg. 153/04 does not apply.

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- The stratigraphy consisted of some fill material but was primarily underlain by silty clay. Bedrock was encountered at 1.5 m below ground surface (bgs) at BH109, 2.4 mbgs at BH107, and was not encountered at the other borehole locations within the maximum drilled depth of 6.1 mbgs. As such, the overburden thickness is less than 2 m based on investigations completed by Cambium; as such, Section 43.1(a) of O.Reg. 153/04 applies.
- No area of natural significance, as defined in Section 1 of O.Reg. 153/04, is in whole or in part within the phase two study area, however The Natural Heritage Information Centre (NHIC) identified habitat potential for endangered or threatened species within the 1 km grid overlapping the Site (MNR, 2023). Cambium completed a supplemental review for Species at Risk habitat and the Site was not found to provide protected habitat for any SAR. As such, the Site is not considered environmentally sensitive as per Section 41 of O.Reg. 153/04.
- The minimum depth to groundwater at the Site was measured at 1.53 mbgs in October 2023 (at BH101, located in the north portion of the Site); therefore, the SCS for shallow soil were also considered applicable to account for potential decreased biodegradation and groundwater dilution and increased vapour to indoor air migration.
- Two soil samples from BH101 at a depth of 0.01 to 0.6 mbgs to 1.52 to 2.43 mbgs were submitted for grain size analysis. Analysis indicates the soil consists of medium/fine soil. It is noted that fill material was underlain by the silty clay, as such, SCS for coarse textured soil were conservatively selected to account for the potential presence of coarse grained fill material.
- On-site soil pH was within the acceptable ranges for surficial (≤1.5 mbgs) and sub-surface (>1.5 mbgs) soil. As such, the Site is not environmentally sensitive as per Section 41 of O.Reg. 153/04.

Based on the review of site characteristics, the Table 8 SCS for RPIICC property use and coarse textured soil were considered applicable. Given that the minimum depth to groundwater was measured at 1.53 mbgs, the Table 6 Generic SCS for Shallow Soils in a Non-Potable Groundwater Condition for RPIICC property use and coarse textured soil were also considered

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to account for shallow groundwater conditions at the Site and the potential for enhanced vapour migration from shallow groundwater.

2.2 Screening of Contaminants of Potential Concern

Data collected in the environmental investigations conducted by Cambium and described above were used to determine the COCs in soil and groundwater to be assessed in the SLRA.

To select the COCs to be retained in the SLRA, the maximum concentration of each COPC was screened against its respective Table 8 SCS. The COCs retained in the SLRA are summarized in Embedded Table1 for soil.

Soil results are provided on Table 3 and shown on Figure 6 to Figure 13.

Embedded Table1 Identification of Contaminants of Concern in Soil

COC	Maximum Concentration (µg/g)	Table 8 SCS (µg/g)	Location and Sample Depth of Maximum Concentration
PHC F4	4,960	120	BH208 (0.0 – 0.1 mbgs)
Xylenes	0.30	0.05	BH208 (0.0 – 0.1 mbgs)
Acenaphthylene	1.34	0.093	BH204 (0.1 – 0.8 mbgs)
Anthracene	0.67	0.093	BH204 (0.1 – 0.8 mbgs)
Benz(a)anthracene	1.58	0.22	BH203 (0.8 – 1.0 mbgs)
Benzo(a)pyrene	1.56	0.36	BH203 (0.8 – 1.0 mbgs)
Benzo(b)fluoranthene	1.44	0.3	BH203 (0.8 – 1.0 mbgs)
Benzo(g,h,i)perylene	0.99	0.47	BH203 (0.8 – 1.0 mbgs)
Benzo(k)fluoranthene	1.11	0.68	BH204 (0.1 – 0.8 mbgs)
Dibenz(a,h)anthracene	0.25	0.48	BH204 (0.1 – 0.8 mbgs)
Fluoranthene	2.34	0.1	BH203 (0.8 – 1.0 mbgs)
Indeno(1,2,3-cd)pyrene	0.91	0.69	BH204 (0.1 – 0.8 mbgs)
Pyrene	3.24	0.23	BH203 (0.8 – 1.0 mbgs)
Arsenic	20.1 (1)	18	BH109 (0.12 – 1.5 mbgs)
Barium	1,560	220	BH209 (0.12 – 1.52 mbgs)
Molybdenum	2.3	2	BH209 (0.12 – 1.52 mbgs)

(1) Average concentration of soil samples collected from BH109 (0.12 to 0.15 mbgs) and BH210 (0.12 to 1.52 mbgs) as allowed by O.Reg. 153/04 (Section 48 (2)).

Four monitoring wells were sampled for analysis of metals and hydride-forming metals. Concentrations were less than the Table 8 SCS and the Table 6 SCS in the analyzed groundwater samples, as shown on Figure 17 and Figure 18, except for BH107 for cobalt

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(exceeds Table 8 SCS). The available water column during groundwater sampling in October 2023 was limited in BH107 (i.e. 0.3 m) and some fine soil particulates may have been entrained in the sample and biased the results. As such, a second groundwater sample was collected at this location in December 2023 to reduce entrained fine particulates to confirm the presence of the exceedance. The resampling met both the Table 8 SCS and Table 6 SCS, therefore, the results from October 2023 are considered biased and groundwater met the appropriate criteria. As such, no COCs were identified in groundwater, and groundwater was not considered further in the SLRA.

Groundwater results are provided in Table 5 and are shown on Figure 14 to Figure 18. It is noted that only Table 8 SCS are shown on the figures given that no measured concentrations of volatile parameters (PHCs F1 and F2, VOCs, and select PAHs) were identified in any groundwater samples.

Complete laboratory Certificates of Analysis for soil and groundwater are provided in the 2024 Phase Two ESA completed by Cambium (Cambium, 2024).

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3.0 Human Health Risk Assessment

The HHRA provides a screening level (qualitative) evaluation of risks to human health associated with the COCs identified in soil and groundwater.

3.1 Problem Formulation

The potential for adverse effects via exposure to COCs in on-site media is related to the receptors anticipated to be on the property and the pathways via which they may be exposed to COCs. The receptors and their primary associated exposure pathways for a commercial and community property are described below. It is noted that no groundwater-based pathways are considered herein since no COCs were retained in groundwater.

Visitor

This is a visitor (any age group) to the Site in a community land use scenario that may be exposed to COCs via the following exposure pathways: dermal contact, incidental ingestion and inhalation of particulates from soil, and inhalation of outdoor air. The receptor may be exposed to COCs via inhalation of indoor air in any on-site building.

Indoor Worker

This is an adult worker that primarily spends a standard work-day on-site while indoors. This receptor may be exposed to COCs via inhalation of indoor air.

Outdoor Worker

This is an adult worker that primarily spends a standard work-day on-site while outdoors conducting regular maintenance, landscaping, or other outdoor activities. This receptor may be exposed to COCs via the following exposure pathways: dermal contact, incidental ingestion and inhalation of particulates from soil; and inhalation of outdoor air.

Subsurface Worker

This is an adult worker expected to spend the majority of their time within an excavation trench. This receptor may be exposed to COCs via the following exposure pathways: dermal contact, incidental ingestion and inhalation of particulates from soil, and inhalation of trench air.

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3.1.1 Potential Future Residential, Parkland, or Institutional Use

Although commercial and community development is anticipated, Cambium also completed screening for potential residential, parkland, or institutional use to outline potential RMMs for the Site if a change to one or more of these sensitive land uses is desired.

In addition to the receptors described in 3.1, the receptors and their primary associated exposure pathways for a residential, parkland, or institutional property include the resident, visitor, indoor worker, and the outdoor worker.

A resident of the Site is assumed to live on the property from birth, through life stages of infant, toddler, child, teen, and adult. This receptor may be exposed to COCs via the following exposure pathways: direct contact (dermal contact and incidental ingestion) and inhalation of particulates from soil; inhalation of outdoor air; and inhalation of indoor air. In a residential scenario, the resident was considered a surrogate for the visitor in a residential, parkland, or institutional scenario due to having a much greater exposure rate to COCs in soil.

3.1.2 Off-Site Receptors

Given that the Site is surrounded by residential properties in all directions, anticipated off-site human receptors would include residents.

Under the resident scenario, it was assumed that this receptor lives on properties adjacent to the Site from birth, through life stages of infant, toddler, child, teen and adult. Residents could potentially be exposed to COCs in groundwater via the following pathways: inhalation of indoor air through the migration of vapours from underlying groundwater and inhalation of volatile COCs that have migrated from groundwater to outdoor air. Given that groundwater met the Table 8 SCS and Table 6 SCS for RPIICC property use, off-site migration of COCs in groundwater and subsequent vapour intrusion to outdoor and indoor air at off-site residential properties are not anticipated. As such, off-site residential receptors were not considered further in the SLRA.

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3.2 Human Health Screening

In the development of generic site condition standards (e.g., Table 8 SCS), the Ministry considered multiple receptors (both human and ecological) and exposure pathways associated with a given property use. The final SCS were determined by evaluating the lowest of the selected component values developed by the Ministry (MOE, 2011b). As a result, these component values can be used to support a further screening level assessment for the HHRA by only considering component values related to human health. The component values used in the human health screening are those provided by the Ministry's Modified Generic Risk Assessment (MGRA) Approved Model (MECP, 2016), as updated with toxicological reference values currently endorsed by the Ministry (MECP, 2021). Component values used in this SLRA are provided in Appendix A.

This process is described in the following sections for soil. As mentioned in Section 2.2, no COCs were identified in groundwater, and thus groundwater was not considered further in the SLRA.

3.2.1 COCs in Soil

The soil-based component values appropriate for human health screening on a commercial and community property with potable groundwater are as follows:

- S-IA (ICC): Soil to indoor air inhalation, protective of indoor workers in an enclosed building.
- S2: Soil ingestion, dermal contact (i.e., direct contact), and soil particulate inhalation exposure pathways for outdoor workers.
- S3: Soil ingestion, dermal contact and soil particulate inhalation exposure pathways in a commercial setting, relevant for subsurface workers in a trench.
- S-GW1: Leaching from soil to groundwater and migration to on-site drinking water wells, protective of all receptors.
- Outdoor Air: Soil to outdoor (aboveground) air inhalation pathway for all on-site receptors.

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The Free Phase Threshold component value is a soil concentration based on the potential for the formation of free-phase product in soil. COC concentrations in soil are compared to the Free Phase Threshold in Embedded Table 2, below.

It is noted that there are no component values available for soil to trench air inhalation. However, the S-IA (ICC) component value is considered protective of trench air quality.

Previous Ministry guidance for lead was to use the generic Table 1 Full Depth Background SCS representative of background conditions in Ontario for commercial land use (MOE, 2011a; 2011b). This approach was taken since the Ministry had not recommended a threshold for non-cancer effects due to lead exposure. However, most recently the Ministry made Toxicity Reference Value (TRV) selections for lead as will as updated the S1, S2, and S3 component values for secondary screening processes for lead (MECP, 2024). As such, the most recent component values for lead were selected in the human health component value screening below.

Appropriate component values are those derived for commercial and community property use, potable groundwater, and coarse textured soil. Human health component value screening for the retained COCs in soil is presented in Embedded Table 2.

Embedded Table 2 Human Health Screening for Soil in a Commercial and Community Use Scenario

COC	Maximum Concentration	S-GW1	S2	S3	S-IA (ICC)	Outdoor Air	Free Phase Threshold
PHC F4	4,960	1,600,000	42,000	400,000	Non-Vol	Non-Vol	6,900
Xylenes	0.30	120	44,000	88,000	50	4,900	2,300
Acenaphthylene	1.34	17	70	2,600	12	180	2,900
Anthracene	0.67	51	70	2,600	270	950	2,700
Benz(a)anthracene	1.58	190	7	260	1,800	600	7,600
Benzo(a)pyrene	1.56	6.6	**0.7**	17	5,400	68	7,600
Benzo(b)fluoranthene	1.44	67	7	260	150,000	3,800	7,600
Benzo(g,h,i)perylene	0.99	2,200	70	2,600	Non-Vol	Non-Vol	7,600
Benzo(k)fluoranthene	1.11	66	7	260	180,000	3,800	7,600
Dibenz(a,h)anthracene	0.25	22	0.7	26	880,000	790	7,600
Fluoranthene	2.34	180	70	2,600	6,700	4,500	7,600
Indeno(1,2,3-cd)pyrene	0.91	220	7	260	1200000	7,300	7,600
Pyrene	3.24	1700	700	26,000	51,000	41,000	7,700
Arsenic	20.2	NV	**1**	39	Non-Vol	Non-Vol	12,000

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COC	Maximum Concentration	S-GW1	S2	S3	S-IA (ICC)	Outdoor Air	Free Phase Threshold
Barium	1,560	NV	32,000	8,600	Non-Vol	Non-Vol	7,700
Molybdenum	2.3	NV	1,200	1,200	Non-Vol	Non-Vol	22,000

All concentrations in µg/g unless otherwise noted.
Bold and shaded values represent an exceedance of that component value.
< = less than reported detection limit
Non-vol – Parameter is considered non-volatile.
NV – No value provided by the Ministry.

The maximum concentration of arsenic and benzo(a)pyrene exceed the S2 component value. One arsenic exceedance was identified at BH109 from 0.12 to 1.5 mbgs, located directly east of the Site building. Benzo(a)pyrene exceeded the Table 8 SCS at three locations in the north portion of the Site (BH102, BH203, and BH204). Of the three locations exceeding for benzo(a)pyrene, only soil samples from BH203 (0.8 to 1.0 mbgs) and BH204 (0.1 to 0.8 mbgs) exceeded the S2 component value.

Given that the areas north of the on-site building is forested and the soil there is relatively inaccessible to visitors and workers, the potential for exposure to COCs in soil is considered less than what would be expected in a more accessible environment such as the area east of the building where the arsenic impacts in soil were identified. As such, if the north portion of the Site is redeveloped, unacceptable risk would be anticipated for direct contact with soil for the outdoor worker and thus risk management would be required in the form of a hard or fill cap. It is noted that the location of the arsenic exceedance at BH109 is covered with an asphalt surface, preventing for direct contact with soil. In the event of redevelopment around the building, risk management in the form of a hard or fill cap is also required. Required RMMs are described in Section 5.0.

3.2.2 Potential Future Residential, Parkland, or Institutional Use

As described in Section 3.1.1, Cambium also completed screening for potential residential, parkland, or institutional use to outline potential RMMs for the Site if a change to one or more of these sensitive land uses is desired. In addition to the soil-based component values appropriate for human health screening on a commercial and community property with potable

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groundwater, the following additional component values were considered in the SLRA for potential future residential, parkland, and/or institutional use at the Site:

- S-IA (RPI): Soil to indoor air inhalation, protective of indoor workers in an enclosed building.
- S1: Soil ingestion, dermal contact (i.e., direct contact), and soil particulate inhalation exposure pathways for residents.

Embedded Table 3 Human Health Screening for Soil in a Potential Future Residential Use Scenario

COC	Maximum Concentration	S1	S-IA (RPI)
PHC F4	4,960	6100	Non-vol
Xylenes	0.30	4200	3.1
Acenaphthylene	1.34	57	**0.82**
Anthracene	0.67	57	19
Benz(a)anthracene	1.58	5.7	120
Benzo(a)pyrene	1.56	**0.57**	340
Benzo(b)fluoranthene	1.44	5.7	10000
Benzo(g,h,i)perylene	0.99	57	Non-vol
Benzo(k)fluoranthene	1.11	5.7	12000
Dibenz(a,h)anthracene	0.25	0.57	60000
Fluoranthene	2.34	57	450
Indeno(1,2,3-cd)pyrene	0.91	5.7	84000
Pyrene	3.24	540	3500
Arsenic	20.2	**0.79**	Non-vol
Barium	1,560	3800	Non-vol
Molybdenum	2.3	110	Non-vol

All concentrations in µg/g unless otherwise noted.
Bold and shaded values represent an exceedance of that component value.
< = less than reported detection limit
Non-vol – Parameter is considered non-volatile.
NV – No value provided by the Ministry.

The maximum concentration of arsenic and benzo(a)pyrene exceed the S1 component value. As a result, unacceptable risk is anticipated for direct contact with soil for the resident. Risk management in the form of a hard or fill cap are required. Required RMMs are described in Section 5.0.

As described above for the continued commercial/community property use scenario, it is reasonable to expect significantly lower exposure to impacts in soil within the forested areas

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north of the building where the benzo(a)pyrene impacts were identified. However, given that a change to residential property use necessitates an RSC and a more robust Risk Assessment under O.Reg.153/04, the rationale for keeping this portion of the site in its current form is not applicable under this future scenario. As such, the hard or fill cap would be required.

The maximum concentration of acenaphthylene exceeded the S-IA (RPI) component value. As a result, unacceptable risk is anticipated for inhalation of indoor air for the resident. Therefore, in a residential land use scenario, future buildings must be constructed with the following RMM to mitigate migration of vapours to indoor air and to ensure this pathway does not represent a concern to future residents. This must be completed in one of the two ways described below:

- Soil-Vapour Intrusion Mitigation System (SVIMS): A SVIMS (with vapour membrane barrier) that is installed below the building foundation to prevent vapour migration from underlying soil impacts to indoor air.
- A parking garage that is designed to ensure that there is sufficient air exchange to prevent the accumulation of vapour. This measure will include an air exchange system which will mitigate the accumulation of vapours migrating from underlying contamination in soil to the parking garage as well as the first floor commercial and remaining residential floors.

It is noted that acenaphthylene exceeded the S-IA (RPI) component value at BH203 (0.8 to 1.0 mbgs) and BH204 (0.1 to 0.8 mbgs) in the north portion of the Site. As such, exceedances of acenaphthylene could be delineated and remediated below the S-IA (RPI) component value, or additional assessment through a soil vapour/indoor air assessment could be completed as an alternative to implementing RMMs to mitigate migration of vapours to indoor air. However, as previously described in Section 1.0, a risk assessment completed in accordance with O.Reg. 153/04 may have separate conclusions regarding on and off-site risks and/or required RMMs for RPI land use.

3.2.3 COCs in Groundwater

Given that no COCs were retained in groundwater, no risks are anticipated for this medium.

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4.0 Ecological Risk Assessment

The ERA provides a screening level evaluation of risks to ecological health associated with the COCs identified in soil and groundwater. As described in Section 2.0, multiple COCs were retained in soil.

4.1 Problem Formulation

The potential for adverse effects via exposure to COCs in on-site media is related to the valued ecological components (VECs) anticipated to be on the property and the pathways via which they may be exposed to COCs. The VECs associated with commercial/community land use are described below (MOE, 2011b):

- Terrestrial plants (deep-rooted vegetation and herbaceous plants).
- Soil invertebrates (earthworms and insects).
- Mammals (meadow vole and red fox).
- Birds (red-winged blackbird, American woodcock and red-tailed hawk).

4.2 Ecological Screening

Similar to the HHRA, ecological-based component values established by the Ministry in the development of Table 8 SCS can be used to support a screening level assessment for the ERA (MOE, 2011b). Component values for soil used in this SLRA are provided in Appendix A. This ecological screening is presented in the following sections.

4.2.1 COCs in Soil

The soil-based component values appropriate for ecological screening on a commercial/community property and coarse textured soil, with a surface water body adjacent to the Site, are as follows (MOE, 2011b):

- P&SO: Direct and indirect contact pathways for terrestrial plants and soil organisms.
- M&B: Direct and indirect contact pathways for terrestrial mammals and birds.

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- S-GW3: Leaching of COCs from soil to groundwater and subsequent migration to aquatic biota in off-site surface water bodies.
- Sediment Quality: Exposure via surface runoff to off-site surface water bodies, protective of sediment dwelling organisms.

The ecological screening for COCs in soil is presented in Embedded Table 4.

Embedded Table 4 Ecological Screening for Soil

COC	Maximum Concentration	P&SO	M&B	S-GW3	Sediment
PHC F4	4,960	**3300**	NV	NV	NV
Xylenes	0.30	350	47000	26	NV
Acenaphthylene	1.34	NV	NV	**0.15**	NV
Anthracene	0.67	32	470000	0.67	**0.22**
Benz(a)anthracene	1.58	**1**	NV	5.1E+11	**0.32**
Benzo(a)pyrene	1.56	72	46000	3.8E+13	**0.37**
Benzo(b)fluoranthene	1.44	NV	NV	7.7E+13	NV
Benzo(g,h,i)perylene	0.99	13	NV	1.2E+13	**0.17**
Benzo(k)fluoranthene	1.11	15	NV	2.5E+13	**0.24**
Dibenz(a,h)anthracene	0.25	NV	NV	2.4E+13	**0.06**
Fluoranthene	2.34	180	120000	40000	**0.75**
Indeno(1,2,3-cd)pyrene	0.91	**0.76**	NV	8.6E+13	**0.2**
Pyrene	3.24	NV	99000	2600	**0.49**
Arsenic	20.2	40	330	NV	**6**
Barium	1,560	**1500**	**670**	NV	NV
Molybdenum	2.3	40	74	NV	NV

All concentrations in µg/g unless otherwise noted.
Bold and shaded values represent an exceedance of that component value.
NV – No Value provided by the Ministry.

As shown in ecological screening for soil, the following component value exceedances were identified:

- P&SO: PHC F4, benz(a)anthracene, indeno(1,2,3-cd)pyrene, and barium
- M&B: barium
- S-GW3: acenaphthylene

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- Sediment: anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, pyrene, and arsenic

As a result of the above noted component value exceedances, potential unacceptable risks are anticipated for the VECs described below.

Plants and Soil Organisms (P&SO)

Since exceedances of available P&SO component values were identified for PHC F4, benz(a)anthracene, indeno(1,2,3-cd)pyrene, and barium, unacceptable risk is anticipated via direct and indirect contact pathways for plants and soil organisms. However, the Ministry allows the application of the Modified Ecological Protection (MEP) option when evaluating risk to ecological receptors (MECP, 2016b). The MEP approach was developed by the Ministry as a means of providing an option for maintaining or establishing ecological habitat that is comprised of “assemblages of species that are adapted or less sensitive to the contaminants of concern” at a site; the MEP option within the MGRA Approved Model is intended to promote brownfield redevelopment and preserve existing and potential future habitat (MECP, 2016b). Given that the north portion of the Site is forested, the application of the MEP was considered appropriate to preserve the existing habitat if the Site was to remain in its current configuration. It is noted that the MEP option does not provide the same degree of ecological protection that is provided by the generic standards.

The MEP option utilizes a multiplier of 1.9x the commercial/industrial component values for P&SO (MECP, 2016b). The ecological screening for P&SO while utilizing the MEP option is presented in Embedded Table 5, below.

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Embedded Table 5 P&SO Screening for Soil with the MEP Option

COC	Maximum Concentration	P&SO	P&SO x 1.9
PHC F4	4,960	**3300**	6270
Xylenes	0.30	350	665
Acenaphthylene	1.34	NV	NV
Anthracene	0.67	32	60.8
Benz(a)anthracene	1.58	**1**	1.9
Benzo(a)pyrene	1.56	72	136
Benzo(b)fluoranthene	1.44	NV	NV
Benzo(g,h,i)perylene	0.99	13	24.7
Benzo(k)fluoranthene	1.11	15	28.5
Dibenz(a,h)anthracene	0.25	NV	NV
Fluoranthene	2.34	180	342
Indeno(1,2,3-cd)pyrene	0.91	**0.76**	1.4
Pyrene	3.24	NV	NV
Arsenic	20.2	40	76
Barium	1,560	**1500**	2850
Molybdenum	2.3	40	76

All concentrations in µg/g unless otherwise noted.
Bold and shaded values represent an exceedance of that component value.
NV – No Value provided by the Ministry.

As shown in Embedded Table 5, no exceedances of the P&SO component values were identified with the application of the MEP option. As such, risks are not anticipated for P&SO direct and indirect contact pathways with COCs in soil if the north portion of the Site remains forested. If the Site is redeveloped, risk management in the form of a hard or fill cap is required across the Site. Recommended RMMs are described in Section 5.0.

Mammals and Birds (M&B)

Since exceedances of available M&B component values were identified for barium, unacceptable risk is anticipated via direct and indirect contact pathways for mammals and birds. Similar to P&SO, the MEP option within the MGRA Approved Model is also applicable to M&B as a means of providing an option for maintaining or establishing ecological habitat that is comprised of “assemblages of species that are adapted or less sensitive to the contaminants of concern” at a site (MECP, 2016b); however, since barium exceeded the M&B component value in the south portion of the Site at BH209 where asphalt paving is present, the MEP option is not appropriate in the absence of natural habitat. Since BH209 is in a location of

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asphalt paving, direct contact with soil by mammals and birds is prevented. In the event of redevelopment around the building, risk management in the form of a hard or fill cap is also required. Required RMMs are described in Section 5.0.

