

Hydrogeological Assessment Report Proposed Mixed-Use Development 0 Humber Station Road Caledon, Ontario

Mr. Satwant Deol

May 13, 2026
02405205.000



ENGLOBE

Hydrogeological Assessment Report Mr. Satwant Deol.

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Revisions and publications log.

REVISION No.	DATE	DESCRIPTION
D01	May 12,2026	Draft Hydrogeological Investigation Report issued.
A01	May 13,2026	Final hydrogeological Report issued

Distribution

1 digital copy	Mr. Satwant Deol
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1 Introduction

Englobe Corp. (Englobe) was retained by Mr. Satwant Deol to conduct a Hydrogeological Assessment for a proposed mixed-use development consisting of eight (8) single-storey slab-on-grade commercial buildings (Building A-G) and two (2) 20-storey apartment buildings (Building 1 and Building 2) resting on a two-level common underground parking structure, at-grade parking lots and driveways.

The project site is located on the northeast quadrant of the King Street and Humber Station Road intersection, in the Town of Caledon, Ontario. The municipal address of the site is 0 Humber Station Road, Caledon, Ontario. The legal description of the property is Part of Lot 11, Concession 5 (Albion). The subject site measures about 2.62 hectares (6.47 acres) in size. The project site currently consists of a particle of vacant land. CP railway track runs adjacent to the northern limit of the land parcel.

Englobe reviewed the following as part of the Hydrogeological assessment:

- *N Architecture Inc., Project No. 24-66, Site Plan (A-1.0, A-1.5, A-1.6) 0 Humber Station Road Caledon, dated Jan 08,2025.*

Based on the review of the above, the following finished floor elevations are noted for the proposed slab on grade buildings (Buildings A-F) and the apartment buildings (Building 1 and Building 2):

Proposed Building	Finished Floor Elevation (FFE)
Building A	267.05 ± m
Building B	267.13 ± m to 267.28 ± m
Building C	265.65 ± m
Building D	265.7 ± m
Building E	267.95 ± m
Building F	267.55 ± m to 267.85 ± m
Building G	265.98 ± m
Building H	265.75 ± m
Apartment Building 1 (Combined underground Parking P2 with Apartment building 2)	265.65 ± m-Finished
	261.05 ± m (Combined P1 Underground Parking)
	257.25 ± m (Combined P2 Underground Parking)
Apartment Building 2	265.70 ± m
	261.05 ± m (Combined P1 Underground Parking)
	257.25 ± m (Combined P2 Underground Parking)

Detailed design information for the proposed development was not available at the time of this assessment, and the report should be revised once detailed design including shoring details is available.

This hydrogeological investigation includes an overview of the existing geological and hydrogeological conditions at the Site and the surrounding area, an assessment of the hydrogeological constraints, impacts of the proposed development on the local groundwater use and provides an estimation of construction dewatering requirements along with long-term foundation drainage estimates. A preliminary water balance assessment for the entire site was also completed to estimate the change in hydrology resulting from the proposed development.

If needed, the results of this investigation can be used in support of an application for a Category 3 Permit to Take Water (PTTW) or an Environmental Activity Sector Registry (EASR) for construction dewatering from the Ministry of the Environment, Conservation and Parks (MECP).

2 Scope of Work

The following tasks were completed as part of the Hydrogeological Investigation:

- Review of Geological and Hydrogeological Setting of the Site: A review of available background geological and hydrogeological information for the Site was completed using Ontario Geological Survey (OGS) maps, Ministry of Environment Conservation and Parks (MECP), Oak Ridges Moraine Groundwater Program (ORMGP), and Ministry of Natural Resources and Forestry (MNR) databases.
- Site Inspection: A visual inspection of the Site and surrounding areas was conducted to determine local topography and drainage, and an assessment of hydrogeologically significant features.
- Borehole Drilling and Monitoring Wells Installation: The field investigation was completed between January 27-30, 2025, and included drilling fifteen (15) boreholes at the site, ranging in depth from approximately 3.5 m to 14.2 m below existing grade.
- Groundwater Level Monitoring and Hydraulic Conductivity Testing: Groundwater levels within the monitoring wells were monitored to observe groundwater conditions at the site. In-situ hydraulic conductivity tests were conducted within selected monitoring wells to establish hydraulic conductivity of the strata.
- Groundwater Quality Testing: Groundwater Quality was tested against parameters listed under Peel Region Sanitary and Storm Sewer use by-law.
- Potential Short-Term Dewatering: Considering the estimated short-term construction dewatering flow rates, recommendations were provided on any need for applying for a PTTW or posting on the EASR, if required.
- Long-Term Foundation Requirements: Post-construction foundation drainage requirements/long-term dewatering requirements were estimated for the apartment buildings 1 and 2.
- Water Balance Assessment: A preliminary pre- and post-development water balance assessment was completed to estimate changes in site hydrology, including infiltration, evapotranspiration, and runoff, resulting from the proposed development.

The above scope of work was prepared in accordance with Ontario Water Resources Act, and Ontario Regulation 387/04. Detailed design information for the proposed development was not available at the time of this assessment, and the report should be revised once detailed design including shoring details is available.

3 Applicable Regulations and Policies

The environmental regulations and policies relevant to this hydrogeological study are briefly discussed below.

3.1 Toronto Region Conservation Authority (TRCA)

Under section 28 of the Conservation Authorities Act, local conservation authorities are mandated to protect the health and integrity of the regional greenspace system and to maintain or improve the hydrological and ecological functions performed by the valley and stream corridors. The study area is located within the Humber River watershed, which forms part of the jurisdiction of the Toronto Region Conservation Authority (TRCA). A portion of the subject property is regulated by TRCA as it is within 30 meters of a Provincially Significant Wetland (PSW) associated with the Humber River Watershed. Relevant Mapping is presented in **Appendix A**.

3.2 Clean Water Act 2006

The MECP mandates the protection of existing and future sources of drinking water under the Clean Water Act, 2006 (CWA). Initiatives under the CWA include the delineation of Wellhead Protection Areas (WHPAs), Significant Groundwater Recharge Areas (SGRAs) and Highly Vulnerable Aquifers (HVAs) as well as the assessment of drinking water quality and quantity threats within Source Protection Regions. Source Protection Plans are developed under the CWA and include the restriction and prohibition of certain types of activities and land uses within WHPAs. Refer to **Appendix A** for associated regulatory mapping details.