S-GW3

Since exceedances of the available S-GW3 component value was identified for acenaphthylene, potential unacceptable risk is anticipated for off-site aquatic biota via leaching of acenaphthylene from soil to groundwater and subsequent migration to off-site surface water bodies. It is noted that the S-GW3 component value for acenaphthylene is based on the GW3 (leaching of COCs from groundwater to surface water bodies) component value which is derived by multiplying the Aquatic Protection Value (APV) for groundwater by a dilution factor of 10 to account for dilution of groundwater in the receiving surface water body (MOE, 2011b). For acenaphthylene, the basis of toxicity for the APV is median PAH phototoxicity (MADEP, 2008). In aquatic environments, when ultraviolet (UV) light is present at sufficient intensity, the acute toxicity of some PAHs to aquatic biota is greatly enhanced (Hatch & Burton Jr., 1999). Exceedances of acenaphthylene were identified in the north portion of the Site and the maximum concentration of acenaphthylene (1.34 µg/g) was identified at BH204 from 0.1 to 0.8 mbgs. One groundwater monitoring well was installed at BH201 located adjacent to Cowans Creek. It is noted that one soil sample from BH201 (0.1 to 0.8 mbgs) exceeded the S-GW3 component value for acenaphthylene; however, groundwater at this location met the Table 8 SCS, indicating that leaching from soil to groundwater is not occurring at this location. It is noted that no groundwater characterization was completed at BH204 (location of the maximum concentration of acenaphthylene) or between BH204 and Cowans Creek, as such leaching from soil to groundwater could be occurring in this portion of the Site. Based on the inspection of Cowans Creek completed during the Phase One and Two ESA, no deceased or stressed aquatic biotic was observed within the creek (Cambium, 2023; 2024). As such, significant leaching of COCs to the surface water body was not evident at the time of the assessment. Additionally, given that the creek is bordered by forested areas with trees along the creek bank, intense UV light is anticipated to be reduced by vegetation cover. If in the future this vegetative cover is removed or significantly reduced, additional assessment of groundwater or

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surface water could be completed to confirm leaching of COCs is not occurring. Additional assessment should be considered if the site development plan includes deforestation of the creek bank north of the Site. Refer to Appendix B for additional photographs of Cowans Creek at the time of the Phase Two ESA.

Sediment

Since exceedances of the sediment component values were identified for several PAHs (anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, dibenz(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, pyrene) and arsenic, unacceptable risks may be present for sediment dwelling organisms via surface runoff of impacted soil into adjacent surface water bodies. Given the that the north portion of the Site is forested, soil erosion is anticipated to be minimal due to the presence of mature vegetation. As such, surface runoff of impacted soil into the adjacent surface water bodies is anticipated to be minimal. If the site is redeveloped and vegetative cover is removed or significantly reduced, risk management in the form of a hard or fill cap is required. Recommended RMMs are described in Section 5.0.

4.2.2 COCs in Groundwater

Given that no COCs were retained in groundwater, no risks are anticipated for this medium.

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5.0 Risk Management

The HHRA identified potential unacceptable risk for the following human receptors in a commercial and community land use scenario:

- Outdoor workers exposed to COCs via direct contact with soil.

In addition to the above noted unacceptable risk, for potential future use, the HHRA identified potential unacceptable risk for human receptors in a residential land use scenario:

- Residents exposed to COCs via direct contact with soil.
- Residents exposed to COCs via inhalation of indoor air.

The ERA identified potential unacceptable risks for the following ecological receptors:

- Plants and soil organisms exposed to COCs via direct and indirect contact with soil.
- Mammals and birds exposed to COCs via direct and indirect contact with soil.
- Aquatic biota exposed to COCs via leaching from soil to groundwater and subsequent migration to off-site surface water bodies.
- Sediment dwelling organisms exposed to COCs via surface runoff of impacted soil to off-site surface water bodies.

5.1 Risk Management Measures

To address the risks described above, the proposed RMMs are described in the following sections.

5.1.1 Hard or Fill Cap

A soil cover system is required across the Site as part of any redevelopment scenario (RPI or ICC). It is noted that if the Site remains in its current configuration, a hard or fill cap is not required as risks to human and ecological receptors is minimal. However, where the existing hard cap is not in good condition (e.g., significant cracks or gaps are present), repairs are required to ensure that exposure to impacted soil is minimized. The objective of the soil cover

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system is to provide a physical barrier that reduces the potential for exposure to impacted soil such that the direct contact exposure pathways can be considered incomplete. The barrier may consist entirely of a hard cap, or entirely of a fill cap, or of a hard cap in some areas of the Site and a fill cap in other areas of the Site.

5.1.1.1 Hard Cap

The hard cap RMM consists of capping of areas of impacted soil on the Site not covered by at least 1 m of unimpacted fill/soil with asphalt, concrete, a building slab, or a building foundation and floor slab, consisting of at least 150 mm of Granular “A” or equivalent material overlain by at least 75 mm of hot mix asphalt or concrete. Unimpacted soil is soil in which no COCs are present, or in which COCs are present but at a concentration that is less than Table 8 SCS.

It is noted that the footprint of any future on-site building, is considered a suitable hard cap.

5.1.1.2 Fill Cap

The fill cap RMM consists of capping of areas on the Site where impacted soil is present at or within 1 m below the soil surface with a minimum of 0.5 m of unimpacted fill cover. Unimpacted soil is soil in which no COCs are present, or in which COCs are present but at a concentration that is less than Table 8 SCS.

Where new deep-rooting trees are to be planted, the root ball of the tree is to be placed in a minimum of 1.5 m of unimpacted soil.

5.1.1.3 Record Keeping and Reporting

Inspections of the hard cap/fill cap will be documented to maintain a permanent record of the conditions at the Site. These requirements include:

1. Semi-annual (spring and fall) inspections of the capping by the Owner or an assigned representative
2. Identification of any deficiencies observed during the inspection or at any other time
3. The repair forthwith of any such deficiencies

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4. A permanent record of inspections, deficiencies, and repairs in a logbook maintained by or on behalf of the Owner

5.1.2 Soil-Vapour Intrusion Mitigation System

In a residential land use scenario only, future buildings may require construction with the following RMM to mitigate migration of vapours to indoor air and to ensure this pathway does not represent a concern to future residents. This may be completed in one of the two ways described below:

- A SVIMS (with vapour membrane barrier) that is installed below the building foundation to prevent vapour migration from underlying soil impacts to indoor air.
- A parking garage that is designed to ensure that there is sufficient air exchange to prevent the accumulation of vapour. This measure will include an air exchange system which will mitigate the accumulation of vapours migrating from underlying contamination in soil to the parking garage as well as the first floor commercial and remaining residential floors.

It is noted that acenaphthylene exceeded the S-IA (RPI) component value at BH203 (0.8 to 1.0 mbgs) and BH204 (0.1 to 0.8 mbgs) in the north portion of the Site. As such, exceedances of acenaphthylene could be delineated and remediated below the S-IA (RPI) component value or additional soil vapour/indoor air assessment could be completed as an alternative to implementing RMMs to mitigate migration of vapours to indoor air. However, as previously described in Section 1.0, a risk assessment completed in accordance with O.Reg. 153/04 may have separate conclusions regarding on and off-site risks and/or required RMMs for RPI land use.

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6.0 Overall Conclusions and Recommendations

The HHRA identified potential unacceptable risk for the following human receptors in a commercial and community land use scenario:

- Outdoor workers exposed to COCs via direct contact with soil.

To effectively mitigate the human health risks described above, risk management in the form of a hard or fill cap are required.

In addition to the above noted unacceptable risk, for potential future residential use, the HHRA identified potential unacceptable risk for human receptors in a residential land use scenario:

- Residents exposed to COCs via direct contact with soil.
- Residents exposed to COCs via inhalation of indoor air.

Given that the areas north of the on-site building is forested and the soil there is relatively inaccessible to visitors and workers, the potential for exposure to COCs in soil is considered less than what would be expected in a more accessible environment such as the area east of the building where the arsenic impacts in soil were identified. As such, if the north portion of the Site is redeveloped, unacceptable risk would be anticipated for direct contact with soil for the outdoor worker and thus risk management would be required in the form of a hard or fill cap.

In a residential land use scenario only, future buildings must be constructed with the following RMM to mitigate migration of vapours to indoor air and to ensure this pathway does not represent a concern to future residents. It is noted that acenaphthylene exceeded the S-IA (RPI) component value at BH203 (0.8 to 1.0 mbgs) and BH204 (0.1 to 0.8 mbgs) in the north portion of the Site. As such, exceedances of acenaphthylene could be delineated and remediated below the S-IA (RPI) component value or further assessment through a soil vapour/indoor air assessment could be completed as an alternative to implementing RMMs to mitigate migration of vapours to indoor air. A risk assessment completed in accordance with O.Reg. 153/04 may have separate conclusions regarding on and off-site risks and/or required RMMs for RPI land use.

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The ERA identified potential unacceptable risks for the following ecological receptors:

- Plants and soil organisms exposed to COCs via direct and indirect contact with soil.
- Mammals and birds exposed to COCs via direct and indirect contact with soil.
- Sediment dwelling organisms exposed to COCs via surface runoff of impacted soil to off-site surface water bodies.

Risks identified above are minimal based on the current configuration of the Site and the presence of forested area in the north portion of the Site. However, to effectively mitigate the ecological risks described above during future redevelopment of the Site, risk management in the form of a hard or fill cap are required. If in the future this vegetative cover is removed or significantly reduced, additional assessment of groundwater, sediment, or surface water quality could be completed to confirm leaching of COCs or surface soil runoff is not occurring.

The ERA also identified potential unacceptable risks for aquatic biota exposed to COCs via leaching from soil to groundwater and subsequent migration to off-site surface water bodies. Based on the inspection of Cowans Creek completed during the Phase One and Two ESA, no deceased or stressed aquatic biotic was observed within the creek (Cambium, 2023; 2024). As such, significant leaching of COCs to the surface water body was not evident at the time of the assessment. Additionally, given that the creek is bordered by forested areas with trees along the creek bank, intense UV light is anticipated to be reduced by tree cover. In the absence of RMMs to address this potential risk, additional assessment of groundwater or surface water could be completed to confirm leaching of COCs from surficial soil to groundwater is not occurring. Additional assessment should be considered if the site development plan includes deforestation of the creek bank north of the Site.

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

7.0 Qualifications of the Assessor

This SLRA was completed under the supervision of Mark Beasy, M.Sc., QPRA. Credentials are presented in Appendix C. Information presented in this report is true and accurate to the best of the assessors' knowledge.

Respectfully submitted,

DocuSigned by:
0E6DC1F525AE479...

Patrick Garrett, M.Sc., C.Chem.
Project Manager/Risk Assessor

DocuSigned by:
Mark Beasy
22B5A6A55DD147F...

Mark Beasy, M.Sc., QPRA
Senior Risk Assessor

PJG/mb

\\cambiumincstorage.file.core.windows.net\projects\17100 to 17199\17181-001 Rideau Lakes - PH One ESA - Lower Beverley Lake Park Rd, Delta\Deliverables\SLRA\2024-07-30 RPT SLRA - Lower Beverley Lake Park Rd - updated.docx

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

8.0 References

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Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

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9.0 Standard Limitations

Limited Warranty

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

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

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

Site Assessments

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

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

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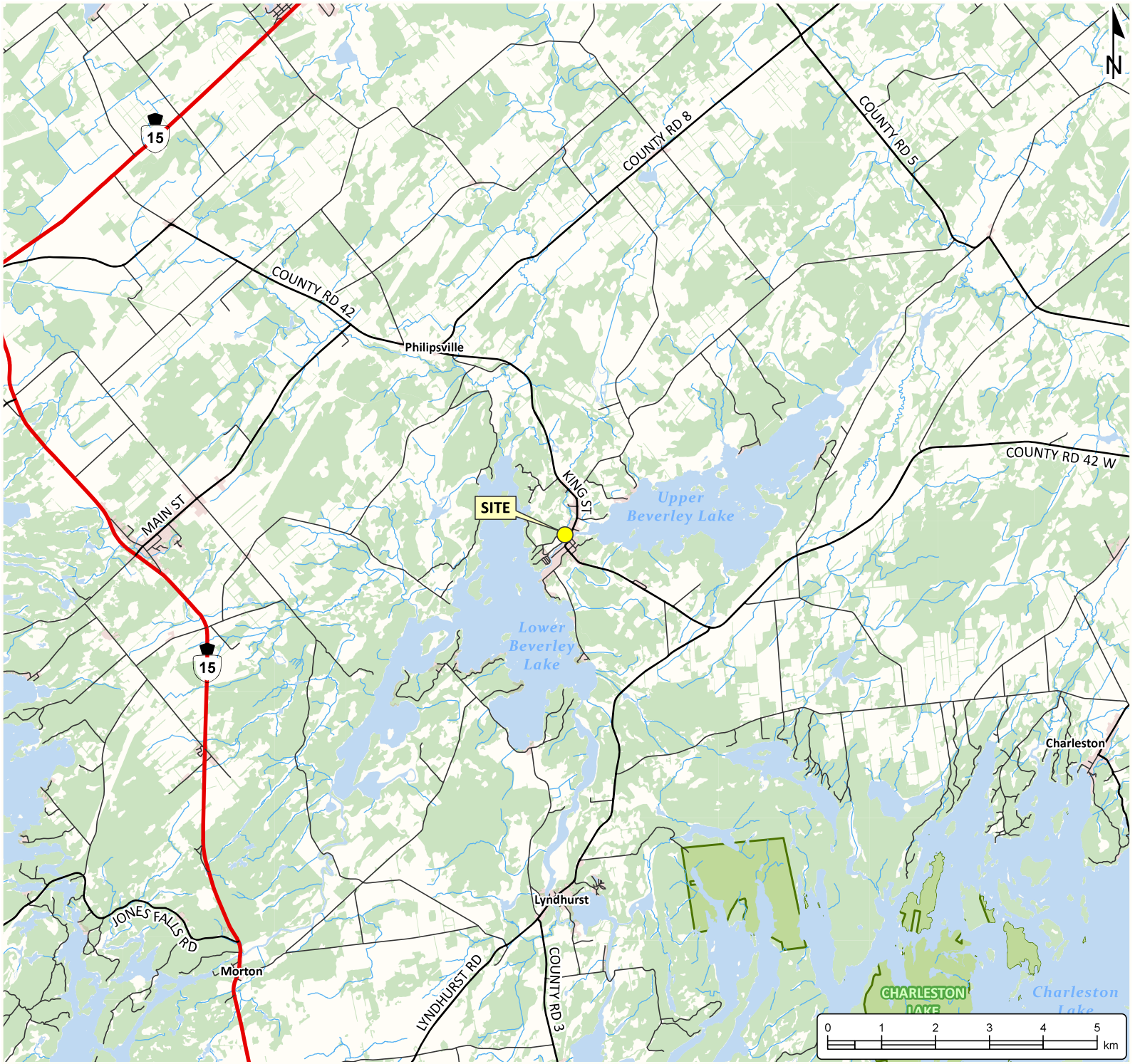
Appended Figures

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF



SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverley Lake Park Road
Delta, Ontario

LEGEND

- Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Water Area
- Provincial Park
- Wooded Area
- Built Up Area

Notes:
-Site boundaries are approximate.
- Base mapping features are © King's Printer of Ontario, 2022 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
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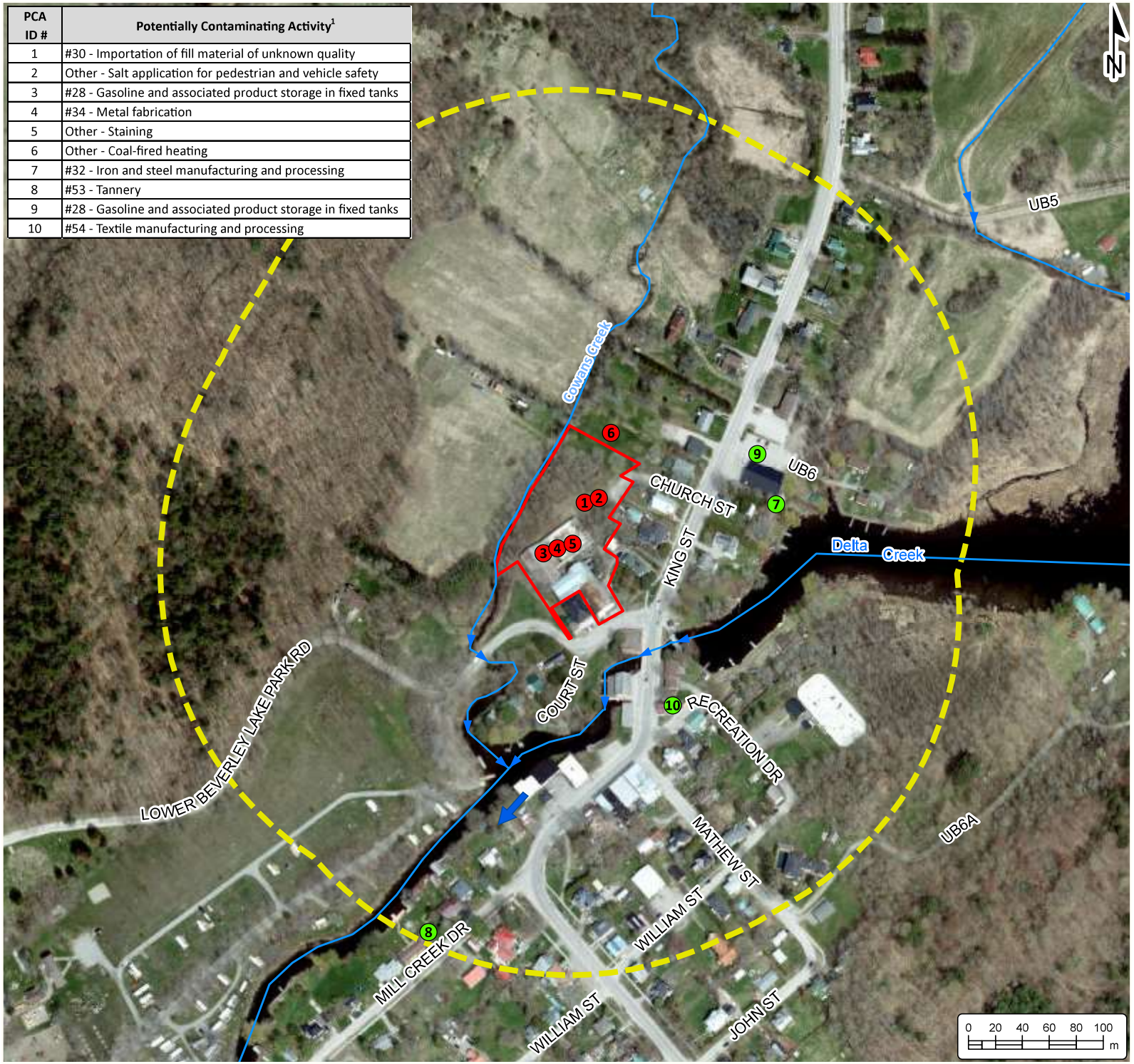
SITE LOCATION PLAN

Project No.: 17181-001		Date: November 2023	
		Rev.:	
Scale: 1:100,000		Projection: NAD 1983 UTM Zone 18N	
Created by: TLC	Checked by: LEF	Figure: 1	

O:\GIS\MXDs\17100-17199\17181-001 Rideau Lakes - PH One ESA - Lower Beverley Lake Park Rd, Delta\2024-07-12 Phase Two ESA.aprx

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

PCA ID #	Potentially Contaminating Activity[1]
1	#30 - Importation of fill material of unknown quality
2	Other - Salt application for pedestrian and vehicle safety
3	#28 - Gasoline and associated product storage in fixed tanks
4	#34 - Metal fabrication
5	Other - Staining
6	Other - Coal-fired heating
7	#32 - Iron and steel manufacturing and processing
8	#53 - Tannery
9	#28 - Gasoline and associated product storage in fixed tanks
10	#54 - Textile manufacturing and processing



SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverley Lake Park Road
Delta, Ontario

LEGEND

- Watercourse, Permanent
- Study Area (250m)
- Site (approximate)

Potentially Contaminating Activity:

- Does Not Contribute to APEC
- Contributes to APEC
- Surface Water Flow Direction

Notes:
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CONCEPTUAL SITE MODEL STUDY AREA

Project No.:	17181-001	Date:	November 2023
		Rev.:	
Scale:	1:4,000	Projection:	NAD 1983 UTM Zone 18N
Created by:	TLC	Checked by:	LEF
Figure:	2		

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SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverley Lake Park Road
Delta, Ontario

LEGEND

- Site (approximate)

Area of Potential Environmental Concern:

- APEC 1 & 2
- APEC 3
- APEC 4
- APEC 5
- APEC 6

Notes:
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CONCEPTUAL SITE MODEL SITE PLAN

Project No.: 17181-001		Date: November 2023	
		Rev.:	
Scale: 1:1,000		Projection: NAD 1983 UTM Zone 18N	
Created by: TLC	Checked by: LEF	Figure: 3	

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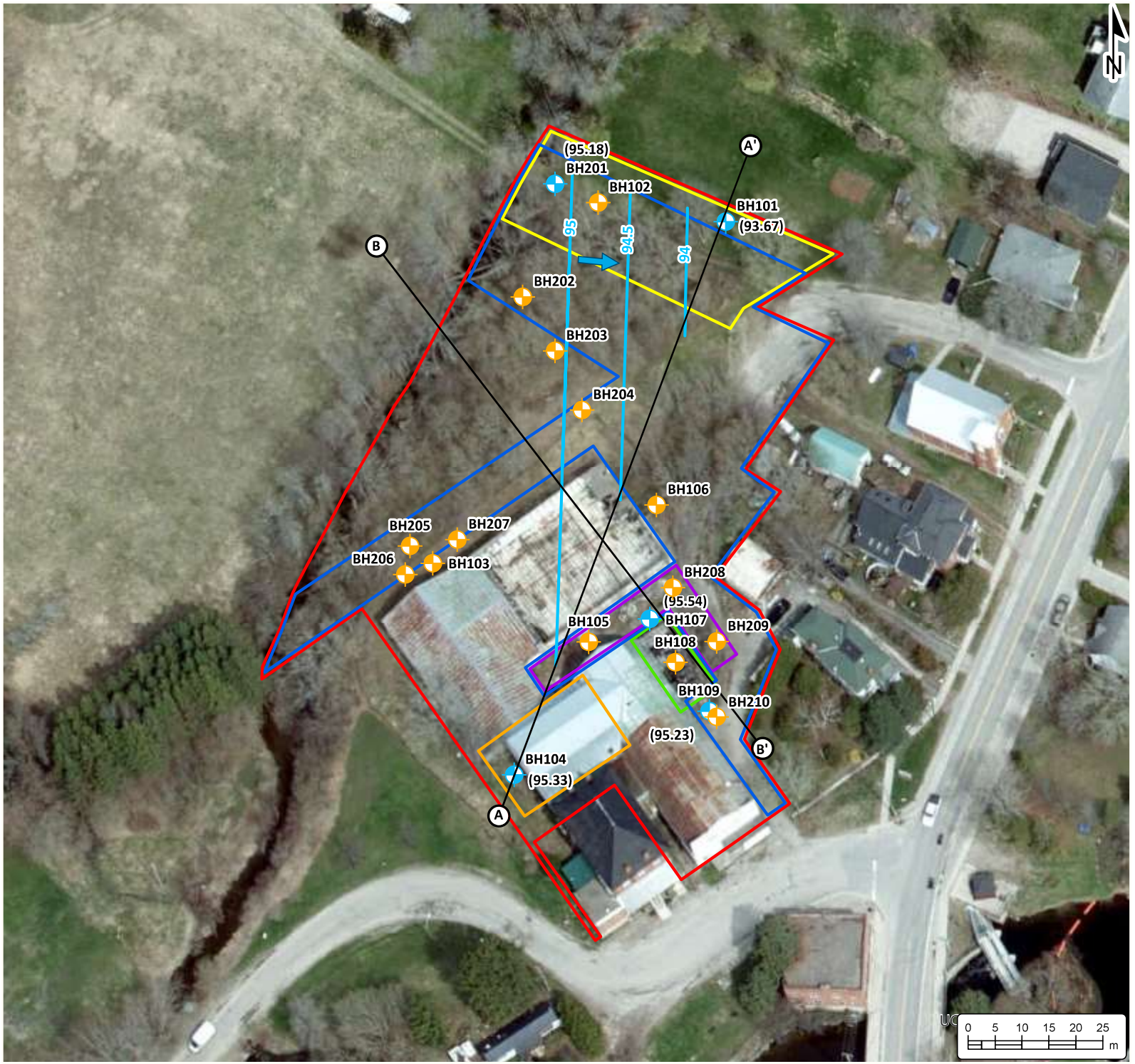

SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverley Lake Park Road
Delta, Ontario

LEGEND

(92.86) Groundwater Elevation May 9, 2024

Borehole

Monitoring Well

Site (approximate)

Area of Potential Environmental Concern:

APEC 1 & 2

APEC 3

APEC 4

APEC 5

APEC 6

Groundwater Contour (May 9, 2024)

Groundwater Flow Direction May 9, 2024

Notes:
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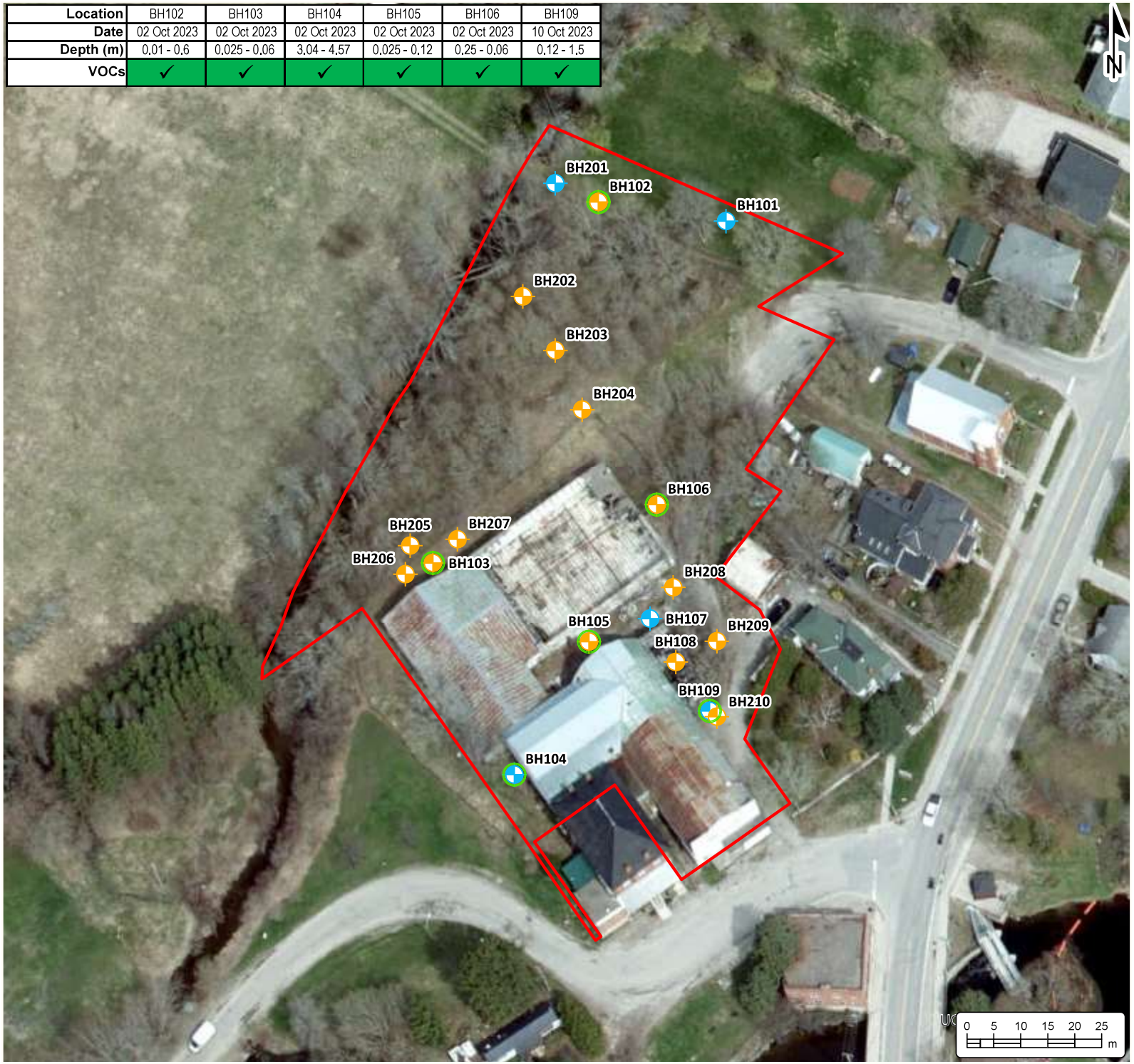
INVESTIGATION LOCATIONS

Project No.: 17181-001		Date: November 2023 Rev.: June 2024	
Scale: 1:1,000		Projection: NAD 1983 UTM Zone 18N	
Created by: TLC	Checked by: LEF	Figure:	4

O:\GIS\MXDs\17100-17199\17181-001 Rideau Lakes - PH One ESA - Lower Beverley Lake Park Rd, Delta\2024-07-12 Phase Two ESA.aprx

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Location	BH102	BH103	BH104	BH105	BH106	BH109
Date	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	10 Oct 2023
Depth (m)	0.01 - 0.6	0.025 - 0.06	3.04 - 4.57	0.025 - 0.12	0.25 - 0.06	0.12 - 1.5
VOCs	✓	✓	✓	✓	✓	✓



SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverley Lake Park Road
Delta, Ontario

LEGEND

- Borehole
- Monitoring Well
- Meets Table 8 RPIICC
- Exceeds Table 8 RPIICC
- Site (approximate)

Notes:
-Site boundaries are approximate.
- Base mapping features are © King's Printer of Ontario, 2022 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
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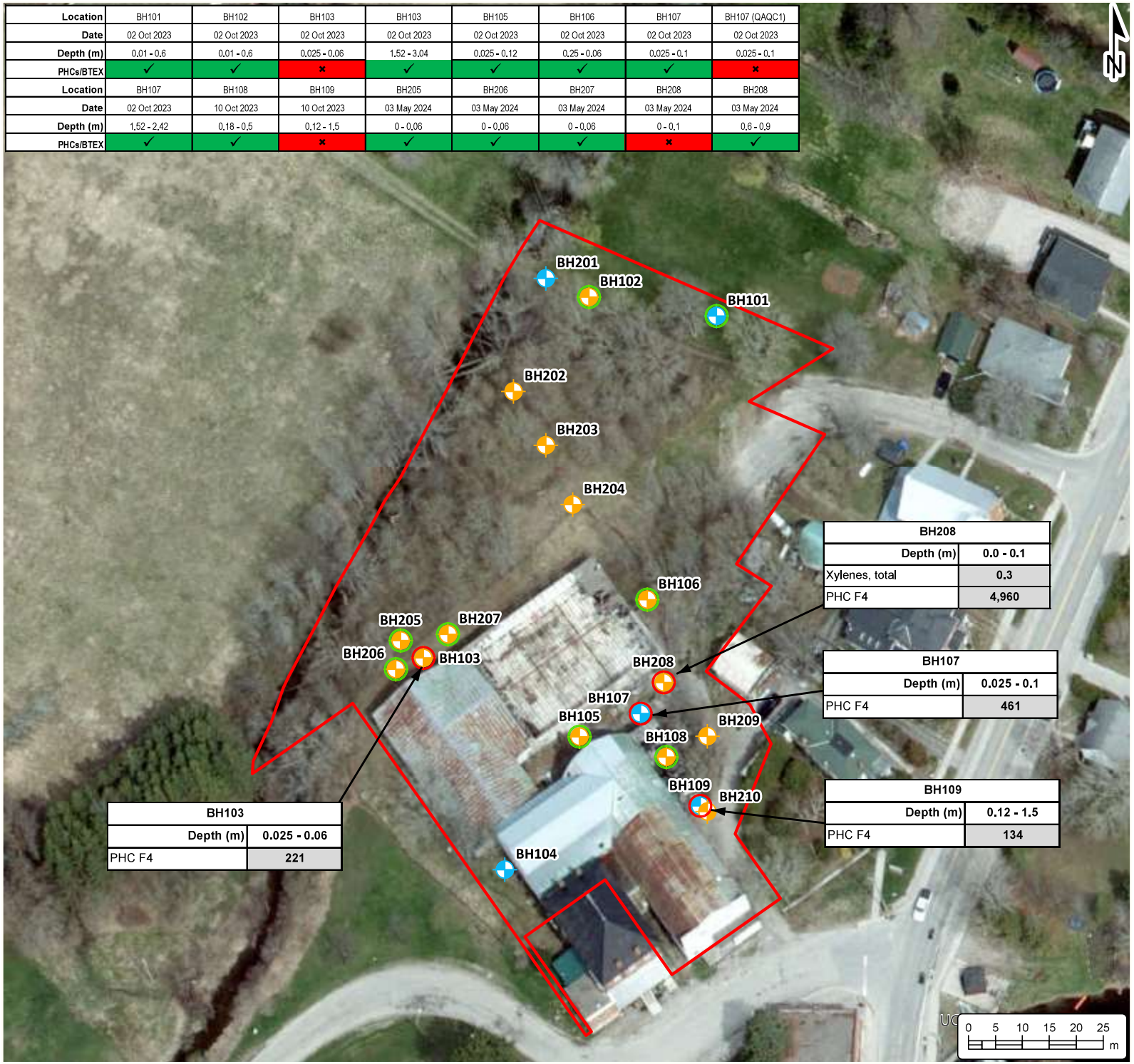
SOIL QUALITY
VOCS

Project No.:	Date: November 2023
17181-001	Rev.: June 2024
Scale: 1:1,000	Projection: NAD 1983 UTM Zone 18N
Created by: TLC	Checked by: LEF
Figure: 5	

O:\GIS\MXDs\17100-17199\17181-001 Rideau Lakes - PH One ESA - Lower Beverley Lake Park Rd, Delta\2024-07-12 Phase Two ESA.aprx

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Location	BH101	BH102	BH103	BH103	BH105	BH106	BH107	BH107 (QAQC1)
Date	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023
Depth (m)	0.01 - 0.6	0.01 - 0.6	0.025 - 0.06	1.52 - 3.04	0.025 - 0.12	0.25 - 0.06	0.025 - 0.1	0.025 - 0.1
PHCs/BTEX	✓	✓	×	✓	✓	✓	✓	×
Location	BH107	BH108	BH109	BH205	BH206	BH207	BH208	BH208
Date	02 Oct 2023	10 Oct 2023	10 Oct 2023	03 May 2024	03 May 2024	03 May 2024	03 May 2024	03 May 2024
Depth (m)	1.52 - 2.42	0.18 - 0.5	0.12 - 1.5	0 - 0.06	0 - 0.06	0 - 0.06	0 - 0.1	0.6 - 0.9
PHCs/BTEX	✓	✓	×	✓	✓	✓	×	✓



BH208	
Depth (m)	0.0 - 0.1
Xylenes, total	0.3
PHC F4	4,960

BH107	
Depth (m)	0.025 - 0.1
PHC F4	461

BH109	
Depth (m)	0.12 - 1.5
PHC F4	134

BH103	
Depth (m)	0.025 - 0.06
PHC F4	221

SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverley Lake Park Road
Delta, Ontario

LEGEND

- Borehole
- Monitoring Well
- Meets Table 8 RPIICC
- Exceeds Table 8 RPIICC
- Site (approximate)

Contaminant	Standard
Xylenes, total	0
PHC F4	120

Standard - Table 8 (RPIICC, potable water)

Notes:
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SOIL QUALITY
PHCs AND BTEX

Project No.:	Date:
17181-001	November 2023
	Rev.: June 2024
Scale: 1:1,000	Projection: NAD 1983 UTM Zone 18N
Created by: TLC	Checked by: LEF
Figure: 6	

O:\GIS\MXDs\17100-17199\17181-001 Rideau Lakes - PH One ESA - Lower Beverley Lake Park Rd, Delta\2024-07-12 Phase Two ESA.aprx

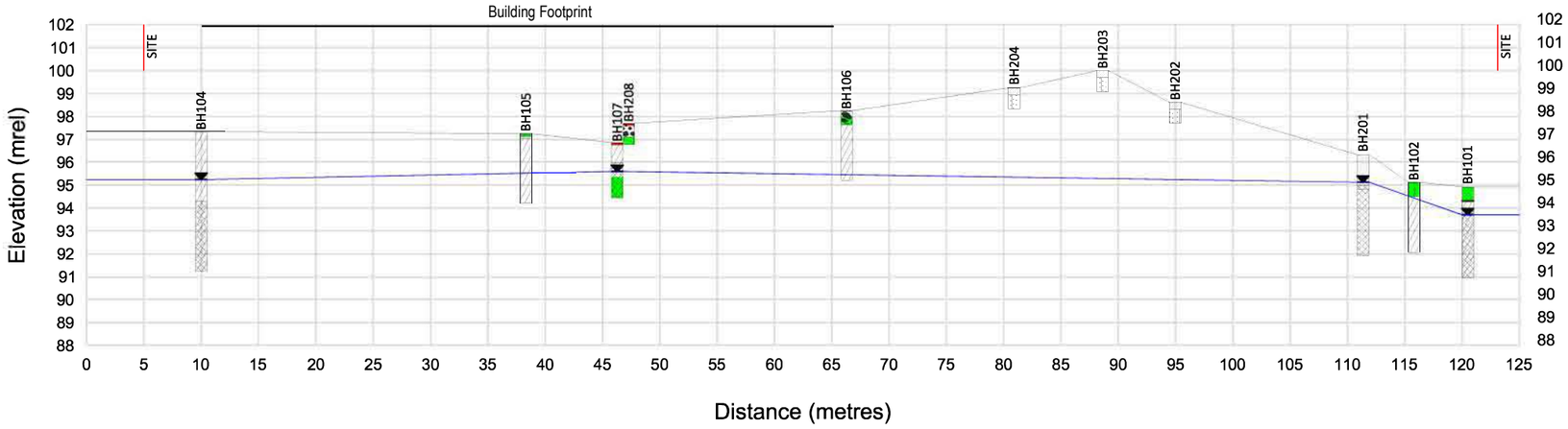
Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Location	BH101	BH102	BH103	BH103	BH105	BH106	BH107	BH107 (QAQC1)
Date	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023
Depth (m)	0.01 - 0.6	0.01 - 0.6	0.025 - 0.06	1.52 - 3.04	0.025 - 0.12	0.25 - 0.06	0.025 - 0.1	0.025 - 0.1
PHCs/BTEX	✓	✓	×	✓	✓	✓	✓	×
Location	BH107	BH108	BH109	BH205	BH206	BH207	BH208	BH208
Date	02 Oct 2023	10 Oct 2023	10 Oct 2023	03 May 2024	03 May 2024	03 May 2024	03 May 2024	03 May 2024
Depth (m)	1.52 - 2.42	0.18 - 0.5	0.12 - 1.5	0 - 0.06	0 - 0.06	0 - 0.06	0 - 0.1	0.6 - 0.9
PHCs/BTEX	✓	✓	×	✓	✓	✓	×	✓

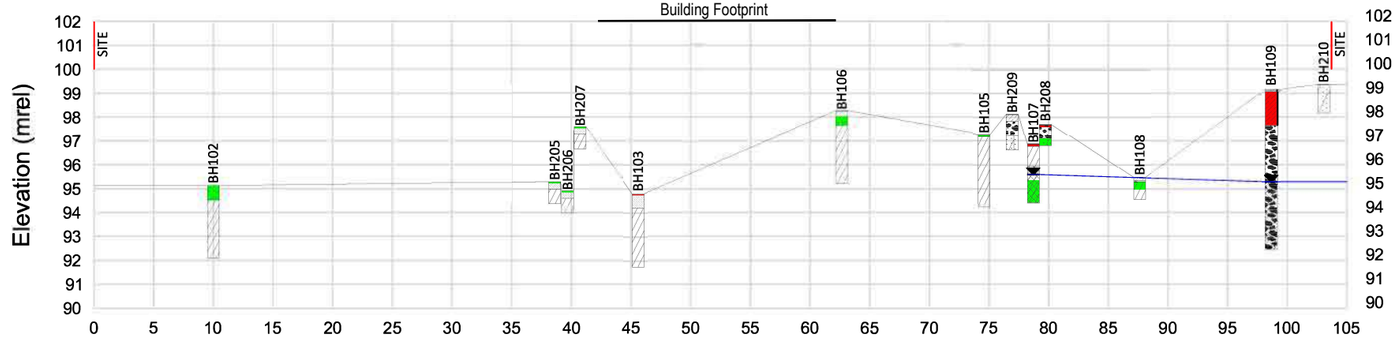
Contaminant	Standard
Xylenes, total	0
PHC F4	120

Standard - Table 8 (RPIICC, potable water)

Cross Section A-A'



Cross Section B-B'



BH103	
Depth (m)	0.025 - 0.06
PHC F4	221

BH107	
Depth (m)	0.025 - 0.1
PHC F4	461

BH109	
Depth (m)	0.12 - 1.5
PHC F4	134

BH208	
Depth (m)	0.0 - 0.1
Xylenes, total	0.3
PHC F4	4,960

SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverly Lake Park Road
Delta, Ontario

LEGEND

- Groundwater Elevation May 9, 2024
- Asphalt
- Concrete
- Fill
- Topsoil
- Clay/Silty Clay
- Silty Sand/Sand
- Gravel/Silty Gravel
- Bedrock
- Well Casing
- Meets Table 8 RPIICC
- Exceeds Table 8 RPIICC
- Well Screen

Notes:
1. Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.

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CROSS SECTIONS PHCs AND BTEX IN SOIL

Project No.:	Date: November 2023
17181-001	Rev.: June 2024
Horizontal Scale: 1:500	Vertical Scale: 1:250 (2x)
Drawn By: TLC	Checked By: LEF
Figure: 7	

P:\17100 to 17199\17181-001 Rideau Lakes - PH One ESA - Lower Beverley Lake Park Rd, Delta\Graphics\Drawings\CAD\2024-07-12 Phase Two ESA.dwg

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Location	BH101	BH102	BH102	BH103	BH105	BH106	BH107	BH107	BH108
Date	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	10 Oct 2023
Depth (m)	0.01 - 0.6	0.01 - 0.6	1.52 - 3.04	0.025 - 0.06	0.025 - 0.12	0.25 - 0.06	0.025 - 0.1	1.52 - 2.42	0.18 - 0.5
PAHs	✓	✗	✓	✓	✓	✓	✓	✓	✓
Location	BH109	BH201	BH201	BH201	BH202	BH203	BH203	BH204	BH204
Date	10 Oct 2023	03 May 2024	03 May 2024	02 May 2024	03 May 2024	03 May 2024	03 May 2024	03 May 2024	03 May 2024
Depth (m)	0.12 - 1.5	0.1 - 0.8	1.52 - 3.04	0.1 - 0.8	0.1 - 0.8	0.1 - 0.8	0.8 - 1	0.1 - 0.8	0.8 - 1
PAHs	✓	✗	✓	✓	✓	✗	✗	✗	✗

BH201	
Depth (m)	0.1 - 0.8
Acenaphthylene	0.25

BH102	
Depth (m)	0.01-0.6
Acenaphthylene	0.38
Benzo(a) pyrene	0.50
Indeno(1,2,3-c,d)pyrene	0.28

BH203		
Depth (m)	0.1 - 0.8	0.8-1.0
Acenaphthylene	0.41	1.15
Anthracene	0.22	0.6
Benzo [a] anthracene	0.42	1.58
Benzo [a] pyrene	0.44	1.56
Benzo [b] fluorothene	0.42	1.44
Benzo [g,h,i] perylene	0.3	0.99
Benzo [k] Fluoranthene	0.26	1
Dibenzo [a,h] anthracene	0.07	0.23
Fluoranthene	0.69	2.34
Indeno [1,2,3-cd] pyrene	0.27	0.88
Pyrene	0.84	3.24

BH204		
Depth (m)	0.1 - 0.8	0.8-1.0
Acenaphthylene	1.34	0.45
Anthracene	0.67	0.18
Benzo [a] anthracene	1.34	0.32
Benzo [a] pyrene	1.41	0.47
Benzo [b] fluorothene	1.4	0.46
Benzo [g,h,i] perylene	0.98	0.39
Benzo [k] fluoranthene	1.11	0.26
Dibenzo [a,h] anthracene	0.25	0.09
Fluoranthene	1.88	0.32
Indeno [1,2,3-cd] pyrene	0.91	0.32
Pyrene	2.71	0.44

BH201 BH102 BH101 BH202 BH203 BH204 BH106 BH205 BH207 BH206 BH103 BH208 BH105 BH107 BH209 BH108 BH109 BH210 BH104

0 5 10 15 20 25 m

SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverley Lake Park Road
Delta, Ontario

LEGEND

- Borehole
- Monitoring Well
- Meets Table 8 RPIICC
- Exceeds Table 8 RPIICC
- Site (approximate)

Contaminant	Standard
Acenaphthylene	0.093
Anthracene	0.22
Benzo [a] anthracene	0.36
Benzo [a] pyrene	0.3
Benzo [b] fluoranthene	0.47
Benzo [g,h,i] perylene	0.68
Benzo [k] fluoranthene	0.48
Fluoranthene	0.56
Indeno [1,2,3-cd] pyrene	0.23
Dibenzo [a,h] anthracene	0.1
Pyrene	1

Standard - Table 8 (RPIICC, potable water)

Notes:
-Site boundaries are approximate.
- Base mapping features are © King's Printer of Ontario, 2022 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
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SOIL QUALITY
PAHs

Project No.:	Date:
17181-001	November 2023
	Rev.: June 2024
Scale: 1:1,000	Projection: NAD 1983 UTM Zone 18N
Created by: TLC	Checked by: LEF
	Figure: 8

O:\GIS\MXDs\17100-17199\17181-001 Rideau Lakes - PH One ESA - Lower Beverley Lake Park Rd, Delta\2024-07-12 Phase Two ESA.aprx

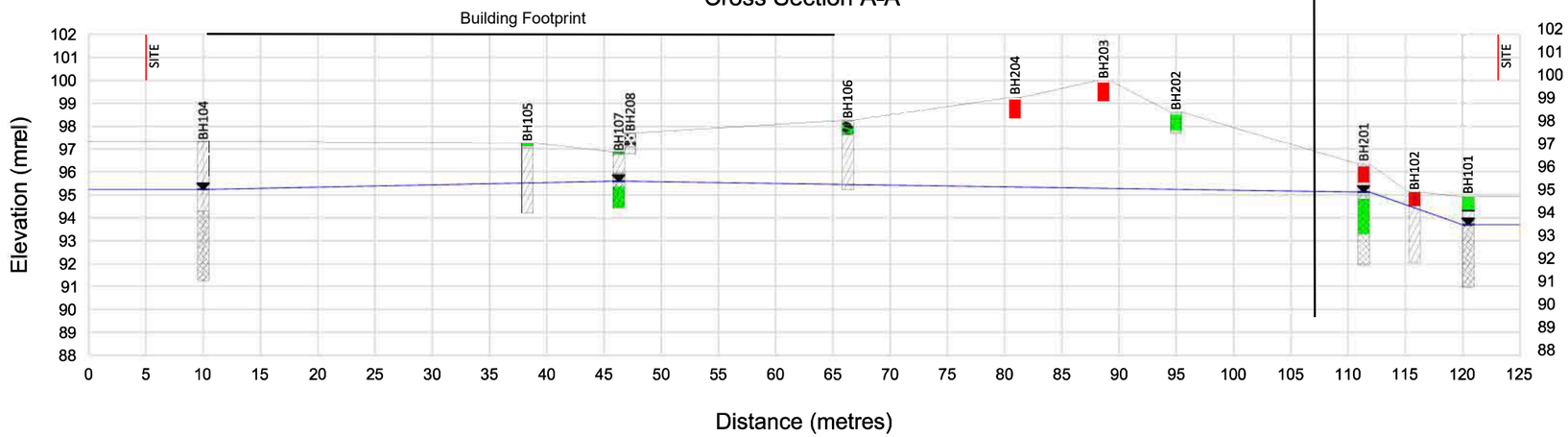
Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Location	BH101	BH102	BH102	BH103	BH105	BH106	BH107	BH107	BH108
Date	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	10 Oct 2023
Depth (m)	0.01 - 0.6	0.01 - 0.6	1.52 - 3.04	0.025 - 0.06	0.025 - 0.12	0.25 - 0.06	0.025 - 0.1	1.52 - 2.42	0.18 - 0.5
PAHs	✓	✖	✓	✓	✓	✓	✓	✓	✓
Location	BH109	BH201	BH201	BH201	BH202	BH203	BH203	BH204	BH204
Date	10 Oct 2023	03 May 2024	03 May 2024	02 May 2024	03 May 2024	03 May 2024	03 May 2024	03 May 2024	03 May 2024
Depth (m)	0.12 - 1.5	0.1 - 0.8	1.52 - 3.04	0.1 - 0.8	0.1 - 0.8	0.1 - 0.8	0.8 - 1	0.1 - 0.8	0.8 - 1
PAHs	✓	✖	✓	✓	✓	✖	✖	✖	✖