Based on the review of MECP's Source Protection Information Atlas, the following information is obtained:

Table 1 : CWA applicable Policies

Associated Policy Area	Applicability
Conservation Authority	Toronto and Region Conservation Authority (TRCA)
Source Protection Area	Toronto
Conservation Regulated Area	Partially
Wellhead Protection Area (WHPA)	No
Significant Groundwater Recharge Area (SGRA).	Northern portion Partially located. Surrounding area is predominantly mapped as SGRA.
Highly Vulnerable Aquifer (HVA)	No
Wellhead Protection Areas (WHPA - Q) or Recharge Management Area	No
Intake Protection Zone (IPZ)	No
Intake Protection Zone Q (IPZ-Q)	No
Oak Ridges Moraine (ORM)	No
Greenbelt Protection Act Area	No

3.3 Water Bodies and Areas of Natural Significance

Mapping from the Ontario Ministry of Natural Resources and Forestry (MNR) was reviewed to determine ANSIs within the Study Area. The Ontario Ministry of Natural Resources National Heritage Information Centre database for listings of Areas of Natural or Scientific Interest (ANSIs) was reviewed. The subject site is situated between tributaries of the Humber River located both upstream and downstream of the site. A tributary of the Humber River is present to the northeast of the site, flowing westward, while additional tributaries are located to the south and southwest of the site. Several waterbodies are identified in the surrounding area, including a larger ponded feature to the northeast and smaller waterbodies scattered within the 500 m radius. The primary waterbody to the northeast is associated with a Provincially Significant Wetland (PSW). Natural heritage features mapped are presented in **Appendix A**.

4 Site Description

4.1 Site Location and Description

The subject site (**Figure 1**) is currently vacant. The surrounding area is characterized by Humber Station Road and a mix of residential and agricultural properties to the south, agricultural lands to the west, industrial use to the northeast, and commercial property to the east. A CP Railway corridor runs nearby, and a waterbody is located northeast of the site. Based on elevations recorded in the drilled boreholes, the site exhibits a gentle overall slope descending toward the northeast.

4.2 Topography and Surface Drainage

The existing ground surface elevations at the borehole location varies from about 261.9 to 267.0 m. Based on elevations recorded in the drilled boreholes, the site exhibits a gentle overall slope descending toward the northeast. Overland flow at the site is expected to follow topography flowing to Northeast towards the existing waterbody.

4.3 Physiography and Local Geology

The site is located within the South Slope physiographic region characterized by Drumlinized till Plains. Based on review of the surface geological map of Ontario, the shallow overburden is predominantly Halton Till. The Halton Till deposits are comprised, predominantly of silt to silty clay, which is high in matrix calcium carbonate and is considered clast poor. Bedrock at the site mapped as Shale, Limestone, Dolostone and Siltstone of the Queenston Formation. Bedrock was not encountered during current drilling investigation. Relevant maps are attached as **Appendix B**.

4.4 Regional Hydrogeology

The subsurface hydrostratigraphy within the area comprises of the following units as mapped from the Oak Ridges Moraine Online Cross Section Tool (**Appendix B**):

Table 2 : Regional Hydrogeology

Geological Unit	Brief Description
Halton Till	Underlying the recent glaciolacustrine deposits is the Halton Till which comprise of sandy silt to clayey silt till. The Halton Till have low permeabilities and function as an aquitard.
Oak Ridges Moraine	This unit represents thick stratified sand and gravel, characteristic of meltwater deposits associated with the Oak Ridges Moraine. It is generally a regional aquifer unit where present, providing significant groundwater storage and high transmissivity.

The upper Halton Till acts as a low-permeability unit that limits vertical groundwater movement, with only minor, localized flow through sand lenses, resulting in perched conditions. Beneath this, the Oak Ridges Moraine (ORM) forms the main aquifer and is likely confined to semi-confined due to the overlying till. Groundwater flow is therefore mainly lateral within the ORM, with limited vertical recharge.

Artesian to semi-artesian groundwater conditions have been reported in surrounding areas, potentially where the Halton Till is thinner or where stronger hydraulic connection exists between the deeper aquifer and overlying deposits. As such, local subsurface conditions may vary, and additional subsurface investigation and groundwater monitoring are recommended during detailed design to further assess the assessment of the depth of ORM aquifer.

4.5 Local Groundwater Resources

A search of the MECP Water Well Records database was completed within a 500 m radius of the site boundary. Based on the MECP water well records search, there were a total of thirty (30) well records identified within the search radius (500 m). Fourteen (14) water supply wells for domestic use were identified, with the remaining well records indicating monitoring, abandoned or test hole use. A private well survey is recommended prior to any water taking activities at the site. Water well Records Search are presented in **Figure 3** and in **Appendix C**.

5 Results of Subsurface Investigation

The field investigation was conducted on January 27 to 30, 202 and consisted of drilling and sampling a total of fifteen (15) boreholes in the vicinity of the proposed development and extended to depths varying from about 3.5 to 14.2 m below existing grade.

The boreholes were staked in the field by Englobe in consultation with the client. Various utility locates agencies, including a private locator, were contacted to locate the locatable underground public and private utility lines and clear the borehole locations prior to drilling. The approximate borehole locations are shown on enclosed Borehole Location Plan (**Figures 2A and 2B**).

The specific soil conditions encountered at each borehole location are described in greater detail on the Borehole Logs, with a summary of the general subsurface soil conditions outlined below. This summary is intended to correlate this data to assist in the interpretation of the subsurface conditions encountered at the site.

It should be noted that the subsurface conditions are confirmed at the borehole locations only and may vary between and beyond the borehole locations. The boundaries between the various strata as shown in the logs are based on non-continuous sampling. These boundaries represent an inferred transition between the various strata, rather than a precise plane of geologic change.

5.1 Stratigraphy

The following stratigraphy is based on the borehole findings, as well as the geotechnical laboratory testing conducted on selected representative soil samples. The summary provided below is for general guidance only. Detailed depths and elevations are given in the following subsections and appended borehole logs.

5.1.1 Topsoil

A surficial topsoil layer (about 300 to 450 mm thick) was encountered in all boreholes. The topsoil was noted to be dark brown to black in color and predominantly consisted of a silt matrix with organic presence.

The topsoil thicknesses were estimated from the borings and are approximate and may vary between and beyond the boreholes. The topsoil thickness noted on the Borehole Logs refers to the distinct topsoil layer present at the borehole location, however, organic inclusions extended deeper than the topsoil thickness layer noted on the Borehole Logs. The topsoil thickness to be removed/stripped for the site development may differ from the topsoil thickness noted on the Borehole Logs. Therefore, this information is not sufficient for estimating topsoil quantities and/or associated costs. Consideration should be given to conduct a shallow test pit investigation to obtain a more precise topsoil thickness.