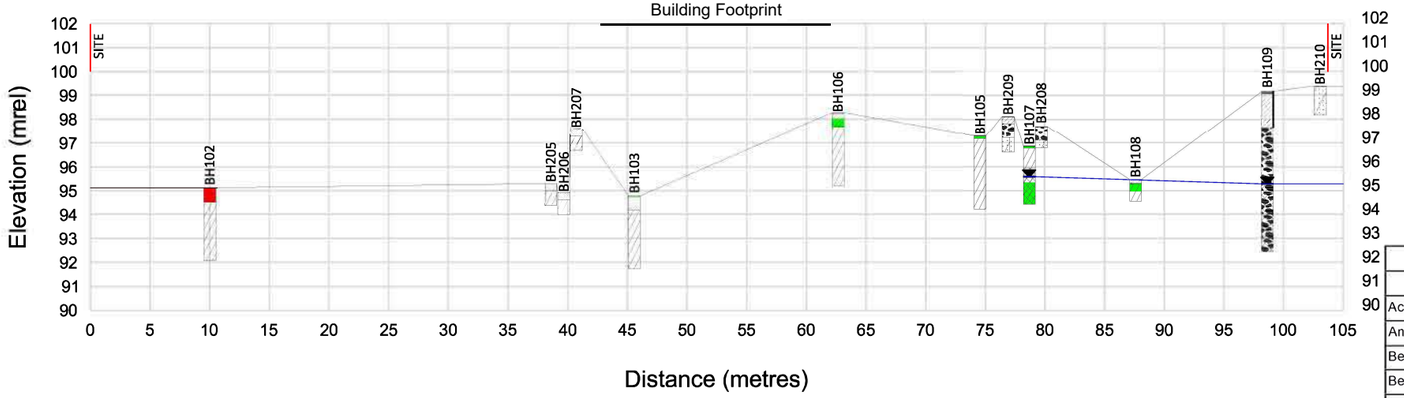
Contaminant	Standard
Acenaphthylene	0.093
Anthracene	0.22
Benzo [a] anthracene	0.36
Benzo [a] pyrene	0.3
Benzo [b] fluoranthene	0.47
Benzo [g,h,i] perylene	0.68
Benzo [k] fluoranthene	0.48
Fluoranthene	0.56
Indeno [1,2,3-cd] pyrene	0.23
Dibenzo [a,h] anthracene	0.1
Pyrene	1

Standard - Table 8 (RPIICC, potable water)

Cross Section A-A'



Cross Section B-B'



BH203		
Depth (m)	0.1 - 0.8	0.8-1.0
Acenaphthylene	**0.41**	**1.15**
Anthracene	0.22	**0.6**
Benzo [a] anthracene	**0.42**	**1.58**
Benzo [a] pyrene	**0.44**	**1.56**
Benzo [b] fluorothene	0.42	**1.44**
Benzo [g,h,i] perylene	0.3	**0.99**
Benzo [k] Fluoranthene	0.26	**1**
Dibenzo [a,h] anthracene	0.07	**0.23**
Fluoranthene	**0.69**	**2.34**
Indeno [1,2,3-cd] pyrene	**0.27**	**0.88**
Pyrene	0.84	**3.24**

BH102	
Depth (m)	0.01-0.6
Acenaphthylene	**0.38**
Benzo(a) pyrene	**0.50**
Indeno(1,2,3-c,d)pyrene	**0.28**

BH201	
Depth (m)	0.1 - 0.8
Acenaphthylene	**0.25**

BH204		
Depth (m)	0.1 - 0.8	0.8-1.0
Acenaphthylene	**1.34**	**0.45**
Anthracene	**0.67**	0.18
Benzo [a] anthracene	**1.34**	0.32
Benzo [a] pyrene	**1.41**	**0.47**
Benzo [b] fluorothene	**1.4**	0.46
Benzo [g,h,i] perylene	**0.98**	0.39
Benzo [k] fluoranthene	**1.11**	0.26
Dibenzo [a,h] anthracene	**0.25**	0.09
Fluoranthene	**1.88**	0.32
Indeno [1,2,3-cd] pyrene	**0.91**	**0.32**
Pyrene	**2.71**	0.44

SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverly Lake Park Road
Delta, Ontario

LEGEND

- Groundwater Elevation May 9, 2024
- Asphalt
- Concrete
- Fill
- Topsoil
- Clay/Silty Clay
- Silty Sand/Sand
- Gravel/Silty Gravel
- Bedrock
- Well Casing
- Meets Table 8 RPIICC
- Exceeds Table 8 RPIICC
- Well Screen

Notes:
1. Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.

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CROSS SECTIONS PAHs IN SOIL

Project No.:	Date: November 2023
17181-001	Rev.: June 2024
Horizontal Scale: 1:500	Vertical Scale: 1:250 (2x)
Drawn By: TLC	Checked By: LEF
Figure: 9	

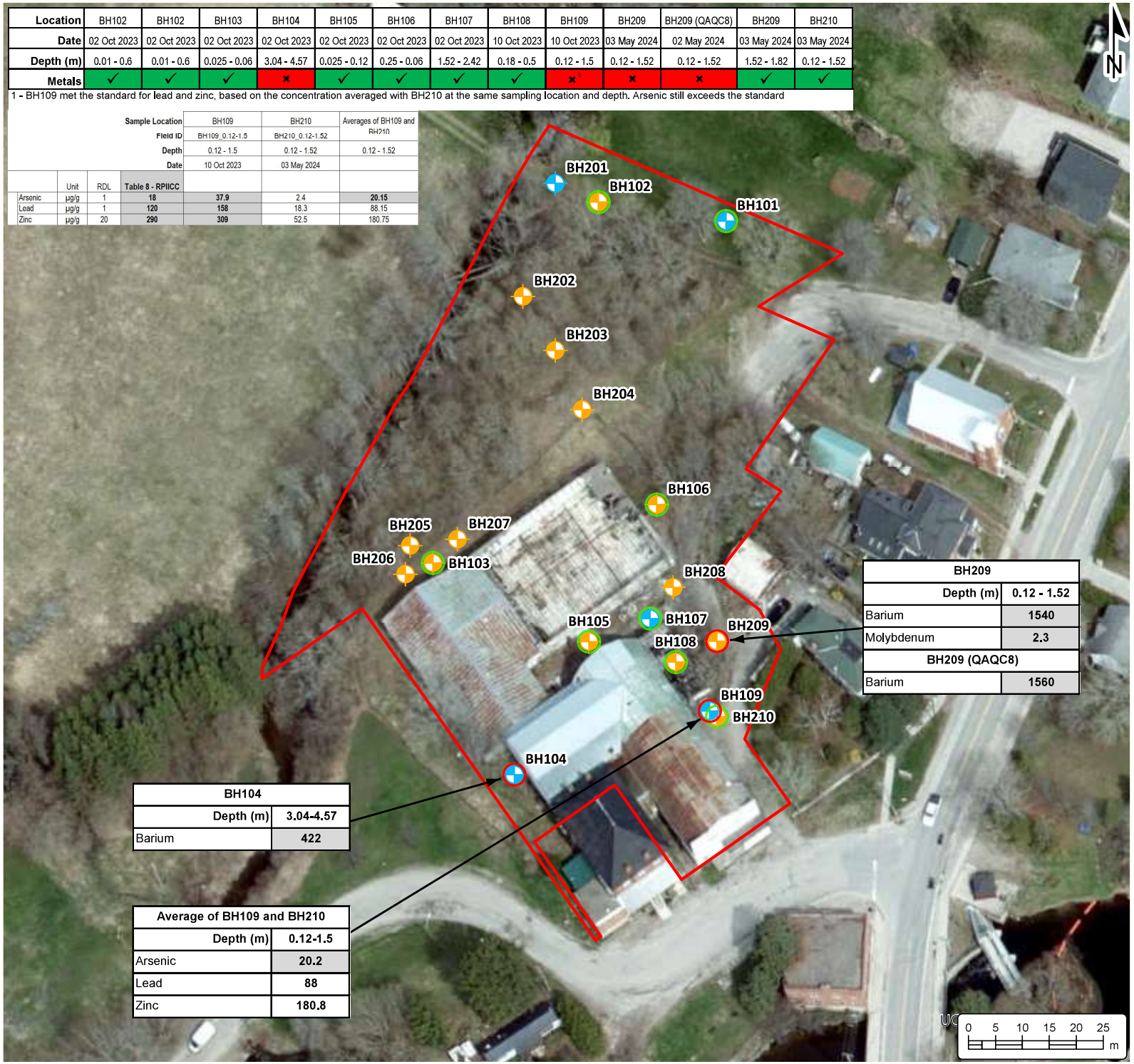
P:\17100 to 17199\17181-001 Rideau Lakes - PH One ESA - Lowe Beverley Lake Park Rd, Delta\Graphics\Drawings\CAD\2024-07-12 Phase Two ESA.dwg

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Location	BH102	BH102	BH103	BH104	BH105	BH106	BH107	BH108	BH109	BH209	BH209 (QAQC8)	BH209	BH210
Date	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	10 Oct 2023	10 Oct 2023	03 May 2024	02 May 2024	03 May 2024	03 May 2024
Depth (m)	0.01 - 0.6	0.01 - 0.6	0.025 - 0.06	3.04 - 4.57	0.025 - 0.12	0.25 - 0.06	1.52 - 2.42	0.18 - 0.5	0.12 - 1.5	0.12 - 1.52	0.12 - 1.52	1.52 - 1.82	0.12 - 1.52
Metals	✓	✓	✓	×	✓	✓	✓	✓	×[1]	×	×	✓	✓

1 - BH109 met the standard for lead and zinc, based on the concentration averaged with BH210 at the same sampling location and depth. Arsenic still exceeds the standard

	Sample Location			BH109	BH210	Averages of BH109 and BH210
	Field ID			BH109_0.12-1.5	BH210_0.12-1.52	
	Depth			0.12 - 1.5	0.12 - 1.52	0.12 - 1.52
	Date			10 Oct 2023	03 May 2024	
		Unit	RDL	Table 8 - RPIICC		
	Arsenic	µg/g	1	**18**	**37.9**	2.4	**20.15**
	Lead	µg/g	1	**120**	**158**	18.3	88.15
	Zinc	µg/g	20	**290**	**309**	52.5	180.75



BH209	
Depth (m)	0.12 - 1.52
Barium	1540
Molybdenum	2.3
BH209 (QAQC8)	
Barium	1560

BH104	
Depth (m)	3.04-4.57
Barium	422

Average of BH109 and BH210	
Depth (m)	0.12-1.5
Arsenic	20.2
Lead	88
Zinc	180.8

SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverley Lake Park Road
Delta, Ontario

LEGEND

- Borehole
- Monitoring Well
- Meets Table 8 RPIICC
- Exceeds Table 8 RPIICC
- Site (approximate)

Contaminant	Standard
Arsenic	**18**
Barium	**220**
Lead	**120**
Zinc	**290**
Molybdenum	**2**

Standard - Table 8 (RPIICC, potable water)

Notes:
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SOIL QUALITY METALS

Project No.:	Date:
17181-001	November 2023
	Rev.: June 2024
Scale: 1:1,000	Projection: NAD 1983 UTM Zone 18N
Created by: TLC	Checked by: LEF
	Figure: 10

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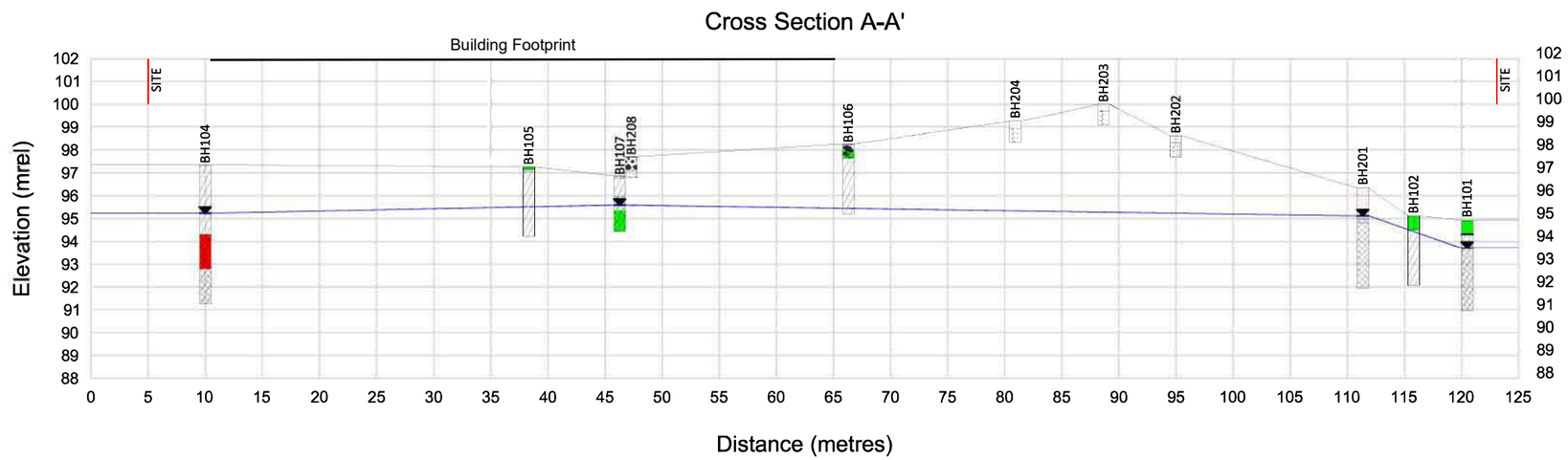
Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

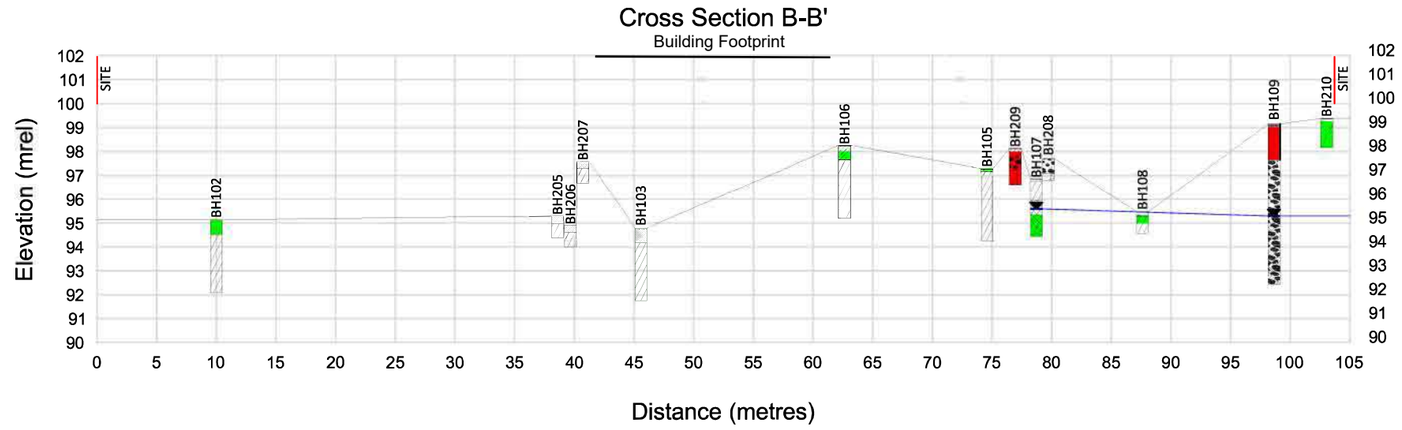
Location	BH102	BH102	BH103	BH104	BH105	BH106	BH107	BH108	BH109	BH209	BH209 (QAQC8)	BH209	BH210
Date	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	10 Oct 2023	10 Oct 2023	03 May 2024	02 May 2024	03 May 2024	03 May 2024
Depth (m)	0.01 - 0.6	0.01 - 0.6	0.025 - 0.06	3.04 - 4.57	0.025 - 0.12	0.25 - 0.06	1.52 - 2.42	0.18 - 0.5	0.12 - 1.5	0.12 - 1.52	0.12 - 1.52	1.52 - 1.82	0.12 - 1.52
Metals	✓	✓	✓	✗	✓	✓	✓	✓	✗[1]	✗	✗	✓	✓

1 - BH109 met the standard for lead and zinc, based on the concentration averaged with BH210 at the same sampling location and depth. Arsenic still exceeds the standard

Contaminant	Standard
Arsenic	18
Barium	220
Lead	120
Zinc	290
Molybdenum	2

Standard - Table 8 (RPIICC, potable water)





Sample Location			BH109	BH210	Averages of BH109 and BH210
Field ID			BH109_0.12-1.5	BH210_0.12-1.52	
Depth			0.12 - 1.5	0.12 - 1.52	0.12 - 1.52
Date			10 Oct 2023	03 May 2024	
	Unit	RDL	Table 8 - RPIICC		
Arsenic	µg/g	1	18	**37.9**	2.4	**20.15**
Lead	µg/g	1	120	**158**	18.3	88.15
Zinc	µg/g	20	290	**309**	52.5	180.75

BH104	
Depth (m)	3.04-4.57
Barium	422

Average of BH109 and BH210	
Depth (m)	0.12-1.5
Arsenic	20.2
Lead	88
Zinc	180.8

BH209	
Depth (m)	0.12 - 1.52
Barium	1540
Molybdenum	2.3
BH209 (QAQC8)	
Barium	1560

SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverly Lake Park Road
Delta, Ontario

LEGEND

- Groundwater Elevation May 9, 2024
- Asphalt
- Concrete
- Fill
- Topsoil
- Clay/Silty Clay
- Silty Sand/Sand
- Gravel/Silty Gravel
- Bedrock
- Well Casing
- Meets Table 8 RPIICC
- Exceeds Table 8 RPIICC
- Well Screen

Notes:
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CROSS SECTIONS
METALS IN SOIL

Project No.: 17181-001	Date: November 2023 Rev.: June 2024
Horizontal Scale: 1:500	Vertical Scale: 1:250 (2x)
Drawn By: TLC	Checked By: LEF
Figure: 11	

P:\17100 to 17199\17181-001 Rideau Lakes - PH One ESA - Lower Beverley Lake Park Rd, Delta\Graphics\Drawings\CAD\2024-07-12 Phase Two ESA.dwg

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Location	BH101	BH101	BH102	BH103	BH104	BH105	BH106	BH109	BH209	BH209 (QAQC8)	BH210
Date	2023-10-02	2023-10-02	2023-10-02	2023-10-02	2023-10-02	2023-10-02	2023-10-02	2023-10-10	2023-10-10	2023-10-10	2023-10-10
Depth (m)	0.01 - 0.6	1.52-2.43	0.01 - 0.6	0.025 - 0.06	3.04 - 4.57	0.025 - 0.12	0.25 - 0.6	0.12 - 1.5	0.12 - 1.5	0.12 - 1.5	0.12 - 1.5
HWS B	-	-	✓	✓	-	✓	✓	✓	-	-	-
CrVI	-	-	✓	✓	✓	✓	✓	✓	-	-	-
CN	-	-	✓	✓	-	✓	✓	✓	-	-	-
EC	-	-	✓	✓	-	✓	✓	✓	-	-	-
Hg	✓	-	✓	✓	-	✓	✓	✓[1]	✓	✓	✓
pH	✓	✓	-	-	✓	-	-	-	-	-	-
SAR	-	-	✓	✓	-	✓	✓	✓	-	-	-

1 - BH109 met the standard, based on the concentration averaged with BH210 at the same sampling location and depth

	Sample Location	BH109	BH210	Averages of BH109 and BH210
	Field ID	BH109_0.12-1.5	BH210_0.12-1.52	
	Depth	0.12 - 1.5	0.12 - 1.52	0.12 - 1.52
	Date	10 Oct 2023	03 May 2024	
	Unit			
	RDL			
	Table 8 - RPIICC			
Mercury	µg/g	0.1	0.27	0.3	<0.1	0.2

Average of BH109 and BH210	
Depth (m)	0.12-1.5
Mercury	0.2

SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverley Lake Park Road
Delta, Ontario

LEGEND

- Borehole
- Monitoring Well
- Meets Table 8 RPIICC
- Exceeds Table 8 RPIICC
- Site (approximate)

Contaminant	Standard
Mercury	0.27

Standard - Table 8 (RPIICC, potable water)

Notes:
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SOIL QUAILTY ORPs

Project No.:	17181-001	Date: / Rev.:	November 2023 / June 2024
Scale:	1:1,000	Projection:	NAD 1983 UTM Zone 18N
Created by:	TLC	Checked by:	LEF
Figure:	12		

O:\GIS\MXDs\17100-17199\17181-001 Rideau Lakes - PH One ESA - Lower Beverley Lake Park Rd, Delta\2024-07-12 Phase Two ESA.aprx

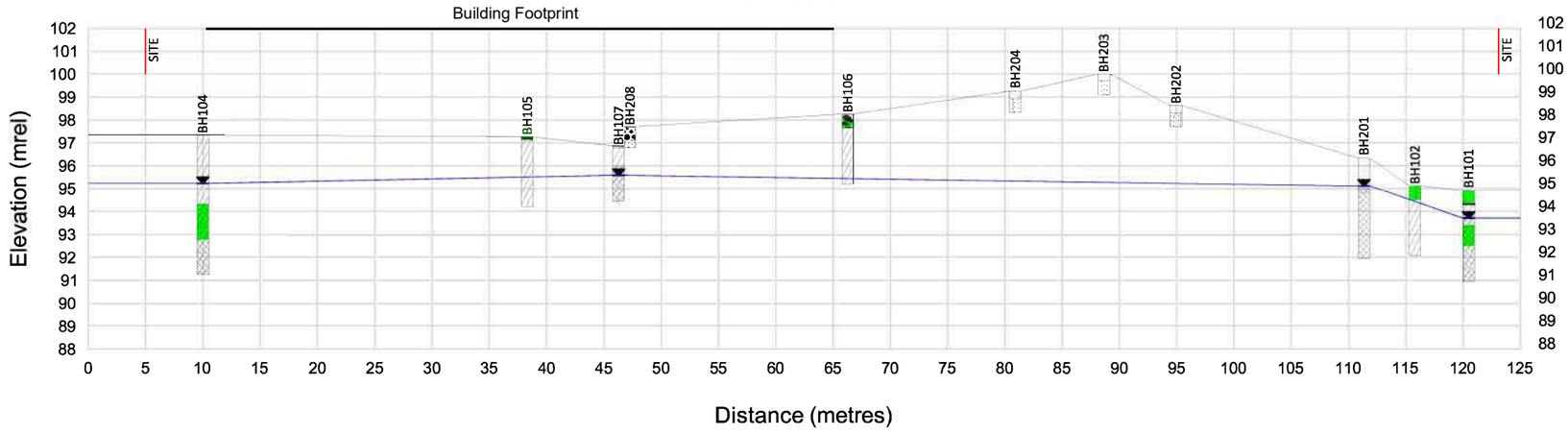
Location	BH101	BH101	BH102	BH103	BH104	BH105	BH106	BH109	BH209	BH209 (QAQC8)	BH210
Date	2023-10-02	2023-10-02	2023-10-02	2023-10-02	2023-10-02	2023-10-02	2023-10-02	2023-10-10	2023-10-10	2023-10-10	2023-10-10
Depth (m)	0.01 - 0.6	1.52-2.43	0.01 - 0.6	0.025 - 0.06	3.04 - 4.57	0.025 - 0.12	0.25 - 0.6	0.12 - 1.5	0.12 - 1.5	0.12 - 1.5	0.12 - 1.5
HWS B	-	-	✓	✓	-	✓	✓	✓	-	-	-
CrVI	-	-	✓	✓	✓	✓	✓	✓	-	-	-
CN	-	-	✓	✓	-	✓	✓	✓	-	-	-
EC	-	-	✓	✓	-	✓	✓	✓	-	-	-
Hg	✓	-	✓	✓	-	✓	✓	✓[1]	✓	✓	✓
pH	✓	✓	-	-	✓	-	-	-	-	-	-
SAR	-	-	✓	✓	-	✓	✓	✓	-	-	-

1 - BH109 met the standard, based on the concentration averaged with BH210 at the same sampling location and depth

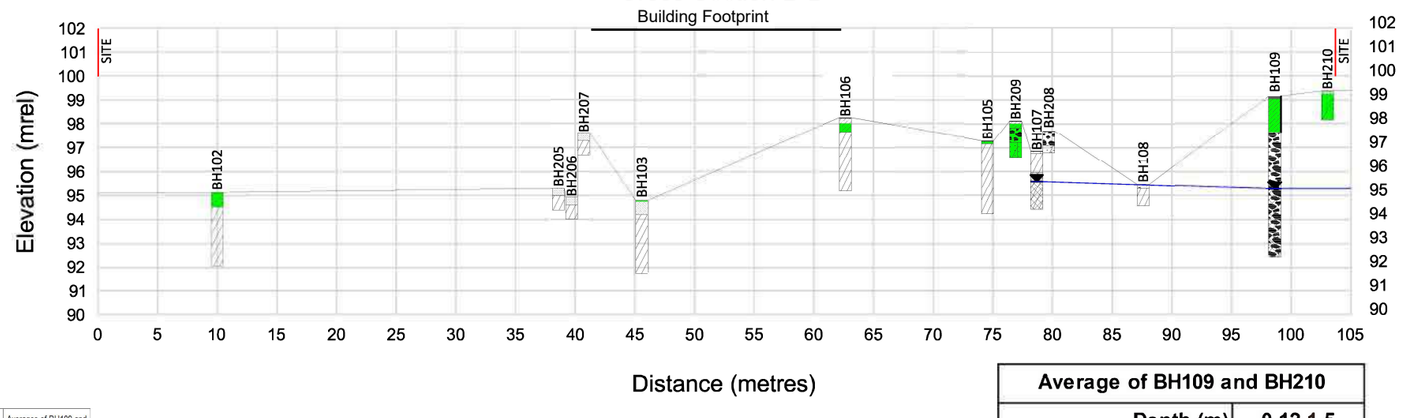
Contaminant	Standard
Mercury	0.27

Standard - Table 8 (RPIICC, potable water)

Cross Section A-A'



Cross Section B-B'



Sample Location	BH109	BH210	Averages of BH109 and BH210
Field ID	BH109_0.12-1.5	BH210_0.12-1.52	
Depth	0.12 - 1.5	0.12 - 1.52	0.12 - 1.52
Date	10 Oct 2023	03 May 2024	

	Unit	RDL	Table 8 - RPIICC			
Mercury	µg/g	0.1	**0.27**	**0.3**	<0.1	0.2

Average of BH109 and BH210	
Depth (m)	0.12-1.5
Mercury	**0.2**

SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverly Lake Park Road
Delta, Ontario

LEGEND

- Groundwater Elevation October 16, 2023
- Asphalt
- Concrete
- Fill
- Topsoil
- Clay/Silty Clay/Silty Sand/Sand
- Gravel/Silty Gravel
- Bedrock
- Well Casing
- Meets Table 8 RPIICC
- Exceeds Table 8 RPIICC
- Well Screen

Notes:
1. Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.

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CROSS SECTIONS
ORPs IN SOIL

Project No.:	Date: November 2023
17181-001	Rev.: June 2024
Horizontal Scale: 1:500	Vertical Scale: 1:250 (2x)
Drawn By: TLC	Checked By: LEF
Figure: 13	

P:\17100 to 17199\17181-001 Rideau Lakes - PH One ESA - Lower Beverley Lake Park Rd, Delta\Graphics\Drawings\CAD\2024-07-12 Phase Two ESA.dwg

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Location	BH104	BH107
Date	11 Oct 2023	11 Oct 2023
VOCs	✓	✓

WELL ID	TOP OF SCREEN (mrel)	BOTTOM OF SCREEN (mrel)
BH101	94.89	91.84
BH104	95.15	92.1
BH107	95.85	94.35
BH109	95.38	92.33
BH201	95.71	92.66

SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverley Lake Park Road
Delta, Ontario

LEGEND

- Borehole
- Monitoring Well
- Meets Table 8 RPIICC
- Exceeds Table 8 RPIICC
- Site (approximate)

Contaminant	Standard
Cobalt	3.8

Standard - Table 8 (RPIICC, potable water)

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GROUNDWATER QUALITY VOCs

Project No.:	17181-001	Date: / Rev.:	November 2023 / June 2024
Scale:	1:1,000	Projection:	NAD 1983 UTM Zone 18N
Created by:	TLC	Checked by:	LEF
Figure:	14		

O:\GIS\MXDs\17100-17199\17181-001 Rideau Lakes - PH One ESA - Lower Beverley Lake Park Rd, Delta\2024-07-12 Phase Two ESA.aprx

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Location	BH101	BH107	BH109
Date	11 Oct 2023	11 Oct 2023	16 Oct 2023
PHCs/BTEX	✓	✓	✓

WELL ID	TOP OF SCREEN (mrel)	BOTTOM OF SCREEN (mrel)
BH101	94.89	91.84
BH104	95.15	92.1
BH107	95.85	94.35
BH109	95.38	92.33
BH201	95.71	92.66

SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverley Lake Park Road
Delta, Ontario

LEGEND

- Borehole
- Monitoring Well
- Meets Table 8 RPIICC
- Exceeds Table 8 RPIICC
- Site (approximate)

Contaminant	Standard
Cobalt	3.8

Standard - Table 8 (RPIICC, potable water)

Notes:
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GROUNDWATER QUALITY PHCs AND BTEX

Project No.: 17181-001		Date: November 2023 Rev.: June 2024	
Scale: 1:1,000		Projection: NAD 1983 UTM Zone 18N	
Created by: TLC	Checked by: LEF	Figure: 15	

O:\GIS\MXDs\17100-17199\17181-001 Rideau Lakes - PH One ESA - Lower Beverley Lake Park Rd, Delta\2024-07-12 Phase Two ESA.aprx

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Location	BH101	BH107	BH109	BH201
Date	11 Oct 2023	11 Oct 2023	16 Oct 2023	06 May 2024
PAHs	✓	✓	✓	✓

WELL ID	TOP OF SCREEN (mrel)	BOTTOM OF SCREEN (mrel)
BH101	94.89	91.84
BH104	95.15	92.1
BH107	95.85	94.35
BH109	95.38	92.33
BH201	95.71	92.66

SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverley Lake Park Road,
Delta, Ontario

LEGEND

- Borehole
- Monitoring Well
- Meets Table 8 RPIICC
- Exceeds Table 8 RPIICC
- Site (approximate)

Contaminant	Standard
Cobalt	3.8

Standard - Table 8 (RPIICC, potable water)

Notes:
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GROUNDWATER QUALITY PAHs

Project No.:	17181-001	Date: / Rev.:	November 2023 / June 2024
Scale:	1:1,000	Projection:	NAD 1983 UTM Zone 18N
Created by:	TLC	Checked by:	LEF
Figure:	16		

O:\GIS\MXDs\17100-17199\17181-001 Rideau Lakes - PH One ESA - Lower Beverley Lake Park Rd, Delta\2024-07-12 Phase Two ESA.aprx

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Location	BH101	BH104	BH107	BH109
Date	11 Oct 2023	11 Oct 2023	12 Dec 2023	16 Oct 2023
Metals	✓	✓	✓	✓

WELL ID	TOP OF SCREEN (mrel)	BOTTOM OF SCREEN (mrel)
BH101	94.89	91.84
BH104	95.15	92.1
BH107	95.85	94.35
BH109	95.38	92.33
BH201	95.71	92.66

SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverley Lake Park Road,
Delta, Ontario

LEGEND

- Borehole
- Monitoring Well
- Meets Table 8 RPIICC
- Exceeds Table 8 RPIICC
- Site (approximate)

Notes:
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GROUNDWATER QUALITY METALS

Project No.: 17181-001		Date: November 2023 Rev.: June 2024	
Scale: 1:1,000		Projection: NAD 1983 UTM Zone 18N	
Created by: TLC	Checked by: LEF	Figure: 17	

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Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Location	BH101	BH104	BH107	BH107	BH109
Date	13 Oct 2023	11 Oct 2023	11 Oct 2023	12 Dec 2023	16 Oct 2023
ORPs	✓	✓	✓	✓	✓

WELL ID	TOP OF SCREEN (mrel)	BOTTOM OF SCREEN (mrel)
BH101	94.89	91.84
BH104	95.15	92.1
BH107	95.85	94.35
BH109	95.38	92.33
BH201	95.71	92.66

SCREENING LEVEL RISK ASSESSMENT

TOWNSHIP OF RIDEAU LAKES
Lower Beverley Lake Park Road,
Delta, Ontario

LEGEND

- Borehole
- Monitoring Well
- Meets Table 8 RPIICC
- Exceeds Table 8 RPIICC
- Site (approximate)

Contaminant	Standard
Cobalt	3.8

Standard - Table 8 (RPIICC, potable water)

Notes:
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GROUNDWATER QUALITY ORPs

Project No.:	17181-001	Date: / Rev.:	November 2023 / June 2024
Scale:	1:1,000	Projection:	NAD 1983 UTM Zone 18N
Created by:	TLC	Checked by:	LEF
Figure:	18		

O:\GIS\MXDs\17100-17199\17181-001 Rideau Lakes - PH One ESA - Lower Beverley Lake Park Rd, Delta\2024-07-12 Phase Two ESA.aprx

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Appended Tables

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Table 1 - Potentially Contaminating Activities

PCA ID #	Potentially Contaminating Activity[1]	Location of PCA	PCA Description	APEC[2] (Yes/No)
1	#30 - Importation of fill material of unknown quality	Onsite - driveways, walkways, and former parking areas	Based on site observations, and review of aerial images, the importation of fill material is likely	Yes
2	Other - Salt application for pedestrian and vehicle safety	Onsite - driveways, walkways, and former parking areas	Salt was likely applied for safety in the winter months	Yes
3	#28 - Gasoline and associated product storage in fixed tanks	Onsite - central-east portion of the building, adjacent to the boiler	Boiler and two steel ATSs were observed in the central-east portion of the building	Yes
4	#34 - Metal fabrication	Onsite - central east portion of the building	From about the 1950s to 1960s, aluminum was cut and assembled into canoes, and a dedicated paint area was present to paint canoes	Yes
5	Other - Staining	Onsite - central section in loading bay area between original building and warehouse addition	Large areas of black staining were observed in the loading bay area between original building and warehouse addition	Yes
6	Other - Coal-fired heating	Off-site - behind 34 King Street (Highway/County Road 42) (adjacent to northeast, upgradient)	Based on a review of historical information available, a brickyard was present adjacent to the northeast of the Site, coal-fired heating was possibly present to fire bricks	Yes
7	#32 - Iron and steel manufacturing and processing	Off-site - Former 351 and 362 Dick Street (80 m east, cross-gradient)	A foundry with a wood working shop was noted in the 1897 FIP	No
8	#53 - Tannery	Off-site - Former 602 Main Street (260 m southwest, downgradient)	A Tannery (silent) was noted in the 1897 FIP	No
9	#28 - Gasoline and associated product storage in fixed tanks	Off-site - 41 King Street (Highway/County Road 42) (78 m east, cross to down-gradient)	ERIS report identified an RFO with two double-walled fiberglass gasoline USTs	No
10	#54 - Textile manufacturing and processing	Off-site - 55 King Street (Highway/County Road 42), (75 m south, downgradient)	Registered for the manufacturing for design services, established in 1979 (which can include clothing and textile design, floats, theatrical designs)	No

Notes:

1. Potentially Contaminating Activity (PCA) means a use or activity set out in Column A of Table 2 of Schedule D that is occurring or has occurred in the phase one study area.
2. Area of Potential Environmental Concern (APEC) means the area on, in, or under a phase one property where one or more contaminants are potentially present.

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Table 2 - Areas of Potential Environmental Concern

APEC[1]	Location of APEC on Phase One Property	PCA[2]		Location of PCA	Contaminants of Potential Concern[3]	Media Potentially Impacted
1	driveways, walkways, and former parking areas	1	#30 - Importation of fill material of unknown quality	Onsite - driveways, walkways, and former parking areas	PHCs, VOCs, PAHs, metals, hydride-forming metals, HWS B, CrVI, Hg, CN, EC, SAR	Soil
2	driveways, walkways, and former parking areas	2	Other - Salt application for pedestrian and vehicle safety	Onsite - driveways, walkways, and former parking areas	EC, SAR	Soil
3	central-east portion of the building, adjacent to the boiler	3	#28 - Gasoline and associated product storage in fixed tanks	Onsite - central-east portion of the building, adjacent to the boiler	BTEX, PHCs, PAHs, metals, hydride-forming metals	Soil and Groundwater
4	central portion of the building	4	#34 - Metal fabrication	Onsite - central east portion of the building	VOCs, metals, hydride-forming metals, CrVI	Soil and Groundwater
5	central section in loading bay area between original building and warehouse addition	5	Other - Staining	Onsite - central section in loading bay area between original building and warehouse addition	BTEX, PHCs, PAHs, metals, hydride-forming metals	Soil and Groundwater
6	Northeast portion of the Site	6	Other - Coal-fired heating	Off-site - behind 34 King Street (Highway/County Road 42)	BTEX, PHCs, PAHs, metals, hydride-forming metals, and Hg	Groundwater

Notes:

1. Area of Potential Environmental Concern (APEC) means the area on, in, or under a phase one property where one or more contaminants are potentially present.
2. Potentially Contaminating Activity (PCA) means a use or activity set out in Column A of Table 2 of Schedule D that is occurring or has occurred in the phase one study area.
3. Method groups as defined in Protocol for in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, March 9, 2004, amended as of July 1, 2011

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Table 3 - Soil Quality

				Sample Location	BH101	BH101	BH102			BH102	BH103	BH103	BH104		BH105	BH106	BH107			BH107	BH108	BH109	BH201		BH201	BH202	BH203	BH203	BH204	BH204
				Field ID	BH101_0.010-0.6	BH101_1.52-2.43	BH102_0.010-0.60	QAQC4	QAQC5	BH102_1.52-3.04	BH103_0.025-0.06	BH103_1.52-3.04	BH104_3.04-4.57	QAQC3	BH105_0.025-0.12	BH106_0.25-0.06	BH107_0.025-0.10	QAQC1	QAQC2	BH107_1.52-2.42	BH108_0.18-0.50	BH109_0.12-1.5	BH201_0.1-0.8	QAQC6	BH201_1.52-3.04	BH202_0.1-0.8	BH203_0.1-0.8	BH203_0.8-1.0	BH204_0.1-0.8	BH204_0.8-1.0
				Depth	0.01 - 0.6	1.52 - 2.43	0.01 - 0.6	0.01 - 0.6	0.01 - 0.6	1.52 - 3.04	0.025 - 0.06	1.52 - 3.04	3.04 - 4.57	3.04 - 4.57	0.025 - 0.12	0.25 - 0.06	0.025 - 0.1	0.025 - 0.1	0.025 - 0.1	1.52 - 2.42	0.18 - 0.5	0.12 - 1.5	0.1 - 0.8	0.1 - 0.8	1.52 - 3.04	0.1 - 0.8	0.1 - 0.8	0.8 - 1	0.1 - 0.8	0.8 - 1
				Date	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	10 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	02 Oct 2023	10 Oct 2023	10 Oct 2023	03 May 2024	02 May 2024	03 May 2024	03 May 2024	03 May 2024	03 May 2024	03 May 2024	03 May 2024
	Unit	EQL	Table 8 - RPIICC																											
BTEX																														
Benzene	µg/g	0.02	**0.02**	<0.02	-	<0.02	<0.02	-	-	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	-
Toluene	µg/g	0.05	**0.2**	<0.05	-	<0.05	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-
Ethylbenzene	µg/g	0.05	**0.05**	<0.05	-	<0.05	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-
Xylene Total	µg/g	0.05	**0.05**[#1]	<0.05	-	<0.05	<0.05	-	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-
PHCs																														
F1	µg/g	7	**25**[#2]	<7	-	<7	<7	-	-	<7	-	-	-	<7	<7	<7	<7	<7	-	<7	<7	<7	-	-	-	-	-	-	-	-
F2	µg/g	4	**10**[#3]	<4	-	<4	<4	-	-	<4	<4	-	-	<4	<4	<4	<4	<4	-	<4	<4	<4	-	-	-	-	-	-	-	-
F3	µg/g	8	**240**[#4]	<8	-	72	38	-	-	78	<8	-	-	<8	18	12	39	-	-	<8	<8	39	-	-	-	-	-	-	-	-
F4	µg/g	6	**120**	<6	-	112	76	-	-	**141**	<6	-	-	<6	22	117	**319**	-	-	<6	<6	**134**	-	-	-	-	-	-	-	-
F4G-SG (GHH-Silica)	µg/g	50	**120**	-	-	106	-	-	-	**221**	-	-	-	-	-	-	**461**	-	-	-	-	-	-	-	-	-	-	-	-	-
PAHs																														
Acenaphthene	µg/g	0.02	**0.072**	<0.02	-	<0.02	-	-	-	<0.02	<0.02	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.04	<0.02
Acenaphthylene	µg/g	0.02	**0.093**	<0.02	-	**0.38**	-	-	-	<0.02	<0.02	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	**0.25**	<0.02	<0.02	0.03	**0.41**	**1.15**	**1.34**	**0.45**
Anthracene	µg/g	0.02	**0.22**	<0.02	-	0.12	-	-	-	<0.02	<0.02	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	0.11	<0.02	<0.02	<0.02	0.22	**0.6**	**0.67**	0.18
Benz(a)anthracene	µg/g	0.02	**0.36**	<0.02	-	0.3	-	-	-	<0.02	0.03	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	0.12	<0.02	<0.02	0.02	**0.42**	**1.58**	**1.34**	0.32
Benzo(a)pyrene	µg/g	0.02	**0.3**	<0.02	-	**0.5**	-	-	-	<0.02	0.03	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	0.2	<0.02	<0.02	0.03	**0.44**	**1.56**	**1.41**	**0.47**
Benzo(g,h,i)perylene	µg/g	0.02	**0.68**	<0.02	-	0.38	-	-	-	<0.02	0.04	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	0.04	0.2	<0.02	<0.02	0.03	0.3	**0.99**	**0.98**	0.39
Benzo(k)fluoranthene	µg/g	0.02	**0.48**	<0.02	-	0.24	-	-	-	<0.02	0.02	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	0.13	<0.02	<0.02	0.03	0.26	**1**	**1.11**	0.26
Benzo(b/j)fluoranthene	µg/g	0.02	**0.47**[#5]	<0.02	-	0.41	-	-	-	<0.02	0.04	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	0.03	0.27	<0.02	<0.02	0.05	0.42	**1.44**	**1.4**	0.46
Chrysene	µg/g	0.02	**2.8**	<0.02	-	0.27	-	-	-	<0.02	0.03	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	0.03	0.1	<0.02	<0.02	0.02	0.33	1.22	1.01	0.27
Dibenz(a,h)anthracene	µg/g	0.02	**0.1**	<0.02	-	0.07	-	-	-	<0.02	<0.02	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	0.07	**0.23**	**0.25**	0.09
Fluoranthene	µg/g	0.02	**0.69**	<0.02	-	0.23	-	-	-	<0.02	0.08	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	0.03	0.15	<0.02	<0.02	0.03	0.69	**2.34**	**1.88**	0.32
Fluorene	µg/g	0.02	**0.19**	<0.02	-	<0.02	-	-	-	<0.02	<0.02	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02
Indeno(1,2,3-c,d)pyrene	µg/g	0.02	**0.23**	<0.02	-	**0.28**	-	-	-	<0.02	0.02	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	0.02	0.16	<0.02	<0.02	0.02	**0.27**	**0.88**	**0.91**	**0.32**
Methylnaphthalene 1 & 2	µg/g	0.04	**0.59**[#6]	<0.04	-	<0.04	-	-	-	<0.04	<0.04	-	-	-	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Naphthalene	µg/g	0.01	**0.09**	<0.01	-	0.01	-	-	-	<0.01	<0.01	-	-	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.02	0.03	0.05	<0.01
Phenanthrene	µg/g	0.02	**0.69**	<0.02	-	0.04	-	-	-	<0.02	0.07	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	0.12	0.33	0.39	0.03
Pyrene	µg/g	0.02	**1**	<0.02	-	0.37	-	-	-	<0.02	0.06	-	-	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	0.03	0.22	<0.02	<0.02	0.04	0.84	**3.24**	**2.71**	0.44
VOCs																														
Acetone	µg/g	0.5	**0.5**	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-
Bromomethane	µg/g	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	-	-	-	-	-	-	-	-
Bromodichloromethane	µg/g	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	-	-	-	-	-	-	-	-
Chlorobenzene	µg/g	0.05	**0.05**	-	-	<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	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Dibromoethane,1,2-	µg/g	0.05	**0.05**	-	-	<0.05	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Dichlorobenzene, 1,2-	µg/g	0.05	**0.05**	-	-	<0.05	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Dichlorobenzene, 1,3-	µg/g	0.05	**0.05**	-	-	<0.05	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Dichlorobenzene, 1,4-	µg/g	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	-	-	-	-	-	-	-	-
Dichloroethane, 1,1-	µg/g	0.05	**0.05**	-	-	<0.05	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Dichloroethane, 1,2-	µg/g	0.05	**0.05**	-	-	<0.05	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Dichloroethylene, 1,1-	µg/g	0.05	**0.05**	-	-	<0.05	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Dichloroethylene, 1,2-trans-	µg/g	0.05	**0.05**	-	-	<0.05	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Dichloroethylene, 1,2-cis-	µg/g	0.05	**0.05**	-	-	<0.05	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Dichloromethane	µg/g	0.05	**0.05**	-	-	<0.05	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Dichloropropane, 1,2-	µg/g	0.05	**0.05**	-	-	<0.05	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Dichloropropene, 1,3- cis & trans	µg/g	0.05	**0.05**[#7]	-	-	<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	-	-	-	-	-	-	-	-
Hexane	µg/g	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**	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-
Methyl Iso-Butyl Ketone	µg/g	0.5	**0.5**	-	-	<0.50	-	-	-	<0.50	-	-	<0.50	<0.50	<0.50	<0.50	-	-	-	-	-	<0.50	-	-	-	-	-	-	-	-
MTBE	µg/g	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	-	-	-	-	-	-	-	-
Tetrachloroethylene	µg/g	0.05	**0.05**	-	-	<0.05	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Tetrachloroethane, 1,1,1,2-	µg/g	0.05	**0.05**	-	-	<0.05	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Tetrachloroethane, 1,1,2,2-	µg/g	0.05	**0.05**	-	-	<0.05	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Trichloroethane, 1,1,1-	µg/g	0.05	**0.05**	-	-	<0.05	-	-	-	<0.05	-	-	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	<0.05	-	-	-	-	-	-	-	-
Trichloroethane, 1,1,2-	µg/g	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	-	-	-	-	-	-	-	-
Trichlorofluoromethane	µg/g	0.05	**0.25**	-	-	<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	-	-	-	-	-	-	-	-
Metals																														
Antimony	µg/g	1	**1.3**	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	<1.0	<1.0	-	-	-	<1.0	<1.0	<1.0	-	-	-	-	-	-	-	-
Arsenic	µg/g	1	**18**	2.7	-	3.3	-	2.9	-	3	-	3.2	-	4.2	2.7	-	-	-	-	1.8	2.1	**37.9**	-	-	-	-	-	-	-	-
Barium	µg/g	1	**220**	181	-	78	-	80.5	-	105	-	**422**	-	143	57.3	-	-	-	-	78	28.9	215	-	-	-	-	-	-	-	-
Beryllium	µg/g	0.5	**2.5**	0.5	-	<0.5	-	<0.5	-	<0.5	-	1	-	0.6	<0.5	-	-	-	-	<0.5	1.5	0.8	-	-	-	-	-	-	-	-
Boron	µg/g	5	**36**[#8]	10.6	-	6.2	-	6.2	-	8.7	-	11.4	-	7.4	9.6	-	-	-	-	<5.0	<5.0	14.5	-	-	-	-	-	-	-	-
Cadmium	µg/g	0.5	**1.2**	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	-	<0.5	<0.5	-	-	-	-	<0.5	<0.5	1	-	-	-	-	-	-	-	-
Chromium (III+VI)	µg/g	5	**70**	25.8	-	15.2	-	15.8	-	27.3	-	58.2	-	31.5	21	-	-	-	-	18.4	10.9	19.1	-	-	-	-	-	-	-	-
Cobalt	µg/g	1	**22**	7.2	-	6	-	5.9	-	6.8	-	18.6	-	8.8	3.7	-	-	-	-	6.2	4.7	17.8	-	-	-	-	-	-	-	-
Copper	µg/g	5	**92**	19.1	-	12.3	-	12.5	-	13.9	-	33.9	-	29.9	12.1	-	-	-	-	12.5	10.3	65.7	-	-	-	-	-	-	-	-
Lead	µg/g	1	**120**	68.1	-	64	-	80	-	74.9	-	9	-	33	20.6	-	-	-	-	3.4	3.8	**158**	-	-	-	-	-	-	-	-
Molybdenum	µg/g	1	**2**	<1.0	-	<1.0	-	<1.0	-	1	-	<1.0	-	1.7	1.3	-	-	-	-	<1.0	<1.0	1.3	-	-	-	-	-	-	-	-
Nickel	µg/g	5	**82**	14.9	-	9.6	-	9.5	-	11.6	-	38.4	-	17.6	10.8	-	-	-	-	10.4	6.2	20.9	-	-	-	-	-	-	-	-
Selenium	µg/g	1	**1.5**	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	<1.0	-	-	-	-	<1.0	1.5	<1.0	-	-	-	-	-	-	-	-
Silver	µg/g	0.3	**0.5**	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	<0.3	-	-	-	-	<0.3	<0.3	<0.3	-	-	-	-	-	-	-	-
Thallium	µg/g	1	**1**	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	<1.0	-	-	-	-	<1.0	<1.0	<1.0	-	-	-	-	-	-	-	-
Uranium	µg/g	1	**2.5**	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	<1.0	-	-	-	-	<1.0	<1.0	<1.0	-	-	-	-	-	-	-	-
Vanadium	µg/g	10	**86**	36.5	-	22.9	-	23.7	-	32.7	-	69.3	-	45.4	30.1	-	-	-	-	31.4	26.7	28.5	-	-	-	-	-	-	-	-
Zinc	µg/g	20	**290**	86.6	-	44.9	-	47.7	-	207	-	95.5	-	142	26.9	-	-	-	-	24.4	<20.0	**309**	-	-	-	-	-	-	-	-
ORPs																														
Boron (hot water soluble)	µg/g	0.5	**1.5**[#9]	-	-	<0.5	-	<0.5	-	<0.5	-	-	-	<0.5	<0.5	-	-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-
Chromium (hexavalent)	µg/g	0.2	**0.66**	-	-	<0.2	-	<0.2	-	<0.2	-	0.3	-	0.4	<0.2	-	-	-	-	-	-	<0.2	-	-	-	-	-	-	-	-
Cyanide (Free)	ug/g	0.03		-	-	<0.03	-	-	-	<0.03	-	-	-	<0.03	<0.03	-	-	-	-	-	-	<0.03	-	-	-	-	-	-	-	-
Electrical Conductivity (Lab)	µS/cm	5	**700**	-	-	130	-	-	-	220	-	-	-	187	169	-	-	-	-	-	-	185	-	-	-	-	-	-	-	-
Mercury	µg/g	0.1	**0.27**	<0.1	-	<0.1	-	<0.1	-	<0.1	-	-	-	<0.1	<0.1	-	-	-	-	-	-	**0.3**	-	-	-	-	-	-	-	-
pH (Lab)	-	0.05	**5-9**	7.77	7.85	-	-	-	-	-	-	7.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio	-	0.01	**5**	-	-	0.09	-	-	-	0.08	-	-	-	0.09	0.09	-	-	-	-	-	-	0.11	-	-	-	-	-	-	-	-

Comments

#1 Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be summed for comparison.
#2 Standard is applicable to PHC in the F1 range minus BTEX.
#3 Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analyzed, the standard is applied to F2.
#4 Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs have not been measured, the standard is applied to F3.
#5 Standard is for benzo(b)fluoranthene; however, the laboratory can not distinguish between benzo(b)fluoranthene and benzo(j)fluoranthene.
#6 Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If both are detected, the sum of the two must not exceed the standard.
#7 Standard is applicable to 1,3-Dichloropropene. Individual isomers (cis + trans) should be added for comparison.
#8 Total Boron standard is for sub-surface soil (>1.5 m).
#9 HWS Boron standard is for surface soil (<1.5 m).