5.1.2 Earth Fill

A zone of earth fill soil was encountered in all boreholes beneath the topsoil layer extending to a depth of about 0.8 m below existing grade. The earth fill materials predominantly consisted of clayey silt with trace amounts of sand and gravel as well as organics.

The Standard Penetration Test results (N Values) obtained from the earth fill materials varied generally from 5 to 12 blows per 300 mm of penetration, indicating a firm to stiff consistency. Measured moisture contents of the earth fill materials generally ranged from 15 to 26 percent by weight, indicating a moist condition.

5.1.3 Glacial Till

Undisturbed native glacial till deposit soil was encountered in all boreholes beneath the zone of earth fill material and extended to the full depth of investigation (up to about 14.2 m depth below existing grade).

The cohesive glacial till deposit predominately consisting of clayey silt to silt and clay with some sand and trace amounts of gravel. The till deposit was encountered in all boreholes beneath the earth fill materials at a depth of about 0.8 m and extended to depths varying from about 3.5 m (Boreholes 9 to 11) to 14.2 m (Boreholes 12 and 14) below existing grade.

The Standard Penetration Test results (N Values) obtained from the cohesive glacial till deposit varied from 10 to 62 blows per 300 mm of penetration, indicating a stiff to hard (typically very stiff) consistency. Measured

moisture contents of the cohesive glacial till deposit ranged from 5 to 25 percent by weight, indicating a moist condition.

The detailed stratigraphic conditions are presented on the accompanying borehole logs provided in **Appendix D**. Characterization of the various soil types, including grain size analysis, was conducted, and is presented in **Appendix E**. Additional information pertaining to soil stratigraphy is discussed in the geotechnical report by Englobe under a separate cover (**File No. 02405205.001**).

5.2 Monitoring Wells Installation

Monitoring wells were installed in nine (9) boreholes across site with depths varying from 3.1-12.3 mbgs. All monitoring wells were used for ground water level monitoring, groundwater sampling and for in-situ tests. The monitoring wells were constructed using 50-mm diameter PVC riser pipes and screens, which were installed in each of the geotechnical boreholes in accordance with Ontario Regulation (O. Reg.) 903.

Table 3 : Monitoring Wells Details

Well ID	Well Diameter (mm)	Ground Surface Elevation (masl)	Top of Screen		Bottom of Screen		Screened Geological Units
			Depth (mbgs)	Elev. (masl)	Depth (mbgs)	Elev. (masl)	
BH1	50	266.0	3.1	262.9	6.1	259.9	Halton Till
BH4	50	265.4	3.1	262.3	6.1	259.3	Halton Till
BH5	50	266.1	1.5	264.6	3.1	263.0	Halton Till
BH6	50	265.7	3.0	262.7	6.1	259.7	Halton Till
BH8	50	267.0	3.1	263.9	6.1	260.9	Halton Till
BH12	50	264.3	4.5	259.8	7.6	256.7	Halton Till
BH13	50	261.9	9.2	252.7	12.2	249.7	Halton Till
BH14	50	264.5	3.1	261.4	6.1	258.3	Halton Till
BH15	50	262.5	9.3	253.3	12.3	250.2	Halton Till

5.3 Groundwater Elevations

Groundwater levels were recorded in all monitoring wells (except BH1) on July 15, 2025, to assess groundwater conditions at the site. Groundwater levels in monitoring wells installed within the Halton Till ranged from approximately 1.0 to 3.0 mbgs, corresponding to groundwater elevations of approximately 259.2 to 264.3 masl. Variations between measured depths to groundwater (mbgs) and groundwater elevations (masl) reflect changes in site topography across the property.

The recorded groundwater levels are interpreted to represent shallow groundwater within the Halton Till. Groundwater conditions within the till are likely perched to semi-perched due to the low-permeability nature of the unit, with localized groundwater movement occurring through discontinuous sand and silt seams where present. Groundwater levels in the deeper wells were lower than those in the shallower wells, suggesting a slight downward vertical gradient within the till, however, vertical groundwater

movement is expected to be limited. Shallow groundwater flow direction is inferred north-northeast as shown in **Figure 5**.

The underlying ORM deposits are anticipated to behave as a confined to semi-confined aquifer system and may exhibit higher hydraulic heads relative to the overlying Halton till deposits. As such, localized upward hydraulic gradients from the ORM deposits may occur at depth.

It should also be noted that the recorded groundwater levels represent groundwater conditions at the time of monitoring only and do not account for seasonal fluctuations. Long-term groundwater monitoring may be required to establish seasonal groundwater level variations and seasonal high groundwater conditions.

Table 4 : Groundwater Elevations

Well ID	Ground Surface Elevation (masl)	July 15, 2025	
		Groundwater Depth (mbgs)	Groundwater Depth (masl)
BH1	266.0	Not recorded	
BH4	265.4	1.0	264.4
BH5	266.1	1.8	264.3
BH6	265.7	1.6	264.1
BH8	267.0	1.5	265.5
BH12	264.3	1.6	262.6
BH13	261.9	3.0	258.9
BH14	264.5	1.1	263.4

Artesian to semi-artesian groundwater conditions have been reported in surrounding areas, potentially where the Halton Till is thinner or where stronger hydraulic connection exists between the deeper aquifer and overlying deposits. As such, local subsurface conditions may vary, and additional subsurface investigation and groundwater monitoring are recommended during detailed design to further assess the depth of ORM aquifer.

5.4 Estimation of Hydraulic Conductivity

5.4.1 Estimation from Grain Size Distribution

In order to estimate the hydraulic conductivity (K) from the grain size distribution curves an excel based tool/program HydrogeoSieveXL (Devlin, J.F. 2015) is used that calculates the hydraulic conductivity from grain size distribution curves using 15 different methods. HydrogeoSieveXL was found to calculate K values essentially identical to those reported in the literature, using the published grain-size distribution curves. The complete report for each sample is provided along with the grain size results in **Appendix E**. The results of the estimates are summarized below:

Table 5 : Hydraulic Conductivity-Grain Size Analysis

Borehole No./Sample ID	Sampling Depth (mbgs)	Sampling Elevation (masl)	Soil Description (MIT)	Estimated Hydraulic Conductivity (m/s) (mean)
BH8-SS3	1.8	265.2	SILT AND CLAY, some sand, trace gravel.	1.7×10^{-9}
BH11-SS2	1.0	260.1	SILT AND CLAY, some sand, trace gravel.	1.4×10^{-9}
BH12-SS8	11.0	253.3	CLAYEY SILT, some sand, trace gravel	7.0×10^{-9}
BH15-SS9	9.4	253.1	CLAYEY SILT, some sand, trace gravel	1.8×10^{-9}

The grain size analysis results are provided in **Appendix E**. Based on grain size distribution analysis, the hydraulic conductivity of the Halton Till Unit was estimated to range from 1.4×10^{-9} m/s to 7.0×10^{-9} m/s.