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

CAMBIUM

Table 3 - Soil Quality

Sample Location				BH205		BH206	BH207	BH208	BH208	BH209			BH209	BH210
Field ID				BH205_0.0-0.06	QAQC7	BH206_0.0-0.06	BH207_0.0-0.06	BH208_0.0-0.1	BH208_0.61-0.91	BH209_0.12-1.52	QAQC8		BH209_1.52-1.82	BH210_0.12-1.52
Depth				0 - 0.06	0 - 0.06	0 - 0.06	0 - 0.06	0 - 0.1	0.6 - 0.9	0.12 - 1.52	0.12 - 1.52		1.52 - 1.82	0.12 - 1.52
Date				03 May 2024	02 May 2024	03 May 2024	03 May 2024	03 May 2024	03 May 2024	03 May 2024	02 May 2024		03 May 2024	03 May 2024
	Unit	EQL	**Table 8 - RPIICC**											
BTEX														
Benzene	µg/g	0.02	**0.02**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-		-	-
Toluene	µg/g	0.05	**0.2**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-		-	-
Ethylbenzene	µg/g	0.05	**0.05**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-		-	-
Xylene Total	µg/g	0.05	**0.05**[#1]	<0.05	<0.05	<0.05	<0.05	**0.3**	<0.05	-	-		-	-
PHCs														
F1	µg/g	7	**25**[#2]	<7	<7	<7	<7	12	<7	-	-		-	-
F2	µg/g	4	**10**[#3]	<4	<4	<4	<4	**<80**	<4	-	-		-	-
F3	µg/g	8	**240**[#4]	<8	<8	<8	10	191	16	-	-		-	-
F4	µg/g	6	**120**	<6	<6	<6	34	3,630	31	-	-		-	-
F4G-SG (GHH-Silica)	µg/g	50	**120**	-	-	-	-	**4,960**	-	-	-		-	-
PAHs														
Acenaphthene	µg/g	0.02	**0.072**	-	-	-	-	-	-	-	-		-	-
Acenaphthylene	µg/g	0.02	**0.093**	-	-	-	-	-	-	-	-		-	-
Anthracene	µg/g	0.02	**0.22**	-	-	-	-	-	-	-	-		-	-
Benz(a)anthracene	µg/g	0.02	**0.36**	-	-	-	-	-	-	-	-		-	-
Benzo(a)pyrene	µg/g	0.02	**0.3**	-	-	-	-	-	-	-	-		-	-
Benzo(g,h,i)perylene	µg/g	0.02	**0.68**	-	-	-	-	-	-	-	-		-	-
Benzo(k)fluoranthene	µg/g	0.02	**0.48**	-	-	-	-	-	-	-	-		-	-
Benzo(b/j)fluoranthene	µg/g	0.02	**0.47**[#5]	-	-	-	-	-	-	-	-		-	-
Chrysene	µg/g	0.02	**2.8**	-	-	-	-	-	-	-	-		-	-
Dibenz(a,h)anthracene	µg/g	0.02	**0.1**	-	-	-	-	-	-	-	-		-	-
Fluoranthene	µg/g	0.02	**0.69**	-	-	-	-	-	-	-	-		-	-
Fluorene	µg/g	0.02	**0.19**	-	-	-	-	-	-	-	-		-	-
Indeno(1,2,3-c,d)pyrene	µg/g	0.02	**0.23**	-	-	-	-	-	-	-	-		-	-
Methylnaphthalene 1 & 2	µg/g	0.04	**0.59**[#6]	-	-	-	-	-	-	-	-		-	-
Naphthalene	µg/g	0.01	**0.09**	-	-	-	-	-	-	-	-		-	-
Phenanthrene	µg/g	0.02	**0.69**	-	-	-	-	-	-	-	-		-	-
Pyrene	µg/g	0.02	**1**	-	-	-	-	-	-	-	-		-	-
VOCs														
Acetone	µg/g	0.5	**0.5**	-	-	-	-	-	-	-	-		-	-
Bromomethane	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Bromoform	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Bromodichloromethane	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Carbon tetrachloride	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Chlorobenzene	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Chloroform	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Dibromoethane,1,2-	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Dichlorobenzene, 1,2-	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Dichlorobenzene, 1,3-	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Dichlorobenzene, 1,4-	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Dichlorodifluoromethane	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Dichloroethane, 1,1-	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Dichloroethane, 1,2-	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Dichloroethylene, 1,1-	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Dichloroethylene, 1,2-trans-	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Dichloroethylene, 1,2-cis-	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Dichloromethane	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Dichloropropane, 1,2-	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Dichloropropene, 1,3- cis & trans	µg/g	0.05	**0.05**[#7]	-	-	-	-	-	-	-	-		-	-
Dibromochloromethane	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Hexane	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Methyl Ethyl Ketone	µg/g	0.5	**0.5**	-	-	-	-	-	-	-	-		-	-
Methyl Iso-Butyl Ketone	µg/g	0.5	**0.5**	-	-	-	-	-	-	-	-		-	-
MTBE	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Styrene	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Tetrachloroethylene	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Tetrachloroethane, 1,1,1,2-	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Tetrachloroethane, 1,1,2,2-	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Trichloroethane, 1,1,1-	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Trichloroethane, 1,1,2-	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Trichloroethylene	µg/g	0.05	**0.05**	-	-	-	-	-	-	-	-		-	-
Trichlorofluoromethane	µg/g	0.05	**0.25**	-	-	-	-	-	-	-	-		-	-
Vinyl chloride	µg/g	0.02	**0.02**	-	-	-	-	-	-	-	-		-	-
Metals														
Antimony	µg/g	1	**1.3**	-	-	-	-	-	-	<1.0	<1.0		<1.0	<1.0
Arsenic	µg/g	1	**18**	-	-	-	-	-	-	2.4	3.4		2.4	2.4
Barium	µg/g	1	**220**	-	-	-	-	-	-	**1,540**	**1,560**		66.1	74.3
Beryllium	µg/g	0.5	**2.5**	-	-	-	-	-	-	<0.5	<0.5		0.5	<0.5
Boron	µg/g	5	**36**[#8]	-	-	-	-	-	-	<5.0	5.1		<5.0	6.3
Cadmium	µg/g	0.5	**1.2**	-	-	-	-	-	-	<0.5	<0.5		<0.5	<0.5
Chromium (III+VI)	µg/g	5	**70**	-	-	-	-	-	-	10.3	10.3		20.9	10.2
Cobalt	µg/g	1	**22**	-	-	-	-	-	-	2	2.7		6.8	3.2
Copper	µg/g	5	**92**	-	-	-	-	-	-	9.1	9.5		9.1	12.4
Lead	µg/g	1	**120**	-	-	-	-	-	-	26.6	42.4		12.3	18.3
Molybdenum	µg/g	1	**2**	-	-	-	-	-	-	**2.3**	1.3		<1.0	<1.0
Nickel	µg/g	5	**82**	-	-	-	-	-	-	<5.0	5.3		9.6	6.1
Selenium	µg/g	1	**1.5**	-	-	-	-	-	-	<1.0	<1.0		<1.0	<1.0
Silver	µg/g	0.3	**0.5**	-	-	-	-	-	-	<0.3	<0.3		<0.3	<0.3
Thallium	µg/g	1	**1**	-	-	-	-	-	-	<1.0	<1.0		<1.0	<1.0
Uranium	µg/g	1	**2.5**	-	-	-	-	-	-	<1.0	<1.0		<1.0	<1.0
Vanadium	µg/g	10	**86**	-	-	-	-	-	-	<10.0	13.4		36.1	17.5
Zinc	µg/g	20	**290**	-	-	-	-	-	-	44.7	57.2		45.2	52.5
ORPs														
Boron (hot water soluble)	µg/g	0.5	**1.5**[#9]	-	-	-	-	-	-	-	-		-	-
Chromium (hexavalent)	µg/g	0.2	**0.66**	-	-	-	-	-	-	-	-		-	-
Cyanide (Free)	ug/g	0.03		-	-	-	-	-	-	-	-		-	-
Electrical Conductivity (Lab)	µS/cm	5	**700**	-	-	-	-	-	-	-	-		-	-
Mercury	µg/g	0.1	**0.27**	-	-	-	-	-	-	<0.1	<0.1		-	<0.1
pH (Lab)	-	0.05	**5-9**	-	-	-	-	-	-	-	-		-	-
Sodium Adsorption Ratio	-	0.01	**5**	-	-	-	-	-	-	-	-		-	-

Comments

#1 Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be s
#2 Standard is applicable to PHC in the F1 range minus BTEX.
#3 Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analy
#4 Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs
#5 Standard is for benzo(b)fluoranthene; however, the laboratory can not distinguish
#6 Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If bo
#7 Standard is applicable to 1,3-Dichloropropene. Individual isomers (cis + trans) sh
#8 Total Boron standard is for sub-surface soil (>1.5 m).
#9 HWS Boron standard is for surface soil (<1.5 m).

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Table 4 - Soil Quality Averaging

				Sample Location	BH109	BH210	Averages of BH109 and BH210
				Field ID	BH109_0.12-1.5	BH210_0.12-1.52	
				Depth	0.12 - 1.5	0.12 - 1.52	0.12 - 1.52
				Date	10 Oct 2023	03 May 2024	
		Unit	RDL	**Table 8 - RPIICC**			
	Arsenic	µg/g	1	**18**	**37.9**	2.4	**20.2**
	Lead	µg/g	1	**120**	**158**	18.3	88.2
	Zinc	µg/g	20	**290**	**309**	52.5	180.8
	Mercury	µg/g	0.1	**0.27**	**0.3**	<0.1	0.2

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Table 5 - Groundwater Quality

					Location Code		BH101	BH101	BH101	BH101	BH104	BH104	BH104	BH107	BH107	BH109	BH201	BH201
					Date	20 Sep 2023	11 Oct 2023	11 Oct 2023	13 Oct 2023	13 Oct 2023	11 Oct 2023	11 Oct 2023	11 Oct 2023	11 Oct 2023	12 Dec 2023	16 Oct 2023	06 May 2024	06 May 2024
	Unit	EQL	Table 8 - within 30 m of a Water Body	Table 6 - *All Types of Property Use*														
BTEX																		
Benzene	µg/L	0.5	5	***0.5***	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	-	<0.5	-	<0.5	-	-	
Toluene	µg/L	0.5	22	***24***	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	-	<0.5	-	<0.5	-	-	
Ethylbenzene	µg/L	0.5	2.4	***2.4***	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	-	<0.5	-	<0.5	-	-	
Xylene (m & p)	µg/L	0.5			<0.5	<0.5	<0.5	-	-	<0.5	<0.5	-	<0.5	-	<0.5	-	-	
Xylene (o)	µg/L	0.5			<0.5	<0.5	<0.5	-	-	<0.5	<0.5	-	<0.5	-	<0.5	-	-	
Xylene Total	µg/L	0.5	300[#1]	***72***[#1]	<0.5	<0.5	<0.5	-	-	<0.5	<0.5	-	<0.5	-	<0.5	-	-	
PHCs																		
F1	µg/L	25	420[#2]	***420***[#2]	-	<25	<25	-	-	-	-	-	<25	-	<25	-	-	
F2	µg/L	100	150[#3]	***150***[#3]	-	<100	<100	-	-	-	-	-	<100	-	<100	-	-	
F3	µg/L	100	500[#4]	***500***[#4]	-	<100	<100	-	-	-	-	-	<100	-	<100	-	-	
F4	µg/L	100	500	***500***	-	<100	<100	-	-	-	-	-	<100	-	<100	-	-	
VOCs																		
Acetone	µg/L	5	2,700	***2,700***	<5.0	-	-	-	-	<5.0	<5.0	-	<5.0	-	-	-	-	
Bromoform	µg/L	0.5	25	***5***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Bromomethane	µg/L	0.5	0.89	***0.89***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Bromodichloromethane	µg/L	0.5	16	***16***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Carbon tetrachloride	µg/L	0.2	0.79	***0.2***	<0.2	-	-	-	-	<0.2	<0.2	-	<0.2	-	-	-	-	
Chlorobenzene	µg/L	0.5	30	***30***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Chloroform	µg/L	0.5	2.4	***2***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Dibromochloromethane	µg/L	0.5	25	***25***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Dibromoethane,1,2-	µg/L	0.2	0.2	***0.2***	<0.2	-	-	-	-	<0.2	<0.2	-	<0.2	-	-	-	-	
Dichlorobenzene, 1,2-	µg/L	0.5	3	***3***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Dichlorobenzene, 1,3-	µg/L	0.5	59	***59***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Dichlorobenzene, 1,4-	µg/L	0.5	1	***0.5***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Dichlorodifluoromethane	µg/L	1	590	***590***	<1.0	-	-	-	-	<1.0	<1.0	-	<1.0	-	-	-	-	
Dichloroethane, 1,1-	µg/L	0.5	5	***5***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Dichloroethane, 1,2-	µg/L	0.5	1.6	***0.5***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Dichloroethene, 1,1-	µg/L	0.5	1.6	***0.5***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Dichloroethene, 1,2-cis-	µg/L	0.5	1.6	***1.6***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Dichloroethene, 1,2-trans-	µg/L	0.5	1.6	***1.6***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Dichloromethane	µg/L	5	50	***26***	<5.0	-	-	-	-	<5.0	<5.0	-	<5.0	-	-	-	-	
Dichloropropane, 1,2-	µg/L	0.5	5	***0.58***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Dichloropropene, 1,3-	µg/L	0.5	0.5	***0.5***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Dichloropropene, 1,3- cis	µg/L	0.5			<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Dichloropropene, 1,3- trans	µg/L	0.5			<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Hexane	µg/L	1	51	***5***	<1.0	-	-	-	-	<1.0	<1.0	-	<1.0	-	-	-	-	
Methyl Ethyl Ketone	µg/L	5	1,800	***1,800***	<5.0	-	-	-	-	<5.0	<5.0	-	<5.0	-	-	-	-	
Methyl Iso-Butyl Ketone	µg/L	5	640	***640***	<5.0	-	-	-	-	<5.0	<5.0	-	<5.0	-	-	-	-	
Methyl tert-butyl ether	µg/L	2	15	***15***	<2.0	-	-	-	-	<2.0	<2.0	-	<2.0	-	-	-	-	
Styrene	µg/L	0.5	5.4	***5.4***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Tetrachloroethene	µg/L	0.5	1.6	***0.5***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Tetrachloroethane, 1,1,1,2-	µg/L	0.5	1.1	***1.1***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Tetrachloroethane, 1,1,2,2-	µg/L	0.5	1	***0.5***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Trichloroethene	µg/L	0.5	1.6	***0.5***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Trichloroethane, 1,1,1-	µg/L	0.5	200	***23***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Trichloroethane, 1,1,2-	µg/L	0.5	4.7	***0.5***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
Trichlorofluoromethane	µg/L	1	150	***150***	<1.0	-	-	-	-	<1.0	<1.0	-	<1.0	-	-	-	-	
Vinyl chloride	µg/L	0.5	0.5	***0.5***	<0.5	-	-	-	-	<0.5	<0.5	-	<0.5	-	-	-	-	
PAH																		
1 & 2 Methylnaphthalene	µg/L	0.1	3.2[#5]	***3.2***[#5]	-	<0.10	<0.10	-	-	-	-	-	<0.10	-	<0.10	<0.10	<0.10	
1-Methylnaphthalene	µg/L	0.05	3.2[#5]	***3.2***[#5]	-	<0.05	<0.05	-	-	-	-	-	<0.05	-	<0.05	<0.05	<0.05	
2-methylnaphthalene	µg/L	0.05	3.2[#5]	***3.2***[#5]	-	<0.05	<0.05	-	-	-	-	-	<0.05	-	<0.05	<0.05	<0.05	
Acenaphthene	µg/L	0.05	4.1	***4.1***	-	<0.05	<0.05	-	-	-	-	-	<0.05	-	<0.05	<0.05	<0.05	
Acenaphthylene	µg/L	0.05	1	***1***	-	<0.05	<0.05	-	-	-	-	-	<0.05	-	<0.05	<0.05	<0.05	
Anthracene	µg/L	0.01	1	***1***	-	<0.01	<0.01	-	-	-	-	-	<0.01	-	<0.01	<0.01	<0.01	
Benz(a)anthracene	µg/L	0.01	1	***1***	-	<0.01	<0.01	-	-	-	-	-	<0.01	-	<0.01	<0.01	<0.01	
Benzo(a) pyrene	µg/L	0.01	0.01	***0.01***	-	<0.01	<0.01	-	-	-	-	-	<0.01	-	<0.01	<0.01	<0.01	
Benzo(b)fluoranthene	µg/L	0.05	0.1[#6]	***0.1***[#6]	-	<0.05	<0.05	-	-	-	-	-	<0.05	-	<0.05	<0.05	<0.05	
Benzo(g,h,i)perylene	µg/L	0.05	0.2	***0.2***	-	<0.05	<0.05	-	-	-	-	-	<0.05	-	<0.05	<0.05	<0.05	
Benzo(k)fluoranthene	µg/L	0.05	0.1	***0.1***	-	<0.05	<0.05	-	-	-	-	-	<0.05	-	<0.05	<0.05	<0.05	
Chrysene	µg/L	0.05	0.1	***0.1***	-	<0.05	<0.05	-	-	-	-	-	<0.05	-	<0.05	<0.05	<0.05	
Dibenz(a,h)anthracene	µg/L	0.05	0.2	***0.2***	-	<0.05	<0.05	-	-	-	-	-	<0.05	-	<0.05	<0.05	<0.05	
Fluoranthene	µg/L	0.01	0.41	***0.41***	-	<0.01	<0.01	-	-	-	-	-	<0.01	-	<0.01	<0.01	<0.01	
Fluorene	µg/L	0.05	120	***120***	-	<0.05	<0.05	-	-	-	-	-	<0.05	-	<0.05	<0.05	<0.05	
Indeno(1,2,3-c,d)pyrene	µg/L	0.05	0.2	***0.2***	-	<0.05	<0.05	-	-	-	-	-	<0.05	-	<0.05	<0.05	<0.05	
Naphthalene	µg/L	0.05	11	***7***	-	<0.05	<0.05	-	-	-	-	-	<0.05	-	0.07	<0.05	<0.05	
Phenanthrene	µg/L	0.05	1	***1***	-	<0.05	<0.05	-	-	-	-	-	<0.05	-	<0.05	<0.05	<0.05	
Pyrene	µg/L	0.01	4.1	***4.1***	-	<0.01	<0.01	-	-	-	-	-	<0.01	-	0.05	<0.01	<0.01	
Metals																		
Antimony	µg/L	0.5	6	***6***	-	<0.5	<0.5	-	-	<0.5	-	-	<0.5	<0.5	<0.5	-	-	
Arsenic	µg/L	1	25	***25***	-	<1	<1	-	-	<1	-	-	<1	<1	1	-	-	
Barium	µg/L	1	1,000	***1,000***	-	160	160	-	-	281	-	-	190	192	240	-	-	
Beryllium	µg/L	0.5	4	***4***	-	<0.5	<0.5	-	-	<0.5	-	-	<0.5	<0.5	<0.5	-	-	
Boron	µg/L	10	5,000	***5,000***	-	31	32	-	-	26	-	-	131	132	119	-	-	
Cadmium	µg/L	0.1	2.1	***2.1***	-	<0.1	<0.1	-	-	<0.1	-	-	0.1	<0.1	<0.1	-	-	
Chromium (hexavalent)	µg/L	10	25	***25***	-	-	-	-	-	<10	-	<10	-	-	-	-	-	
Chromium (III+VI)	µg/L	1	50	***50***	-	<1	<1	-	-	<1	-	-	<1	1	1	-	-	
Cobalt	µg/L	0.5	3.8	***3.8***	-	<0.5	<0.5	-	-	<0.5	-	-	***6.0***	0.6	0.9	-	-	
Copper	µg/L	0.5	69	***69***	-	0.6	0.8	-	-	0.8	-	-	5.3	7.3	2.1	-	-	
Lead	µg/L	0.1	10	***10***	-	<0.1	<0.1	-	-	<0.1	-	-	0.3	<0.1	0.1	-	-	
Mercury	µg/L	0.1	0.29	***0.1***	-	-	-	<0.1	<0.1	-	-	-	-	-	-	-	-	
Molybdenum	µg/L	0.5	70	***70***	-	0.8	<0.5	-	-	1.5	-	-	45.4	9.7	2.0	-	-	
Nickel	µg/L	1	100	***100***	-	<1	<1	-	-	<1	-	-	10	3	2	-	-	
Selenium	µg/L	1	10	***10***	-	<1	<1	-	-	<1	-	-	<1	<1	2	-	-	
Silver	µg/L	0.1	1.2	***1.2***	-	<0.1	<0.1	-	-	<0.1	-	-	<0.1	<0.1	<0.1	-	-	
Sodium	µg/L	200	490,000	***490,000***	-	42,800	42,900	-	-	14,800	-	-	30,600	24,400	32,900	-	-	
Thallium	µg/L	0.1	2	***2***	-	<0.1	<0.1	-	-	<0.1	-	-	0.1	<0.1	<0.1	-	-	
Uranium	µg/L	0.1	20	***20***	-	1.3	1.3	-	-	0.5	-	-	0.9	0.8	0.8	-	-	
Vanadium	µg/L	0.5	6.2	***6.2***	-	<0.5	<0.5	-	-	<0.5	-	-	0.5	<0.5	0.6	-	-	
Zinc	µg/L	5	890	***890***	-	<5	<5	-	-	<5	-	-	10	<5	5	-	-	

Comments

#1 Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be summed for comparison.
#2 Standard is applicable to PHC in the F1 range minus BTEX.
#3 Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analyzed, the standard is applied to F2.
#4 Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs have not been measured, the standard is applied to F3.
#5 Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If both are detected, the sum of the two must not exceed the standard.
#6 Standard is for benzo[b]fluoranthene; however, the laboratory can not distinguish between benzo[b]fluoranthene and benzo[j]fluoranthene.

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Appendix A
MGRA Model Output

Docusign Envelope ID: 4DC18466-CB16-4F0D-8C52-2CE46F7225CF

Soil Components for Table 2 - Full Depth, Potable Water Scenario													
Coarse Textured Soil		**Residential /Parkland Land Use (ug/g)**											
	MOE	Mass.	Ont. Soil	Plants &	Mammals	Soil Contact	Soil Leaching		Indoor Air	Indoor Air	Outdoor Air	Free Phase	Soil Odour
Chemical Parameter	Soil RL	PQL	Bkgrd	Soil Org.	& Birds	S1 Risk	S-GW1	S-GW3	S-IA	Odour		Threshold	S-Nose
Acenaphthene	0.05		0.072		6600	360	150	560	14	3900	2400	2800	100
Acenaphthylene	0.05		0.093			57	17	0.15	0.82		180	2900	
Acetone	0.5		0.5		56	15000	250	16	950	4300	160000	92000	140
Aldrin	0.05		0.05	0.044	0.0024	0.56	31	150000		260000		5000	5200
Anthracene	0.05		0.16	2.5	38000	57	51	0.67	19		950	2700	
Antimony	1		1.3	20	25	7.5						8000	
Arsenic	1		18	20	51	0.79						12000	
Barium	5		220	750	390	3800						7700	
Benzene	0.02		0.02	25	370	9.3	0.92	14	0.21	820	17	5000	63
Benz[a]anthracene	0.05		0.36	0.5		5.7	190	5.1E+11	120		600	7600	
Benzo[a]pyrene	0.05		0.49	20	1600	0.57	6.6	3.8E+13	340		68	7600	
Benzo[b]fluoranthene	0.05		0.47			5.7	67	7.7E+13	10000		3800	7600	
Benzo[ghi]perylene	0.1		0.68	6.6		57	2200	1.2E+13				7600	
Benzo[k]fluoranthene	0.05		0.48	7.6		5.7	66	2.5E+13	12000		3800	7600	
Beryllium	2		2.5	4	13	38						3900	
Biphenyl 1,1'-	0.05		0.05			710	590	190		11		2600	0.31
Bis(2-chloroethyl)ether	0.5		0.5			0.32	0.0014	92		69		6400	1.9
Bis(2-chloroisopropyl)ether	0.5		0.5			840	12	120		18		11	0.67
Bis(2-ethylhexyl)phthalate	5		5	14	0.8	1100	830	2.5E+09				7100	
Boron (Hot Water Soluble)*	0.5		0.5	1.5								5000	
Boron (total)	5		36		120	4300						5000	
Bromodichloromethane	0.05		0.05			13	1.5	50				5500	
Bromoform	0.05		0.05			72	2.3	21		220		11000	5.4
Bromomethane	0.05		0.05			6.3	0.097	1.4	0.035	27	71	7300	6
Cadmium	1		1.2	12	1.9	0.69						18000	
Carbon Tetrachloride	0.05		0.05	5.8	7.6	15	0.51	2.3	0.013	470	30	3900	120
Chlordane	0.05		0.05	1.1	0.0085	0.59	510	180	7.6	5700	210	8400	110
Chloroaniline p-	0.5		0.5	20		38	0.66	0.45				6100	
Chlorobenzene	0.05		0.05	6		1300	8	2.4	91	78	8900	3700	3.7
Chloroform	0.05		0.05	34	81	310	2.3	9.5	3.1	1400	880	6600	260
Chlorophenol, 2-	0.1		0.1	1.6		63	3.7	21				130000	
Chromium Total	5		70	310	160	28000						11000	
Chromium VI	0.2		0.66	8	910	160							
Chrysene	0.05		2.8	7		57	20	3.6E+11	3400		12000	7700	
Cobalt	2		21	40	180	22						19000	
Copper	5		92	140	770	200							
Cyanide (CN-)	0.05		0.051	0.9	0.11	38	22	0.022				240000	
Dibenz[a h]anthracene	0.1		0.16			0.57	22	2.4E+13	60000		790	7600	
Dibromochloromethane	0.05		0.05			9.4	2.3	48				10000	
Dichlorobenzene, 1,2-	0.05		0.05	3.4		6300	1.2	60	35	160	9200	3100	6.1
Dichlorobenzene, 1,3-	0.05		0.05	4.8		420	24	59				3300	
Dichlorobenzene, 1,4-	0.05		0.05	3.6		47	0.4	59	0.083	22	18	3000	0.85
Dichlorobenzidine, 3,3'-	1		1			0.52	0.16	66				5000	
Dichlorodifluoromethane	0.05		0.05	40		4200	150	16				710	
DDD	0.05		0.05	6.8		3.3	1300	34000000				5000	
DDE	0.05		0.05	0.26		2.3	1300	310000000				5000	
DDT	0.05		1.4	1	0.0011	2.3	1800	730000000				5000	
Dichloroethane, 1,1-	0.05		0.05	8.4		840	0.47	1600	3.5	130	1500	4800	24

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Soil Components for Table 2 - Full Depth, Potable Water Scenario													
Coarse Textured Soil		**Residential /Parkland Land Use (ug/g)**											
	MOE	Mass.	Ont. Soil	Plants &	Mammals	Soil Contact	Soil Leaching		Indoor Air	Indoor Air	Outdoor Air	Free Phase	Soil Odour
Chemical Parameter	Soil RL	PQL	Bkgrd	Soil Org.	& Birds	S1 Risk	S-GW1	S-GW3	S-IA	Odour		Threshold	S-Nose
Dichloroethane, 1,2-	0.05		0.05	48	29	8.7	0.48	180	0.025	640	1.4	5300	45
Dichloroethylene, 1,1-	0.05		0.05	50	43	1000	1.3	11	0.004	180	1300	3900	44
Dichloroethylene, 1,2-cis-	0.05		0.05		84	42	1.9	130	3.4		1300	4600	
Dichloroethylene, 1,2-trans-	0.05		0.05		84	420	1.9	220	0.084	34	700	4600	8.5
Dichlorophenol, 2,4-	0.1		0.1	1.7		63	0.19	46				33000	
Dichloropropane, 1,2-	0.05		0.05	25		22	0.54	76	0.01	4.5	27	2100	0.34
Dichloropropene,1,3-	0.05		0.05	25		8.7	0.059	3.8	0.027	17	9	5000	1.2
Dieldrin	0.05		0.05	0.044	0.00096	0.94	3.1	0.11				8700	
Diethyl Phthalate	0.5		0.5	11	85	94000	2200	0.07				7600	
Dimethylphthalate	0.5		0.5	17		94000	1400	0.023				1800	
Dimethylphenol, 2,4-	0.2		0.2			420	38	390				57000	
Dinitrophenol, 2,4-	2		2			38	2	59				13000	
Dinitrotoluene, 2,4 & 2,6-	0.5		0.5			0.92	0.015	15				3800	
Dioxane, 1,4	0.2		0.2		1.8	72	7.5	810	180		57000	82000	
Dioxin/Furan (TEQ)		5.4E-07	0.000007		0.000013	0.000048	0.0018	780	0.0028		0.11	7000	
Endosulfan	0.04		0.04	0.15	0.023	38	110	0.46				8700	
Endrin	0.04		0.04	0.019	0.0011	4.7	18	0.071				5000	
Ethylbenzene	0.05		0.05	55	90	2100	1.1	17	2.1	100	16000	2700	5.2
Ethylene dibromide	0.05		0.05			0.22	0.0048	86	0.0014	1600	0.099	2000	51
Fluoranthene	0.05		0.56	50	0.69	57	180	40000	450		4500	7600	
Fluorene	0.05		0.12			720	1100	62				2800	
Heptachlor	0.05		0.05	0.2	3.9	0.15	66	1.8		19000		8300	370
Heptachlor Epoxide	0.05		0.05			0.11	6.6	0.0035		8800		5000	180
Hexachlorobenzene	0.01		0.01	100		0.52	2.9	14				9300	
Hexachlorobutadiene	0.01		0.01			7.1	0.52	1.6	0.012	210	2.8	8300	8.6
Hexachlorocyclohexane Gamma-	0.01		0.01	5.9		0.25	11	0.056				5000	
Hexachloroethane	0.01		0.01			21	0.49	22	0.089	51	54	9400	0.46
Hexane (n)	0.05		0.05					54	2.8		130000	1500	
Indeno[1 2 3-cd]pyrene	0.1		0.23	0.38		5.7	220	8.6E+13	84000		7300	7600	
Lead	10		120	250	32	120						24000	
Mercury	0.1		0.27	10	20	9.8	550	1.2E+14	0.25		36	34000	
Methoxychlor	0.05		0.05		0.13	0.38	32000	3.9				8000	
Methyl Ethyl Ketone	0.5		0.5	35	9900	13000	160	230	16	750	44000	26000	26
Methyl Isobutyl Ketone	0.5		0.5			21000	440	150	6.6	39	23000	5100	1.7
Methyl Mercury **				0.8	0.034	2	1	0.0084				1300000	
Methyl tert-Butyl Ether (MTBE)	0.05		0.05	25		440	1.6	220	0.75		170	8000	
Methylene Chloride	0.05		0.05	0.78	350	110	4.8	7.4	0.1	670	2200	6400	150
Methlynaphthalene, 2-(1-) ***	0.05		0.59			72	30	76		34		3600	0.99
Molybdenum	2		2	40	6.9	110						22000	
Naphthalene	0.05		0.09	0.6	380	360	93	200	0.65	150	270	2800	4.5
Nickel	5		82	100	5000	180							
Pentachlorophenol	0.1		0.1	17	0.013	3.6	86	2.9				9200	
Petroleum Hydrocarbons F1****	10		25	210		6900	4100	55	130		26000	1700	
Aliphatic C6-C8						200000	150000	39	320		560000	1700	
Aliphatic C>8-C10						4100	20000	230	76		18000	1700	
Aromatic C>8-C10						1600	410	39	61		4900	2900	
Petroleum Hydrocarbons F2	10		10	150		3100	4300	230	98		25000	2700	
Aliphatic C>10-C12						4100	160000	3.9E+13	390		20000	1700	

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Soil Components for Table 2 - Full Depth, Potable Water Scenario													
Coarse Textured Soil		**Residential /Parkland Land Use (ug/g)**											
	MOE	Mass.	Ont. Soil	Plants &	Mammals	Soil Contact	Soil Leaching		Indoor Air	Indoor Air	Outdoor Air	Free Phase	Soil Odour
Chemical Parameter	Soil RL	PQL	Bkgrd	Soil Org.	& Birds	S1 Risk	S-GW1	S-GW3	S-IA	Odour		Threshold	S-Nose
Aliphatic C>12-C16						4100	3100000	8.5E+13	170		42000	6600	
Aromatic C>10-C12						1600	630	42	22		11000	2500	
Aromatic C>12-C16						1600	1200	49	44		26000	2200	
Petroleum Hydrocarbons F3	50		240	300		5800	20000					5800	
Aliphatic C>16-C21						82000	7.8E+09					6700	
Aliphatic C>21-C34						82000	1.2E+14					6900	
Aromatic C>16-C21						1200	2900					3000	
Aromatic C>21-C34						1200	23000					7900	
Petroleum Hydrocarbons F4	50		120	2800		6100	1600000					6900	
Aliphatic C>34						820000	1.2E+20					6900	
Aromatic C>34						1200	330000					6900	
Phenanthrene	0.05		0.69	6.2	2700		17	270				2300	
Phenol	0.5		0.5	17	9.4	5400	240	46	940	34000	16000	230000	970
Polychlorinated Biphenyls	0.3		0.3	33	1.1	0.35	770	9.9E+11	3.1		120	5000	
Pyrene	0.05		1		4700	540	1700	2600	3500		41000	7700	
Selenium	1		1.5	10	2.4	110							
Silver	0.5		0.5	20		77						22000	
Styrene	0.05		0.05	17		2500	47	66	16	18	3400	3500	0.7
Tetrachloroethane, 1,1,1,2-	0.05		0.05			30	0.15	37	0.058		5.1	4400	
Tetrachloroethane, 1,1,2,2-	0.05		0.05			4	0.14	48	0.0045	2400	1.6	6700	86
Tetrachloroethylene	0.05		0.05	3.8	4.5	130	1.9	18	0.28	320	190	3700	61
Thallium	1		1	1.4	3.9	0.29						22000	
Toluene	0.2		0.2	150	140	1700	6.4	68	6.2	35	34000	3300	2.3
Trichlorobenzene, 1,2,4-	0.05		0.05	13		210	45	43	0.36	1100	290	3400	32
Trichloroethane, 1,1,1-	0.05		0.05	18	820	42000	20	9.8	0.38	1000	12000	3700	250
Trichloroethane, 1,1,2-	0.05		0.05	80		14	0.54	120	0.03		2.9	3900	
Trichloroethylene	0.05		0.05	100	8.1	10	0.55	300	0.00044	480	12	4100	91
Trichlorofluoromethane	0.05		0.25	16		6300	20	4				4400	
Trichlorophenol, 2,4,5-	0.1		0.1	4.4		56	9.1	27				14000	
Trichlorophenol, 2,4,6-	0.1		0.1	4.4		56	2.1	3.8				13000	
Uranium	1		2.8	500	33	23						40000	
Vanadium	10		86	200	18	39						7100	
Vinyl Chloride	0.02		0.02	3.4	12	0.57	0.19	270	0.0021	1000	14	6100	230
Xylene Mixture	0.05		0.05	95	96	4200	120	26	3.1	580	4900	2300	35
Zinc	30		290	400	340	6800						15000	
Electrical Conductivity (mS/cm)			0.57	0.7									
Chloride	5		210				52000	220				3000	
Sodium Adsorption Ratio			2.4	5									
Sodium	50		1300										

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Soil Components for Table 2 - Full Depth, Potable Water Scenario													
Coarse Textured Soil		**Industrial/Commercial Land Use (ug/g)**											
	MOE	Mass.	Ont. Soil	Plants &	Mammals	Soil Contact	Soil Contact	Soil Leaching		Indoor Air	Indoor Air	Outdoor Air	Free Phase
Chemical Parameter	Soil RL	PQL	Bkgrd	Soil Org.	& Birds	S2 Risk	S3 Risk	S-GW1	S-GW3	S-IA	Odour		Threshold
Acenaphthene	0.05		0.072		46000	700	9800	150	560	210	18000	2400	2800
Acenaphthylene	0.05		0.093			70	2600	17	0.15	12		180	2900
Acetone	0.5		0.5		56	150000	460000	250	16	2600	20000	160000	92000
Aldrin	0.05		0.05	0.088	1200	4.7	6.3	31	150000		1200000		5000
Anthracene	0.05		0.16	32	470000	70	2600	51	0.67	270		950	2700
Antimony	1		1.3	40	1500	63	63						8000
Arsenic	1		18	40	330	1	39						12000
Barium	5		220	1500	670	32000	8600						7700
Benzene	0.02		0.02	180	6800	13	480	0.92	14	0.32	3800	17	5000
Benz[a]anthracene	0.05		0.36	1		7	260	190	5.1E+11	1800		600	7600
Benzo[a]pyrene	0.05		0.49	72	46000	0.7	17	6.6	3.8E+13	5400		68	7600
Benzo[b]fluoranthene	0.05		0.47			7	260	67	7.7E+13	150000		3800	7600
Benzo[ghi]perylene	0.1		0.68	13		70	2600	2200	1.2E+13				7600
Benzo[k]fluoranthene	0.05		0.48	15		7	260	66	2.5E+13	180000		3800	7600
Beryllium	2		2.5	8	780	320	60						3900
Biphenyl 1,1'-	0.05		0.05			6000	6000	590	190		52		2600
Bis(2-chloroethyl)ether	0.5		0.5			0.44	16	0.0014	92		320		6400
Bis(2-chloroisopropyl)ether	0.5		0.5			8800	8800	12	120		82		11
Bis(2-ethylhexyl)phthalate	5		5	28	140000	9500	16000	830	2.5E+09				7100
Boron (Hot Water Soluble)*	0.5		0.5	2									5000
Boron (total)	5		36		120	24000	24000						5000
Bromodichloromethane	0.05		0.05			18	660	1.5	50				5500
Bromoform	0.05		0.05			100	3700	2.3	21		980		11000
Bromomethane	0.05		0.05			66	660	0.097	1.4	0.56	130	71	7300
Cadmium	1		1.2	24	1.9	7.9	7.9						18000
Carbon Tetrachloride	0.05		0.05	12	880	150	1500	0.51	2.3	0.21	2200	30	3900
Chlordane	0.05		0.05	2.2	0.0085	0.8	30	510	180	110	26000	210	8400
Chloroaniline p-	0.5		0.5	40		320	320	0.66	0.45				6100
Chlorobenzene	0.05		0.05	12		13000	42000	8	2.4	130	360	8900	3700
Chloroform	0.05		0.05	68	830	3300	22000	2.3	9.5	50	6800	880	6600
Chlorophenol, 2-	0.1		0.1	3.1		660	660	3.7	21				130000
Chromium Total	5		70	500	160	240000	240000						11000
Chromium VI	0.2		0.66	8	8500	1300	40						
Chrysene	0.05		2.8	14		70	2600	20	3.6E+11	50000		12000	7700
Cobalt	2		21	80	180	250	2500						19000
Copper	5		92	230	3100	1900	1900						
Cyanide (CN-)	0.05		0.051	8	0.11	320	950	22	0.022				240000
Dibenz[a h]anthracene	0.1		0.16			0.7	26	22	2.4E+13	880000		790	7600
Dibromochloromethane	0.05		0.05			13	490	2.3	48				10000
Dichlorobenzene, 1,2-	0.05		0.05	6.8		66000	130000	1.2	60	110	770	9200	3100
Dichlorobenzene, 1,3-	0.05		0.05	9.6		4400	4400	24	59				3300
Dichlorobenzene, 1,4-	0.05		0.05	7.2		65	2400	0.4	59	0.2	100	18	3000
Dichlorobenzidine, 3,3'-	1		1			0.66	25	0.16	66				5000
Dichlorodifluoromethane	0.05		0.05	80		44000	44000	150	16				710
DDD	0.05		0.05	14		4.6	110	1300	34000000				5000
DDE	0.05		0.05	0.52		3.2	110	1300	310000000				5000
DDT	0.05		1.4	6.3	0.0012	3.2	110	1800	730000000				5000
Dichloroethane, 1,1-	0.05		0.05	17		8800	88000	0.47	1600	56	590	1500	4800

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Soil Components for Table 2 - Full Depth, Potable Water Scenario													
Coarse Textured Soil		**Industrial/Commercial Land Use (ug/g)**											
	MOE	Mass.	Ont. Soil	Plants &	Mammals	Soil Contact	Soil Contact	Soil Leaching		Indoor Air	Indoor Air	Outdoor Air	Free Phase
Chemical Parameter	Soil RL	PQL	Bkgrd	Soil Org.	& Birds	S2 Risk	S3 Risk	S-GW1	S-GW3	S-IA	Odour		Threshold
Dichloroethane, 1,2-	0.05		0.05	96	29	12	450	0.48	180	0.038	3000	1.4	5300
Dichloroethylene, 1,1-	0.05		0.05	100	760	11000	11000	1.3	11	0.064	860	1300	3900
Dichloroethylene, 1,2-cis-	0.05		0.05		940	65	2400	1.9	130	55		1300	4600
Dichloroethylene, 1,2-trans-	0.05		0.05		940	4400	44000	1.9	220	1.3	160	700	4600
Dichlorophenol, 2,4-	0.1		0.1	3.4		660	660	0.19	46				33000
Dichloropropane, 1,2-	0.05		0.05	50		31	1100	0.54	76	0.16	21	27	2100
Dichloropropene,1,3-	0.05		0.05	50		12	450	0.059	3.8	0.18	78	9	5000
Dieldrin	0.05		0.05	0.088	240	7.9	16	3.1	0.11				8700
Diethyl Phthalate	0.5		0.5	21	1000000	790000	1300000	2200	0.07				7600
Dimethylphthalate	0.5		0.5	34		790000	790000	1400	0.023				1800
Dimethylphenol, 2,4-	0.2		0.2			4400	44000	38	390				57000
Dinitrophenol, 2,4-	2		2			320	3200	2	59				13000
Dinitrotoluene, 2,4 & 2,6-	0.5		0.5			1.2	43	0.015	15				3800
Dioxane, 1,4	0.2		0.2		1.8	100	3700	7.5	810	1800		57000	82000
Dioxin/Furan (TEQ)		5.4E-07	0.000007		0.000099	0.00051	0.0044	0.0018	780	0.043		0.11	7000
Endosulfan	0.04		0.04	0.3	1.2	320	790	110	0.46				8700
Endrin	0.04		0.04	0.038	0.0011	39	320	18	0.071				5000
Ethylbenzene	0.05		0.05	300	38000	22000	88000	1.1	17	34	470	16000	2700
Ethylene dibromide	0.05		0.05			0.31	11	0.0048	86	0.0015	7100	0.099	2000
Fluoranthene	0.05		0.56	180	120000	70	2600	180	40000	6700		4500	7600
Fluorene	0.05		0.12			5600	56000	1100	62				2800
Heptachlor	0.05		0.05	0.4	1100	0.19	2.3	66	1.8		87000		8300
Heptachlor Epoxide	0.05		0.05			0.14	5.3	6.6	0.0035		40000		5000
Hexachlorobenzene	0.01		0.01	200		0.66	16	2.9	14				9300
Hexachlorobutadiene	0.01		0.01			14	75	0.52	1.6	0.031	980	2.8	8300
Hexachlorocyclohexane Gamma-	0.01		0.01	12		2.5	2.5	11	0.056				5000
Hexachloroethane	0.01		0.01			79	2200	0.49	22	0.21	220	54	9400
Hexane (n)	0.05		0.05				21000000		54	46		130000	1500
Indeno[1 2 3-cd]pyrene	0.1		0.23	0.76		7	260	220	8.6E+13	1200000		7300	7600
Lead	10		120	1100	32	1000	1000						24000
Mercury	0.1		0.27	50	20	67	670	550	1.2E+14	3.9		36	34000
Methoxychlor	0.05		0.05		4100	1.6	1.6	32000	3.9				8000
Methyl Ethyl Ketone	0.5		0.5	70	9900	64000	64000	160	230	74	3500	44000	26000
Methyl Isobutyl Ketone	0.5		0.5			110000	110000	440	150	31	180	23000	5100
Methyl Mercury **				1.6	0.034	9.2	9.2	1	0.0084				1300000
Methyl tert-Butyl Ether (MTBE)	0.05		0.05	50		610	23000	1.6	220	11		170	8000
Methylene Chloride	0.05		0.05	1.6	400	150	5500	4.8	7.4	1.6	3100	2200	6400
Methlynaphthalene, 2-(1-) ***	0.05		0.59			560	560	30	76		160		3600
Molybdenum	2		2	40	74	1200	1200						22000
Naphthalene	0.05		0.09	22	1300	2800	28000	93	200	9.6	710	270	2800
Nickel	5		82	270	5400	1200	510						
Pentachlorophenol	0.1		0.1	31	2000	4.1	50	86	2.9				9200
Petroleum Hydrocarbons F1****	10		25	320		47000	100000	4100	55	580		26000	1700
Aliphatic C6-C8						1400000	1400000	150000	39	5200		560000	1700
Aliphatic C>8-C10						28000	280000	20000	230	1200		18000	1700
Aromatic C>8-C10						11000	11000	410	39	69		4900	2900
Petroleum Hydrocarbons F2	10		10	260		22000	48000	4300	230	380		25000	2700
Aliphatic C>10-C12						28000	280000	160000	3.9E+13	450		20000	1700