5.4.2 Estimation from In-Situ Hydraulic Conductivity Testing

The hydraulic conductivity was also determined based on single well response/rising head tests in selected wells installed. The monitoring wells were developed in advance of the testing event, which involves the purging and removal of groundwater from the monitoring wells to remove remnants of clay, silt and other debris introduced into the monitoring well during construction and to induce the flow of formation groundwater through the well screens, thereby improving the transmissivity of the subsoil strata formation at the well screen depths. The Solinst Dataloggers (pressure transducers) were programmed to record the water levels at various intervals throughout the tests. The data from the tests were analyzed using the Hvorslev method included in the Aquifer Test V.10 software package. Slug test results were interpreted using the Hvorslev method, which is considered appropriate for partially screened monitoring wells installed within low-permeability Halton Till deposits.

The results of the analysis are presented in **Appendix F**. The hydraulic conductivity values calculated from the in-situ tests are as follows:

Table 6 : In-Situ Hydraulic Conductivity Test

Monitoring Well ID	Top of Well Screen Elevation (masl)	Bottom of Well Screen Elevation (masl)	Screened Geological Units	Hydraulic Conductivity (m/s)
BH4	262.3	259.3	Halton Till	5.2×10^{-8}
BH8	263.9	260.9	Halton Till	1.3×10^{-7}
BH12	259.8	256.7	Halton Till	4.5×10^{-8}
BH13	252.7	249.7	Halton Till	2.9×10^{-8}
BH15	253.3	250.2	Halton Till	1.5×10^{-8}

Based on the in-situ hydraulic conductivity testing, the hydraulic conductivity of the Halton Till Unit was estimated to range from 1.3×10^{-7} m/s to 5.2×10^{-8} m/s.

5.5 Groundwater Quality Assessment

Groundwater samples were collected by Englobe and analyzed by Bureau Veritas, a Canadian laboratory accredited and licensed by the Standards Council of Canada and or the Canadian Association for Laboratory Accreditation. One (1) unfiltered groundwater samples were collected from monitoring well BH15 on July 18, 2025. The water sample was analyzed and compared against the parameters listed under the Peel Region sanitary and combined sewer use. The table below presents the summary of exceedances, whereas the certificate of analysis is presented in **Appendix G**.

Table 7 : Groundwater Quality Summary of Exceedances

Sample ID	Analysis	Parameter	Guideline Value (mg/L)	Result	Unit
BH15	Peel Region Storm Sewer Use By-Law	Total Suspended Solids	15	25	mg/l
BH15	Peel Region Storm Sewer Use By-Law	Total Manganese	0.05	0.098	mg/l
BH15	Peel Region Storm Sewer Use By-Law	Di-N-Butyl phthalate	0.015	0.018	mg/l
Bold denotes exceedance for storm. Bold denotes exceedances for storm sanitary					

The analytical results indicate that the groundwater quality is not suitable for discharge into Peel region's storm sewer system. Pretreatment for exceedances noted above will be required for any groundwater discharge. No exceedances were reported for parameters listed under Peel Region's Sanitary sewer use.

6 Preliminary Construction Dewatering Estimates

Detailed design regarding the proposed site development was not available at the time of drafting of this report, and the dewatering estimates should be revised once detailed design is available. The proposed development as we understand will involve development consisting of slab-on-grade commercial buildings (Building A-H) and two (2) 20-storey apartment buildings (Building 1 and Building 2) resting on a two-level common underground parking structure, at-grade parking lots and driveways.

For the proposed slab-on-grade commercial buildings, dewatering is anticipated to be limited to localized sump pumping within excavations associated with site servicing trenches and footing installations

For the proposed apartment buildings with common underground parking, a preliminary dewatering estimate was completed based on the approximate site dimensions interpreted from the available site plan.

The dewatering estimates presented here are based on preliminary assumptions and data and should be revised during detailed design stage.

6.1 Geotechnical Report Review

Based on the review of geotechnical report prepared by Englobe (File No. 02405205.001), the following is noted:

- The proposed apartment buildings (Building 1 and Building 2) will of two level of underground parking and lowest finished basement floor elevation (P2 FFE) will be set at about elev. 257.25 ± m and underside of footing will be at about elev. 256.25 ± which is about 2.65 to 6.45 m below measured ground water level. Therefore, positive dewatering will likely be required. It must be noted that the groundwater levels may fluctuate seasonally depending upon the amount of precipitation and surface runoff.
- As per subsurface investigation, the earth fill is underlain by clayey silt till. The glacial till deposit typically has a relatively low permeability which precludes significant amounts of free-flowing water seepage into the excavation during the short-term.
- For the proposed commercial slab-on-grade buildings, the undisturbed native till soils of very stiff to hard consistency are considered suitable to support conventional shallow spread footing foundations. As noted previously, Boreholes 9 to 11 did not extend to sufficient depths to fully assess subsurface conditions for foundation design purposes. Accordingly, the recommendations presented herein are considered preliminary and based on the available subsurface information. Additional geotechnical investigation, including advancement of supplementary boreholes to approximately 20 ft depth in the vicinity of the proposed commercial buildings, is recommended to further confirm subsurface conditions and finalize foundation design recommendations.
- For the proposed apartment buildings, The foundation subgrade at the anticipated foundation elevation is expected to consist predominantly of stiff to hard clayey silt till deposits, generally of very stiff consistency. Due to the relatively high building loads and the presence of these comparatively lower strength till deposits extending to the full depth explored during the current investigation, conventional spread footing foundations may be less feasible for the proposed development. As recommended in the geotechnical report, alternative foundation systems such as a raft/mat foundation or deep foundations consisting of caissons or Continuous Flight Auger (CFA) piles with grade beams may be considered. Additional deeper boreholes would be required to further assess subsurface conditions and support detailed foundation design for these options.
- For excavations extending below the prevailing groundwater level and wet cohesionless zone/lenses, it will be necessary to lower the groundwater level and maintain it below the excavation base (at least 1.0 m) prior to and during the subsurface construction. A professional dewatering expert should review the subsurface information to assess the potential requirement of dewatering and establish appropriate dewatering methodology which will be responsibility of the dewatering contractor.
- A rigid shoring system (interlocking caissons) adequately designed and installed along the excavation perimeter will help preclude some of the groundwater seepage into the excavation from wet silt/sand lenses and can significantly reduce the amount of groundwater seepage and pumping for both during and post-construction conditions. As a conservative estimate, the dewatering estimate is estimated for a permeable shoring system.

6.2 Hydrogeological Conditions Summary

In assessing the short-term groundwater control requirements for the proposed development, the following considerations/assumptions are made:

- As per subsurface investigation, the earth fill is underlain by clayey silt till. The glacial till deposit typically has a relatively low permeability which precludes significant amounts of free-flowing water seepage into the excavation during the short-term.
- Dewatering estimate presented here assumes the use of a permeable shoring system to support the excavation and to aid with temporary groundwater control. As a conservative estimate, the dewatering scenario is modelled for a permeable shoring system. The model should be revised once detailed design is available. For the long-term, it is assumed that the building will not be constructed watertight and that a private water drainage system will be incorporated to collect post construction groundwater seepage.
- The underlying ORM deposits are anticipated to behave as a confined to semi-confined aquifer system and may exhibit higher hydraulic heads relative to the overlying Halton till deposits. As such, localized upward hydraulic gradients from the ORM deposits may occur at depth. An assessment of potential exit gradients and associated basal stability considerations can be further evaluated during the detailed design stage once excavation and shoring details have been finalized.
- An assessment of potential exit gradients and associated basal stability considerations can be further evaluated during the detailed design stage once excavation and shoring details have been finalized.
- Artesian to semi-artesian groundwater conditions have been reported in surrounding areas, potentially where the Halton Till is thinner or where stronger hydraulic connection exists between the deeper aquifer and overlying deposits. It is important that any excavation must not penetrate the underlying ORM deposits. For the Finite element model, we have inferred a depth of 243.0 for ORM deposits. Again, this is based on ORMGP depth online cross section tool and should be confirmed by additional drilling at the site. Ultimately, the dewatering numbers should also be revised.
- For the commercial slab on grade buildings highest groundwater level is approximately 1.0 mbgs below ground surface (From Water levels recorded in Monitoring wells in BH4, BH5, BH6 and BH8). Average ground surface within the footprint of the commercial buildings is 266.5 masl (based on Boreholes advanced at the site).
- For apartment buildings with a combined underground parking, the highest groundwater level is approximately 1.1 mbgs (from groundwater level data recorded from BH12, BH13, BH14 and BH15). Average ground surface within the footprint of the apartment buildings is 263.5 masl (based on Boreholes advanced at the site).
- Detailed design information for the proposed development was not available at the time of this assessment, and the report should be revised once detailed design including shoring details is available.
- Hydraulic conductivity of Halton till for dewatering purposes is considered 1.3×10^{-7} m/s (recorded during in-situ test in BH8. For underlying ORM deposits a hydraulic of conductivity of 5.0×10^{-7} m/s is assumed.

- Safety factor of 2.0 is applied on the groundwater flow with the inclusion of 25 mm design rainfall even;
- Steady State simulation was performed for dewatering assessment.

6.3 Short-Term and Long-Term Groundwater Flow Rates

The short-term and long-term steady state dewatering flow rate was estimated by reviewing the proposed development plans, borehole logs, groundwater conditions and estimated hydraulic conductivity for geological units in which the excavation and construction of the underground structure will be completed. The parameters assumed for the short-term dewatering rates are summarized below:

Table 8-Parameters for Short-Term Groundwater Control

Parameters	Combined P2 level Parking (Apartement Building 1 and 2)
Excavation Dimension (E-W & N-S)	47 m x 123 m
Section Cut Analyzed	E-W
Ground Elévation	263.5 ± m
Finished Floor Elevation (FFE)	265.5 ± m
P2 level FFE	257.2 ± m
Foundation FFE (Assumed)	255.2 ± m
Design Groundwater Level (1 m below ground surface)	262.5 ± m
Dewatering Target	254.2± m
Drainage Layer (For foundation drainage)	256.7 ± m

A numerical analysis was conducted utilizing computer software (Slide 7.014, released March 30, 2016, developed by Rocscience Inc.), utilizing the Finite Element Modelling (FEM) method. FEM for groundwater seepage analysis indicates the short-term (construction) dewatering requirements as provided below. The finite element model results are also presented in **Appendix H**. Please note that the foundation elevation is based on assumption and will be revised once a supplementary geotechnical investigation is completed at the site. The groundwater seepage rates also take into consideration a precipitation event of 25 mm.

Table 9 : Short-Term and Long-Term Groundwater Control Requirements

Groundwater Quantity: Short-Term (Construction)						
P2 Underground excavation with assumed foundation elevation	Groundwater Seepage (Safety Factor 2.0)		2-Year Rainfall (25 mm Design Storm Event)		Total Dewatering Volume	
	L/day	L/min	L/day	L/min	L/day	L/min
Permeable Shoring	70,000	48.6	145,000	100.7	215,000	149.3
Groundwater Quantity: Long-Term						
P2 Underground excavation with assumed foundation elevation	Groundwater Seepage (Safety Factor 2.0)		2-Year Rainfall (25 mm Design Storm Event)		Total Dewatering Volume	
	L/day	L/min	L/day	L/min	L/day	L/min
Long Term Flow Rates	30,000	20.8	5,000	3.5	35,000	24.3

As previously stated, the dewatering estimates presented here are based on preliminary assumptions and data and should be revised during detailed design stage.

6.3.1 Permitting Requirements

Based on the calculated flow rates of 215,000 L/day for short term and 35,000 L/day for long-term, an EASR will be required for the water taking activities at the site. Dewatering requirements should be revisited and refined once a detailed construction sequence and the actual extent of open trenching are available.

It is recommended that an Environmental Activity and Sector Registry (EASR) will be completed prior to any dewatering activities. Dewatering requirements should be revised once the construction phasing and area of open excavation that will be open at any time are known.

7 Water Balance Assessment

A water balance assessment was completed to assess rates of infiltration across the site under both the pre-development and post-development scenario. The water balance assessment quantifies water inputs (precipitation) and outputs (evapotranspiration) for the Site and the resulting equal outflow (infiltration and runoff) plus change in storage from the Site. For the purposes of the hydrogeological assessment the water balance assessment was completed to quantify the volume of pre-development infiltration to establish targets for stormwater management to maintain pre-development rates of infiltration following site development.

Water balance is the relationship between components of the hydrologic cycle and is expressed as follows.

$$P = S + R + I + R + ET$$

Where:

P	=	Precipitation (mm/yr)
S	=	Change in groundwater storage (mm/yr)
R	=	Surface water storage (mm/yr)
I	=	Infiltration (mm/yr)
IT	=	Runoff (mm/yr)
ET	=	Evapotranspiration/Evaporation (mm/yr)

Over the long term any change in groundwater and surface water storage is expected to be negligible and for the purposes of the water balance assessment, have not been considered. The water balance depends on site specific conditions including climatic condition, vegetation, land use, coverage area, topography, and soil conditions such as texture, moisture, storage capacity, hydraulic conductivity, porosity and structure.