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Soil Components for Table 2 - Full Depth, Potable Water Scenario													
Coarse Textured Soil		**Industrial/Commercial Land Use (ug/g)**											
	MOE	Mass.	Ont. Soil	Plants &	Mammals	Soil Contact	Soil Contact	Soil Leaching		Indoor Air	Indoor Air	Outdoor Air	Free Phase
Chemical Parameter	Soil RL	PQL	Bkgrd	Soil Org.	& Birds	S2 Risk	S3 Risk	S-GW1	S-GW3	S-IA	Odour		Threshold
Aliphatic C>12-C16						28000	280000	3100000	8.5E+13	440		42000	6600
Aromatic C>10-C12						11000	11000	630	42	130		11000	2500
Aromatic C>12-C16						11000	11000	1200	49	590		26000	2200
Petroleum Hydrocarbons F3	50		240	1700		40000	260000	20000					5800
Aliphatic C>16-C21						560000	560000	7.8E+09					6700
Aliphatic C>21-C34						560000	560000	1.2E+14					6900
Aromatic C>16-C21						8400	84000	2900					3000
Aromatic C>21-C34						8400	84000	23000					7900
Petroleum Hydrocarbons F4	50		120	3300		42000	400000	1600000					6900
Aliphatic C>34						5600000	5600000	1.2E+20					6900
Aromatic C>34						8400	84000	330000					6900
Phenanthrene	0.05		0.69	12	36000			17	270				2300
Phenol	0.5		0.5	40	9.4	42000	42000	240	46	15000	160000	16000	230000
Polychlorinated Biphenyls	0.3		0.3	33	1.1	2.7	4.1	770	9.9E+11	45		120	5000
Pyrene	0.05		1		99000	700	26000	1700	2600	51000		41000	7700
Selenium	1		1.5	10	5.5	1200	1200						
Silver	0.5		0.5	40		490	490						22000
Styrene	0.05		0.05	34		26000	26000	47	66	42	83	3400	3500
Tetrachloroethane, 1,1,1,2-	0.05		0.05			42	1600	0.15	37	0.087		5.1	4400
Tetrachloroethane, 1,1,2,2-	0.05		0.05			5.5	210	0.14	48	0.019	11000	1.6	6700
Tetrachloroethylene	0.05		0.05	34	310	520	20000	1.9	18	4.5	1500	190	3700
Thallium	1		1	3.6	47	3.3	33						22000
Toluene	0.2		0.2	500	14000	18000	180000	6.4	68	99	170	34000	3300
Trichlorobenzene, 1,2,4-	0.05		0.05	30		2200	22000	45	43	3.2	5300	290	3400
Trichloroethane, 1,1,1-	0.05		0.05	35	39000	440000	1500000	20	9.8	6.1	4700	12000	3700
Trichloroethane, 1,1,2-	0.05		0.05	160		19	720	0.54	120	0.042		2.9	3900
Trichloroethylene	0.05		0.05	200	390	24	53	0.55	300	0.002	2200	12	4100
Trichlorofluoromethane	0.05		0.25	32		66000	66000	20	4				4400
Trichlorophenol, 2,4,5-	0.1		0.1	10		470	470	9.1	27				14000
Trichlorophenol, 2,4,6-	0.1		0.1	10		72	470	2.1	3.8				13000
Uranium	1		2.8	2000	33	300	300						40000
Vanadium	10		86	200	18	160	160						7100
Vinyl Chloride	0.02		0.02	6.8	12	0.79	29	0.19	270	0.032	4800	14	6100
Xylene Mixture	0.05		0.05	350	47000	44000	88000	120	26	50	2700	4900	2300
Zinc	30		290	600	340	57000	57000						15000
Electrical Conductivity (mS/cm)			0.57	1.4									
Chloride	5		210					52000	220				3000
Sodium Adsorption Ratio			2.4	12									
Sodium	50		1300										

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Soil Components for Within 30 M of a Water Body (Table 8)					
Potable Water Scenario	**Res/Park/Inst/Com/Ind/Comm Land Uses (ug/g)**				
	MOE	Mass.	Ont. Soil	Table 2	Sediment
Chemical Parameter	Soil RL	PQL	Bkgrd	Res/Park	Quality
Acenaphthene	0.05		0.072	14	NV
Acenaphthylene	0.05		0.093	0.15	NV
Acetone	0.5		0.5	16	NV
Aldrin	0.05		0.05	0.05	0.002
Anthracene	0.05		0.16	0.67	0.22
Antimony	1		1.3	7.5	NV
Arsenic	1		18	18	6
Barium	5		220	390	NV
Benzene	0.02		0.02	0.21	NV
Benz[a]anthracene	0.05		0.36	0.5	0.32
Benzo[a]pyrene	0.05		0.49	0.57	0.37
Benzo[b]fluoranthene	0.05		0.47	5.7	NV
Benzo[ghi]perylene	0.1		0.68	6.6	0.17
Benzo[k]fluoranthene	0.05		0.48	5.7	0.24
Beryllium	2		2.5	4	NV
Biphenyl 1,1'-	0.05		0.05	0.31	NV
Bis(2-chloroethyl)ether	0.5		0.5	0.5	NV
Bis(2-chloroisopropyl)ether	0.5		0.5	0.67	NV
Bis(2-ethylhexyl)phthalate	5		5	5	NV
Boron (Hot Water Soluble)*	0.5		0.5	1.5	NA
Boron (total)	5		36	120	NV
Bromodichloromethane	0.05		0.05	1.5	NV
Bromoform	0.05		0.05	2.3	NV
Bromomethane	0.05		0.05	0.05	NV
Cadmium	1		1.2	1.2	0.6
Carbon Tetrachloride	0.05		0.05	0.05	NV
Chlordane	0.05		0.05	0.05	0.007
Chloroaniline p-	0.5		0.5	0.5	NV
Chlorobenzene	0.05		0.05	2.4	NV
Chloroform	0.05		0.05	2.3	NV
Chlorophenol, 2-	0.1		0.1	1.6	NV
Chromium Total	5		70	160	26
Chromium VI	0.2		0.66	8	NV
Chrysene	0.05		2.8	7	0.34
Cobalt	2		21	22	50
Copper	5		92	140	16
Cyanide (CN-)	0.05		0.051	0.051	0.1
Dibenz[a h]anthracene	0.1		0.16	0.57	0.06
Dibromochloromethane	0.05		0.05	2.3	NV
Dichlorobenzene, 1,2-	0.05		0.05	1.2	NV
Dichlorobenzene, 1,3-	0.05		0.05	4.8	NV
Dichlorobenzene, 1,4-	0.05		0.05	0.083	NV
Dichlorobenzidine, 3,3'-	1		1	1	NV
Dichlorodifluoromethane	0.05		0.05	16	NV
DDD	0.05		0.05	3.3	0.008
DDE	0.05		0.05	0.26	0.005
DDT	0.05		1.4	1.4	0.007
Dichloroethane, 1,1-	0.05		0.05	0.47	NV

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Soil Components for Within 30 M of a Water Body (Table 8)					
Potable Water Scenario	**Res/Park/Inst/Com/Ind/Comm Land Uses (ug/g)**				
	MOE	Mass.	Ont. Soil	Table 2	Sediment
Chemical Parameter	Soil RL	PQL	Bkgrd	Res/Park	Quality
Dichloroethane, 1,2-	0.05		0.05	0.05	NV
Dichloroethylene, 1,1-	0.05		0.05	0.05	NV
Dichloroethylene, 1,2-cis-	0.05		0.05	1.9	NV
Dichloroethylene, 1,2-trans-	0.05		0.05	0.084	NV
Dichlorophenol, 2,4-	0.1		0.1	0.19	NV
Dichloropropane, 1,2-	0.05		0.05	0.05	NV
Dichloropropene,1,3-	0.05		0.05	0.05	NV
Dieldrin	0.05		0.05	0.05	0.002
Diethyl Phthalate	0.5		0.5	0.5	NV
Dimethylphthalate	0.5		0.5	0.5	NV
Dimethylphenol, 2,4-	0.2		0.2	38	NV
Dinitrophenol, 2,4-	2		2	2	NV
Dinitrotoluene, 2,4 & 2,6-	0.5		0.5	0.5	NV
Dioxane, 1,4	0.2		0.2	1.8	NV
Dioxin/Furan (TEQ)		5.4E-07	0.000007	0.000013	NV
Endosulfan	0.04		0.04	0.04	NV
Endrin	0.04		0.04	0.04	0.003
Ethylbenzene	0.05		0.05	1.1	NV
Ethylene dibromide	0.05		0.05	0.05	NV
Fluoranthene	0.05		0.56	0.69	0.75
Fluorene	0.05		0.12	62	0.19
Heptachlor	0.05		0.05	0.15	NV
Heptachlor Epoxide	0.05		0.05	0.05	0.005
Hexachlorobenzene	0.01		0.01	0.52	0.02
Hexachlorobutadiene	0.01		0.01	0.012	NV
Hexachlorocyclohexane Gamma-	0.01		0.01	0.056	NV
Hexachloroethane	0.01		0.01	0.089	NV
Hexane (n)	0.05		0.05	2.8	NV
Indeno[1 2 3-cd]pyrene	0.1		0.23	0.38	0.2
Lead	10		120	120	31
Mercury	0.1		0.27	0.27	0.2
Methoxychlor	0.05		0.05	0.13	NV
Methyl Ethyl Ketone	0.5		0.5	16	NV
Methyl Isobutyl Ketone	0.5		0.5	1.7	NV
Methyl Mercury **				0.0084	NV
Methyl tert-Butyl Ether (MTBE)	0.05		0.05	0.75	NV
Methylene Chloride	0.05		0.05	0.1	NV
Methlynaphthalene, 2-(1-) ***	0.05		0.59	0.99	NV
Molybdenum	2		2	6.9	NV
Naphthalene	0.05		0.09	0.6	NV
Nickel	5		82	100	16
Pentachlorophenol	0.1		0.1	0.1	NV
Petroleum Hydrocarbons F1****	10		25	55	NV
Aliphatic C6-C8				39	NV
Aliphatic C>8-C10				76	NV
Aromatic C>8-C10				39	NV
Petroleum Hydrocarbons F2	10		10	98	NV
Aliphatic C>10-C12				390	NV

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Soil Components for Within 30 M of a Water Body (Table 8)					
Potable Water Scenario	**Res/Park/Inst/Com/Ind/Comm Land Uses (ug/g)**				
	MOE	Mass.	Ont. Soil	Table 2	Sediment
Chemical Parameter	Soil RL	PQL	Bkgrd	Res/Park	Quality
Aliphatic C>12-C16				170	NV
Aromatic C>10-C12				22	NV
Aromatic C>12-C16				44	NV
Petroleum Hydrocarbons F3	50		240	300	NV
Aliphatic C>16-C21				6700	NV
Aliphatic C>21-C34				6900	NV
Aromatic C>16-C21				1200	NV
Aromatic C>21-C34				1200	NV
Petroleum Hydrocarbons F4	50		120	2800	NV
Aliphatic C>34				6900	NV
Aromatic C>34				1200	NV
Phenanthrene	0.05		0.69	6.2	0.56
Phenol	0.5		0.5	9.4	NV
Polychlorinated Biphenyls	0.3		0.3	0.35	0.07
Pyrene	0.05		1	540	0.49
Selenium	1		1.5	2.4	NV
Silver	0.5		0.5	20	0.5
Styrene	0.05		0.05	0.7	NV
Tetrachloroethane, 1,1,1,2-	0.05		0.05	0.058	NV
Tetrachloroethane, 1,1,2,2-	0.05		0.05	0.05	NV
Tetrachloroethylene	0.05		0.05	0.28	NV
Thallium	1		1	1	NV
Toluene	0.2		0.2	2.3	NV
Trichlorobenzene, 1,2,4-	0.05		0.05	0.36	NV
Trichloroethane, 1,1,1-	0.05		0.05	0.38	NV
Trichloroethane, 1,1,2-	0.05		0.05	0.05	NV
Trichloroethylene	0.05		0.05	0.05	NV
Trichlorofluoromethane	0.05		0.25	4	NV
Trichlorophenol, 2,4,5-	0.1		0.1	4.4	NV
Trichlorophenol, 2,4,6-	0.1		0.1	2.1	NV
Uranium	1		2.8	23	NV
Vanadium	10		86	86	NV
Vinyl Chloride	0.02		0.02	0.02	NV
Xylene Mixture	0.05		0.05	3.1	NV
Zinc	30		290	340	120
Electrical Conductivity (mS/cm)			0.57	0.7	NA
Chloride	5		210	NA	NV
Sodium Adsorption Ratio			2.4	5	NA
Sodium	50		1300	NA	NV

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Appendix B
Photographs

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Photo 1 Cowans Creek (1), April 2024.

Photo 2 Cowans Creek (2), April 2024.

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Photo 3 Cowans Creek (3), April 2024.

Photo 4 Cowans Creek (4), April 2024.

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Appendix C
Curriculum Vitae

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Patrick Garrett, M.Sc., C.Chem. *Environmental Specialist/Risk Assessor*

Mr. Garrett holds a Master of Science degree in Environmental Chemistry from the Royal Military College of Canada, as well as a Bachelor of Science in Environmental Chemistry from Queen's University. Mr. Garrett is a Chartered Chemist with Association of the Chemical Profession of Ontario. Mr. Garrett's experience includes Phase I/One and II/Two environmental site assessments, record of site condition, risk assessment, and excess soil management. Mr. Garrett's roles and responsibilities have been at all phases of the project life cycle, starting at the proposal stage, through to preparing and implementing field programs, to analysis of environmental data and final reporting. Mr. Garrett is also involved in the internal review process of Phase I/One and II/Two ESA reports, risk assessments, and excess soil management reporting.

SUMMARY OF PROFESSIONAL EXPERIENCE

2020 - Present	Environmental Specialist/Risk Assessor. Cambium Inc. *Kingston, ON, Canada* *Responsible for project management, including budgeting, coordination of project staff, sub-consultants and contractors, liaison with clients and regulators, ensuring compliance with federal, provincial, and municipal regulatory requirements, data analysis and interpretation, report preparation, and internal report review. Field of expertise includes environmental site assessments, soil and groundwater remediation, excess soil management, and risk assessment.*
2017 - 2020	Environmental Scientist. Environmental Sciences Group (ESG)/Royal Military College of Canada (ESG/RMCC) Kingston, ON, Canada *Conduct field/technical investigations, monitoring programs, and remediation projects for sites contaminated with pollutants related to Department of National Defense (DND) operational activities (PFAS, hydrocarbons, energetics, and other operational contaminants).*
2015 - 2016	Notification Processing and Controls Officer. Environment and Climate Change Canada Gatineau, QC, Canada *Administered the New Substances Notification Regulations (Chemicals and Polymers) [NSNR (Chemicals and Polymers)] and the New Substances Notification Regulations (Organisms) [NSNR (Organisms)] of CEPA.*

PROFESSIONAL ASSOCIATIONS

2020 – Present	Association of the Chemical Profession of Ontario – Chartered Chemist

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EDUCATION & TRAINING

2019	M.Sc. Environmental Chemistry. Royal Military College of Canada (RMCC) Kingston, ON, Canada
2017	B.Sc. Honours. Environmental Chemistry. Queen's University Kingston, ON, Canada

PUBLICATIONS

N-heterocyclic carbine-functionalized magic-number gold nanoclusters, *Nature Chemistry, 11 (2019) 419-425*

LANGUAGES

- English

PROFESSIONAL AREA OF FOCUS

RISK ASSESSMENT

- RESIDENTIAL RISK ASSESSMENT – BOWMANVILLE, ON

Modified Generic Risk Assessment (MGRA) and Tier III Risk Assessment (RA) for a former industrial property that is being converted to a residential development in a high-profile area. Mr. Garrett is responsible for coordinating remediation activities, managing data, and providing RA support.

- RESIDENTIAL RISK ASSESSMENT – PICKERING, ON

Tier III RA for a former industrial property that is being converted to a residential development in a high-profile area. Mr. Garrett is responsible for coordinating delineation activities, managing data, and providing RA support.

EXCESS SOIL MANAGEMENT

- CITY OF QUINTE WEST ROAD RECONSTRUCTION – QUINTE WEST, ON

Project coordinator and technical lead for in-situ excess soil characterization for various roadways in the City of Quinte West. The project involved the advancement of boreholes throughout the traveled portion of

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each roadway. Mr. Garrett was responsible for developing sampling and analysis plans, coordinating drilling activities and technical staff, data management, and final reporting.

- PICTON ROAD RECONSTRUCTION – PRINCE EDWARD COUNTY, ON

Project coordinator and technical lead for the characterization of over 15,000 m^3 of in-situ excess soil to be generated during road reconstruction. The project involved the advancement of boreholes throughout the traveled portion of each roadway. Mr. Garrett was responsible for developing sampling and analysis plans, coordinating drilling activities and technical staff, data management, and final reporting.

- LOYALIST HOUSING DEVELOPMENT – AMHERSTVIEW, ON

Project coordinator and technical lead for the characterization of over 20,000 m^3 of ex-situ and in-situ excess soil to be generated during a housing development. The project involved the advancement of test pits throughout the project area and within existing soil stockpiles. Mr. Garrett was responsible for developing sampling and analysis plans, coordinating subcontractors and technical staff, data management, and final reporting.

GROUNDWATER MONITORING

- 2017, 2018, 2019 CFB KINGSTON GROUNDWATER MONITORING PROGRAM – KINGSTON, ON

Collected field data and performed in-depth statistical analysis on long-term groundwater monitoring trends. Prepared a detailed report on the findings.

- 2018, 2019 CFB SUFFIELD GROUNDWATER MONITORING PROGRAM – SUFFIELD, AB

Collected field data and performed in-depth statistical analysis on long-term groundwater monitoring trends. Prepared a detailed report on the findings.

REMEDIATION

- REMEDIATION OF A FUEL SPILL – KINGSTON, ON

Operated and collected monitoring samples from a pump and treat remediation system. Prepared a report on the findings and efficiency of the remediation system.

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APPLIED RESEARCH IN EMERGING CONTAMINANTS

- *2020 ENVIRONMENTAL PROTOCOL FOLLOWING EMERGENCY USE OF CLASS B AFFF – WAINWRIGHT, AB*

Provided a detailed report on the fate and transport of PFAS in soil, and the environmental response protocol following emergency use of Class B AFFF.

GEOSTATISTICS

- *BACKGROUND SOIL CONCENTRATIONS OF TRACE ELEMENTS IN ARCTIC SOIL*

Performed in depth statistical analysis on a historical soil dataset collected as part of the DEW Line Clean-Up project. Prepared and defended as part of a Master of Science thesis at the Royal Military College of Canada.

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MARK BEASY, M. Sc., QPRA

Senior Risk Assessor

SUMMARY OF PROFESSIONAL EXPERIENCE

2021 – Present — Senior Risk Assessor. Cambium Inc.

Oshawa, Ontario, Canada

Mark's responsibilities include the coordination and management of projects related to environmental risk assessments, soil vapour and indoor air quality assessments. He also provides senior peer review support of RA work for external clients. Mark has extensive experience with proposal and report preparation including Due Diligence Risk Assessments, Opinion Letters, data compilation, and interpretation.

2019 – 2021 — Senior Risk Assessor. Pinchin Ltd.

Mississauga, Ontario, Canada

Conducted human health and ecological RAs under O.Reg. 153/04, as well as under federal and other provincial guidelines. Provided peer reviews for internal and external projects, both for due diligence and for regulatory submission. Managed Soil Vapour and Indoor Air Quality Assessments for both due diligence and in support of RA under O.Reg. 153/04. Developed toxicological assessments and air benchmarks for novel chemicals for which no guidelines are otherwise available.

2015 – 2019 — Senior Risk Assessment Specialist. EXP Services Inc.

Brampton, Ontario, Canada

Conducted environmental and human health risk assessment projects under Ontario Regulations 153/04 for various contaminated sites in Ontario (including Tier 2, Tier 3 and Due Diligence Risk Assessments). Oversaw additional projects such as monitoring programs for Certificates of Property Use under O. Reg. 153/04; soil, groundwater and subslab vapour sampling programs; and, risk management plans. Completed ongoing project management, staff scheduling and professional mentorship duties.

2011 – 2014 — Risk Assessment Specialist. SNC-Lavalin Inc., Environment & Water.

Toronto, Ontario, Canada

Conducted environmental and human health risk assessment projects under Ontario Regulations 153/04 for various contaminated sites in Ontario (including Tier 2, Tier 3 and Streamlined Tier 3 Risk Assessments). Worked with site assessment staff to develop complete conceptual site models and to plan cost effective site characterization to support Risk Assessment.

2007 – 2010 — Environmental Risk Analyst II. Intrinsik Environmental Sciences Inc.

Mississauga, Ontario, Canada

Conducted environmental and human health risk assessment projects, including ecological and human exposure RAs for contaminated sites and industrial emissions and effluents. Duties included: chemical fate and transport, human health and ecological exposure modelling, reaction chemistry in consumer product support, statistical analysis of environmental data, screening data against regulatory guidelines, report writing, data analysis, literature reviews; and, development of property-specific standards.

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EDUCATION & TRAINING

1996	Master of Science in Chemistry, University of Waterloo, Waterloo, Ontario
1992	Combined Honours Bachelor of Science in Mathematics and Chemistry, Dalhousie University, Halifax, Nova Scotia

PEER AND TECHNICAL REVIEW

- Senior Peer Reviewer for projects to support land conveyances (and RSC filing) from private properties to the City of Toronto (2015 to 2019).
- Senior technical reviewer for more than a hundred risk assessment, toxicology, soil vapour and indoor air assessment reports for a variety of sites including redevelopment properties, vacant lands, novel chemical manufacturers/users and federal properties.

SELECTED EXPERIENCE

Mr. Beasy has completed numerous Environmental Risk Assessments on contaminated sites, ranging from Due Diligence RAs to risk-based Opinion Letters to Tier 3 RAs conducted under O.Reg. 153/04 for the purpose of filing a Record of Site Condition (RSC). Select RA projects are provided below.

ART GALLERY PROPERTY RISK ASSESSMENT – THUNDER BAY, ONTARIO

Tier 3 RA of a Site impacted by metals, PHCs, VOCs and PAHs. No risks are anticipated with implementation of Risk Management. Site-specific risk-based soil standards were developed where naturally elevated levels of metals are present in region. RSC filed for mixed parkland and institutional use.

RESIDENTIAL PROPERTY RISK ASSESSMENT - TORONTO, ONTARIO

Modified Generic Risk Assessment (MGRA) of a Site impacted by VOCs and inorganics. Inorganic impacts in groundwater at depth were attributed to natural sources using a novel analytical approach. RSC filed for residential use.

RESIDENTIAL AND COMMERCIAL PROPERTY RISK ASSESSMENT - OTTAWA, ONTARIO

Tier 3 RA of a Site impacted by PHCs and chlorinated VOCs as a result of historical commercial operations. The RA concluded that no risks are anticipated based on the implementation of recommended risk management and implementation of a vapour sampling program to minimize risk management costs while achieving acceptance with MECP. An RSC will be obtained for the property under O. Reg. 153/04.

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COMMERCIAL PROPERTY RISK ASSESSMENT - TORONTO, ONTARIO

Tier 3 RA of a Site primarily impacted by PHCs, chlorinated VOCs and semi-volatile parameters as a result of historical industrial operations. The RA concluded that no risks are anticipated based on the implementation of recommended risk management (including vapour mitigation system in newly constructed building) and implementation of ongoing groundwater and air monitoring to minimize risk management costs while achieving acceptance with MECP. An RSC will be obtained for the property under O. Reg. 153/04.

COMMERCIAL PROPERTY RISK ASSESSMENT - MISSISSAUGA, ONTARIO

Tier 3 RA of a Site primarily impacted by PAHs, PHCs and chlorinated VOCs as a result of historical commercial operations. The RA concluded that no risks are anticipated based on the implementation of recommended risk management (including soil vapour extraction system in existing plaza) and implementation of ongoing groundwater and air monitoring to minimize risk management costs while achieving acceptance with MECP. RSC filed for commercial use.

COMMERCIAL PROPERTY RISK ASSESSMENT – YORKTON, SASKATCHEWAN

Contaminated Site RA of a property owned and operated by a First Nations group. Site primarily impacted by PHCs as a result of historical commercial operations. As Site is owned and operated by a First Nations group, federal guidelines and standards were required. No risks were anticipated with implementation of risk management.

DUE DILIGENCE RISK ASSESSMENTS – VARIOUS LOCATIONS

Project Manager responsible for numerous Due Diligence Risk Assessments (DDRAs), primarily for support of environmental site assessments related to property financing and transactional agreements. These are typically conducted in general accordance with O.Reg. 153/04 based on client needs and defined scope, for assessment of risk to human health and the environment.

COMMERCIAL PROPERTY RISK ASSESSMENT – YORKTON, SASKATCHEWAN

Contaminated Site RA of a property owned and operated by a First Nations group. Site primarily impacted by PHCs as a result of historical commercial operations. As Site is owned and operated by a First Nations group, federal guidelines and standards were required. No risks were anticipated with implementation of risk management.

FEDERAL SITE-SPECIFIC RISK ASSESSMENT – NORTHERN ONTARIO

Federal Site-Specific Risk Assessment (SSRA) for hydrometric station in northern Ontario. The SSRA evaluated risks to human health and the environment as a result of mercury impacts in on-Site soils related to spills associated

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with manometer use. The SSRA was conducted based on identified receptors (including First Nations) and exposure pathways, evaluating both short- and long-term exposures, where appropriate.