Water balance for the entire site was calculated based on the site statistics presented under site plan (Appendix I).

7.1 Thornthwaite Water Balance Components

Heat Index:

The annual heat index I in the Thornthwaite method quantifies the thermal energy available for evapotranspiration. It is calculated as:

$$I = \sum_{i=1}^{12} * \left(\frac{T_i}{5}\right)^{1.514}$$

Where:

- T_i = mean monthly temperature ($^{\circ}\text{C}$). Negative temperatures are set to 0.
- The sum is over all 12 months.

This index is used to estimate potential evapotranspiration (PET) and to study water balance in soils and ecosystems.

Unadjusted Potential Evapotranspiration:

The unadjusted potential evapotranspiration (PET) was estimated using the Thornthwaite method. Each month's mean temperature is converted into a heat index, which is then used to calculate an empirical exponent, a . PET is computed for positive temperatures using this exponent and set to zero for negative temperatures. This method provides the baseline potential water loss from soil and vegetation before adjustments for month length or daylight hours are applied.

$$\text{PET} = \begin{cases} 0, & \text{if } T < 0 \\ k \cdot \left(\frac{10 T}{I}\right)^a, & \text{if } T \geq 0 \end{cases}$$

Where:

- T = mean monthly temperature ($^{\circ}\text{C}$)
- I = heat index (monthly contribution $(T/5)^{1.514}$ or annual sum of 12 months)
- a = empirical coefficient based on I

Adjusted Potential Evapotranspiration:

Adjusted potential evapotranspiration (AET) was calculated by applying a daylight factor to the unadjusted PET values derived from the Thornthwaite method. The daylight factor accounts for seasonal variations in day length, with longer summer days increasing PAET and shorter winter days reducing it.

The calculated heat index, unadjusted Potential Evapotranspiration and adjusted Evapotranspiration are presented in water balance calculations in **Appendix J**.

Climate

Toronto Pearson Airport Climate Station, climate station data (1991-2020) was utilized for precipitation data. Based on the climate normal data, the precipitation for the site is 807 mm/year. Also, the average monthly

temperature from this station has been used. The monthly distribution of precipitation is given in **Appendix J**.

The mean annual precipitation, Actual Evapotranspiration and precipitation surplus for the site, as calculated based on the methodology defined above is summarized as follows:

0 Humber Station Rd.	Mean Annual (mm/year)
Annual Precipitation	807
Actual Evapotranspiration (AET)	605

The climate is typical for Southern Ontario, consisting of moist, temperate conditions. Precipitation exceeds evaporation and evapotranspiration.

Infiltration (I) and Runoff (R):

Infiltration rates at the Site were assessed using the MECP Table 2 approach in the Technical Information Requirements for Land Development Applications (1995). The infiltration factor was calculated based on Table 3 as summarized below. In the post development conditions, a reduction of 15 % is applied considering the compaction from construction.

Criteria	Infiltration Coefficient
Topography - Rolling land	0.2
Soil - Medium Combination of Clay and Loam	0.2
Cover - Cultivated lands	0.1
Pre Dev Infiltration Factor	0.50
Pre Dev Run-Off Factor	0.50
Post Dev Infiltration Factor	0.45
Post Dev Run-Off Factor	0.55

7.2 Water Balance for Pre- and Post-Development Conditions

It is expected that the hydrogeological function of the Site is to provide for limited groundwater recharge given the site is underlain by low permeability glacial till deposits. The Site shallow soil conditions across the Site consist of silt and sand to silt and clay glacial till (Halton till) considered low permeability. There are no significant areas of enhanced or localized higher recharge (such as closed depressions, kettle holes or areas of high permeability gravel material identified within the Site).

The water balance for the entire is calculated based on the site statics as presented in the Site Plan, dated January 08, 2025 (**Appendix J**).

7.2.1 Pre-Development Conditions

The site is a vacant agricultural parcel of land with a total area of 25,962 m². In pre-development conditions all of the area is considered pervious. The water balance for pre-development conditions for the site is summarized in the Table below and in **Appendix (J)**.

Land Type	Area m ²	AET m ³ /year	Infiltration m ³ /year	Runoff m ³ /year
Total Proposed Development Area				
Pervious Area				
Landscaped area	25,962	13,203	3871	3871

7.2.2 Post-Development Conditions

Post development, the total lot area of 25,962 m² will be developed as follows as inferred from the site plan:

Post-Development Statistics	
Pervious Landscape area, easements and Outdoor Amenity areas	4622 m ²
Impervious-Buildings Footprint	5905 m ²
Impervious-Paved Area (Surface Parking, roadways)	15,435 m ²

Post Development water balance based on previous and impervious areas for the site is summarized in the Table below and in **Appendix (J)**. For the impervious areas, it is assumed that evaporation will occur and will amount to 15% of total precipitation

Land Type	Area	Evaporation/AET m ³ /year	Infiltration m ³ /year	Runoff m ³ /year
Total Proposed Development Area				
Pervious Area				
Landscaped Area	4622	2301	785	642
Impervious Area				
Impervious Area (Buildings)	5905	715	0	4050
Impervious Area (paved areas)	15,435	1868	0	10,585

7.2.3 Water Balance Results-Comparison of Pre-Post Development Conditions

Based on the results of the pre-development and post-development water balance completed, the proposed development will produce a reduction in annual evapotranspiration/AET (10,902 m³/year), a reduction in annual infiltration (3086 m³/year) and an increase in annual runoff (11,405 m³/year). The effects are the result of increased impervious area, replacing pervious areas of the Site. To maintain pre-development water balance, various LID measures should be considered during design. The analysis is summarized as below in Table.

Comparison of Pre- and Post-development Annual Water Balance			
	Pre-development	Post-development	Change
Runoff	3871 m ³	15,277 m ³	+11,405 m ³
infiltration	3871 m ³	785 m ³	- 3086 m ³
Evapotranspiration	13,203 m ³	2301 m ³	- 10,902 m ³
Evaporation	0 m ³	2582 m ³	+ 2582 m ³

The above-noted calculations are conservative and are based on the following assumptions:

- No infiltration will occur beneath the internal roads, public walkways, or driveways.
- No evapotranspiration will occur from the internal roads, public walkways, or driveways.
- Run-off from road surfaces will be directed towards storm sewers and is not included in the infiltration calculations.
- It is assumed that there will be 10% evaporation in hard-surface areas/impervious surfaces, and the remaining will contribute to run-off.
- Infiltration rates in open areas of the property (landscaped areas) will occur at rates similar to those for pre- development conditions.
- There will be no infiltration beneath hard-surface areas, including buildings, pavements, and walkways.

The post-development conditions will result in a surplus of water available from run-off. The surplus of water available from roof runoff can be used for infiltration into the shallow groundwater system.

8 Impact Analysis

8.1 Discharged of Pumped Groundwater

The analytical results indicate that the groundwater quality does not meet the Peel Region Storm Sewer Use By-law criteria. No exceedances were reported against Peel Region Sanitary sewer use criteria.

It is expected that through the implementation of sediment and erosion controls, to be implemented by the contractor, that noted exceedances can be effectively removed, and groundwater can be discharged to the municipal storm sewer. Sediment and erosion control measures to remove sediment are expected to include measures such as filtered sumps, discharge socks, and/or fractionation/weir tanks.

Please note that the presented report does not address sewer capacity analysis, which should be carried out in advance of any anticipated groundwater discharge. Ultimately it is the responsibility of the dewatering contractor to ensure that relevant sewer use criteria are constantly met during the construction dewatering period. Please note that relevant discharge permits from the Peel Region will be required for any discharge to the sewer system.

8.2 Impacts of Groundwater Uses

Private well users are anticipated to be present within the vicinity of the site based on the available water well record review. It is recommended that a private well survey be completed prior to any dewatering activities to establish a baseline inventory of nearby wells, including existing groundwater levels and water quality conditions

8.3 Impacts on the Natural Environment

The tributary of the Humber River is located northeast of the site and generally flows westward, while additional tributaries are present to the south and southwest. Several waterbodies are also identified within the surrounding area, including a larger ponded feature to the northeast and smaller isolated waterbodies within approximately 500 m of the site. The primary waterbody to the northeast is associated with a Provincially Significant Wetland (PSW). Shallow groundwater flow and surface runoff are anticipated to generally drain toward this feature. Any post-development increase in runoff should be managed through appropriate stormwater management measures. A detailed and mitigated water balance assessment will be completed during detailed design once finalized site grading, servicing, and Low Impact Development (LID) measures become available.

9 Conclusions and Recommendations

- The proposed mixed-use development consisting of eight (8) single-storey slab-on-grade commercial buildings (Building A-H) and two (2) 20-storey apartment buildings (Building 1 and Building 2) resting on a two-level common underground structure, at-grade parking lots and driveways.
- The study area is located within the Humber River watershed, which forms part of the jurisdiction of the Toronto Region Conservation Authority (TRCA). A portion of the subject property is regulated by TRCA as it is within 30 meters of a Provincially Significant Wetland (PSW) associated with the Humber River Watershed.
- The northern portion of the site is partially located within a Significant Groundwater Recharge Area (SGRA). In addition, lands to the north and northeast are predominantly mapped as SGRA. Applicable TRCA policies and criteria related to groundwater quantity and quality protection will therefore be applicable to the proposed site development.
- The site is located within the South Slope physiographic region and is underlain by Halton Till deposits consisting predominantly of silt to silty clay till. Bedrock in the area is mapped as Queenston Formation shale, limestone, dolostone, and siltstone
- The site is interpreted to be underlain by low-permeability Halton/Kettleby Till deposits, which function as an aquitard and limit groundwater movement. Deeper Oak Ridges Moraine deposits, where present, are expected to comprise permeable sand and gravel and function as a regional aquifer system. Artesian to semi-artesian groundwater conditions have been reported in surrounding areas, potentially where the till is thinner or hydraulic connection with the deeper

ORM aquifer is stronger; therefore, additional investigation may be required during detailed design to further assess local subsurface conditions and ORM aquifer depth.

- Groundwater levels ranged from approximately 1.0 to 3.0 mbgs (259.2-264.3 masl) and are interpreted to represent shallow perched to semi-perched groundwater within the Halton Till. Groundwater levels in the deeper wells were generally lower than those in the shallower wells, suggesting a slight downward vertical gradient within the till. shallow groundwater flow is interpreted to generally follow regional topography toward the East.
- Based on the MECP water well records search, there were a total of thirty (30) well records identified within the search radius (500 m). Fourteen (14) water supply wells for domestic use were identified, with the remaining well records indicating monitoring, abandoned or test hole use. A private well survey is recommended prior to any water taking activities at the site
- Based on grain size distribution analysis, the hydraulic conductivity of the Halton Till Unit was estimated to range from 1.4×10^{-9} m/s to 7.0×10^{-9} m/s. Based on the in-situ hydraulic conductivity testing, the hydraulic conductivity of the Halton Till Unit was estimated to range from 1.3×10^{-7} m/s to 5.2×10^{-8} m/s.
- The analytical results indicate that the groundwater quality is not suitable for discharge into Peel region's storm sewer system. Pretreatment for exceedances noted above will be required for any groundwater discharge. No exceedances were reported for parameters listed under Peel Region's Sanitary sewer use.
- As per Geotech report, additional drilling is recommended for the proposed commercial buildings and the apartment buildings to finalize the foundation design recommendations.
- For the proposed slab-on-grade commercial buildings, dewatering is anticipated to be limited to localized sump pumping within excavations associated with site servicing trenches and footing installations. For the apartment buildings with a combined 2 level short term and long-term groundwater control requirements are estimated as 215,000 and 35,000 L/day respectively.
- Artesian to semi-artesian groundwater conditions have been reported in surrounding areas, particularly where the Halton Till is thinner or hydraulic connection with the deeper ORM aquifer is stronger. The current conceptual model assumes the ORM deposits occur at approximately Elevation 243 masl based on available ORMGP cross-sections; however, this should be confirmed through additional drilling. Excavation into the ORM deposits should be avoided, and dewatering estimates should be refined during detailed design once additional subsurface information becomes available.
- Based on the results of the pre-development and post-development water balance completed, the proposed development will produce a reduction in annual evapotranspiration/AET (10,902 m³ /year), a reduction in annual infiltration (3086 m³ /year) and an increase in annual runoff (11,405 m³ /year). The effects are the result of increased impervious area, replacing pervious areas of the Site. To maintain pre-development water balance, various LID measures should be considered during design.

10 Closure

We trust this report meets your requirements. Should you have any questions regarding the information presented, please do not hesitate to contact our office.



Yours truly,

A handwritten signature in black ink, appearing to read "Abdul Qadir".

Abdul Qadir, P.Geo
Project Manager

A handwritten signature in black ink, appearing to read "Muhammad I. Shahid".

Muhammad I. Shahid, P.Geo., QP_{ESA}
Senior Project Manager, Environmental Services
GTA

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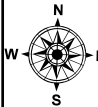
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Figures



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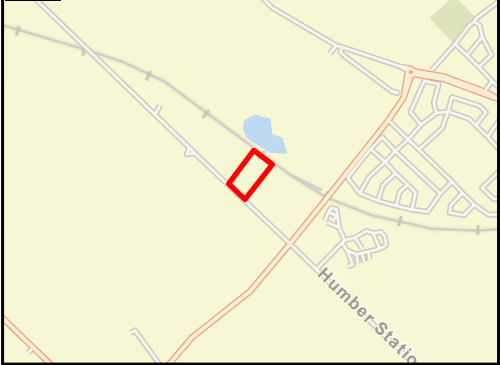
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References:

City of Toronto, Province of Ontario, York Region, TonTom, Garmin, Safegraph, METI/NASA, ESRI, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus Ds, USDA, USGS, AeroGRID, IGN, and the GIS User Community Basemaps, Maxar, NRCan, Bing Maps Aerial

Key Map



Notes:

Legend:

- Watercourse
- Railway
- Approximate Site Location

Project Title:

Hydrogeological Assessment

Site Location:

0, Humber Station Road,
Caledon, Ontario

Figure Title:

Site Location Plan

Designed By:

AQ

File No.:

02405205.000

Drawn By:

HK

Scale:

As Shown

Reviewed By:

MS

Figure No.:

Date:

July 2025

1

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References:
Map Data©Open Street Map Contributors,Microsoft, Facebook Inc. & its affiliates, Map layer by ESRI; City of Toronto, Province of ON, York Region.

Key Map

Notes:

Legend:

Approximate Monitoring Wells Location (Englobe, 2025)

Approximate Borehole Location (Englobe, 2025)

Railway

Approximate Site Location

Project Title:
Hydrogeological Investigation

Site Location:
0 Humber Station Road
Caledon, Ontario

Figure Title:
Boreholes and Monitoring Wells Location Plan

Designed By:
AQ

Drawn By:
HK

Reviewed By:
MS

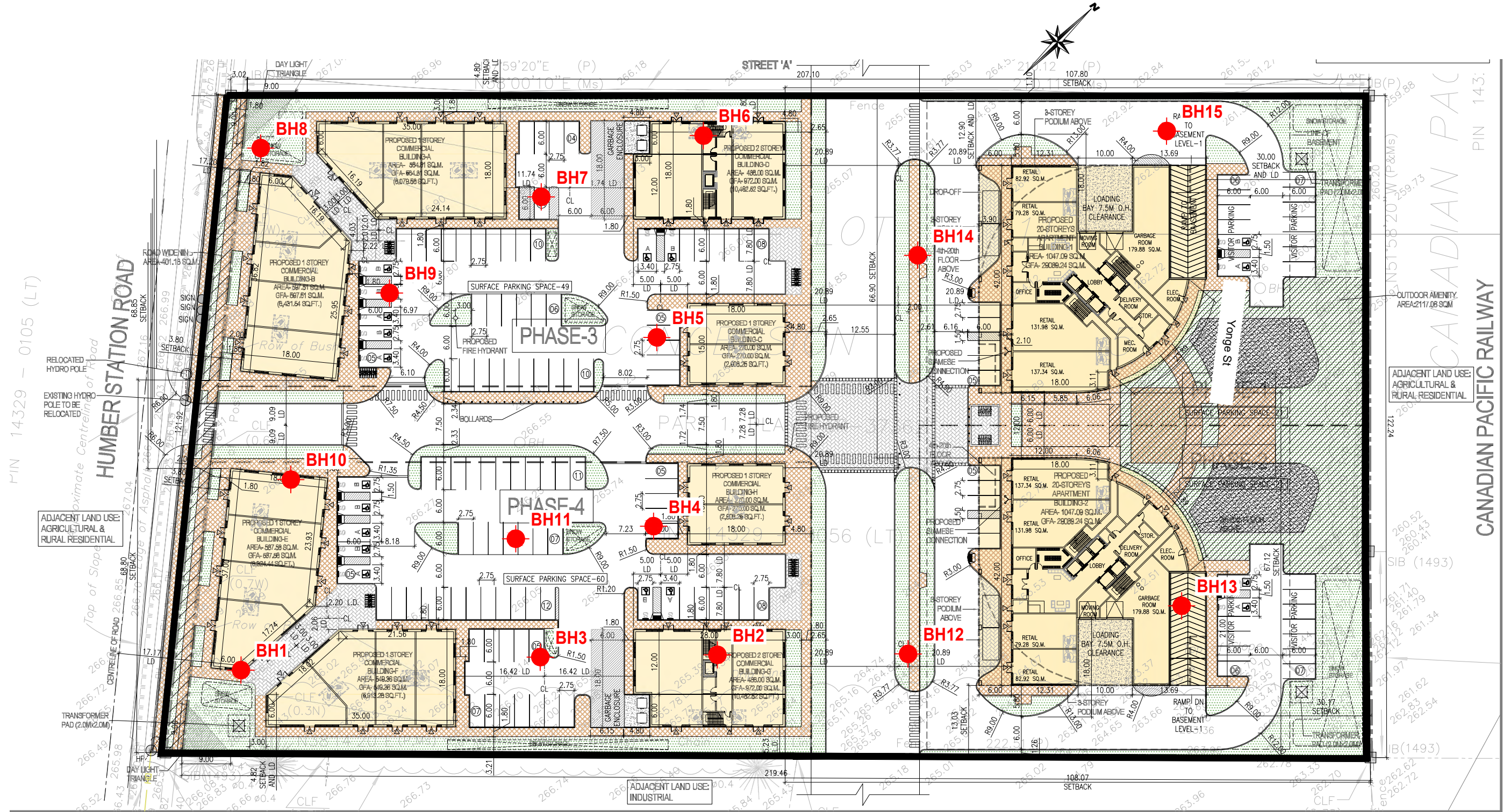
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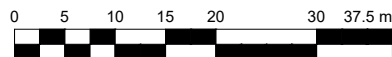
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LEGEND

- Approximate Prop. Borehole Location



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REFERENCE

Dwg. Title: Site Plan:Ground Level, Proj. No.: 24-66
Dwg. No.: A-1.0, Date: July 22, 2025, By: n Architecture Inc.

Project

Geotechnical investigation
0 Humber Station Road
Caledon, Ontario

Title

Borehole Location Plan
Proposed Development Plan



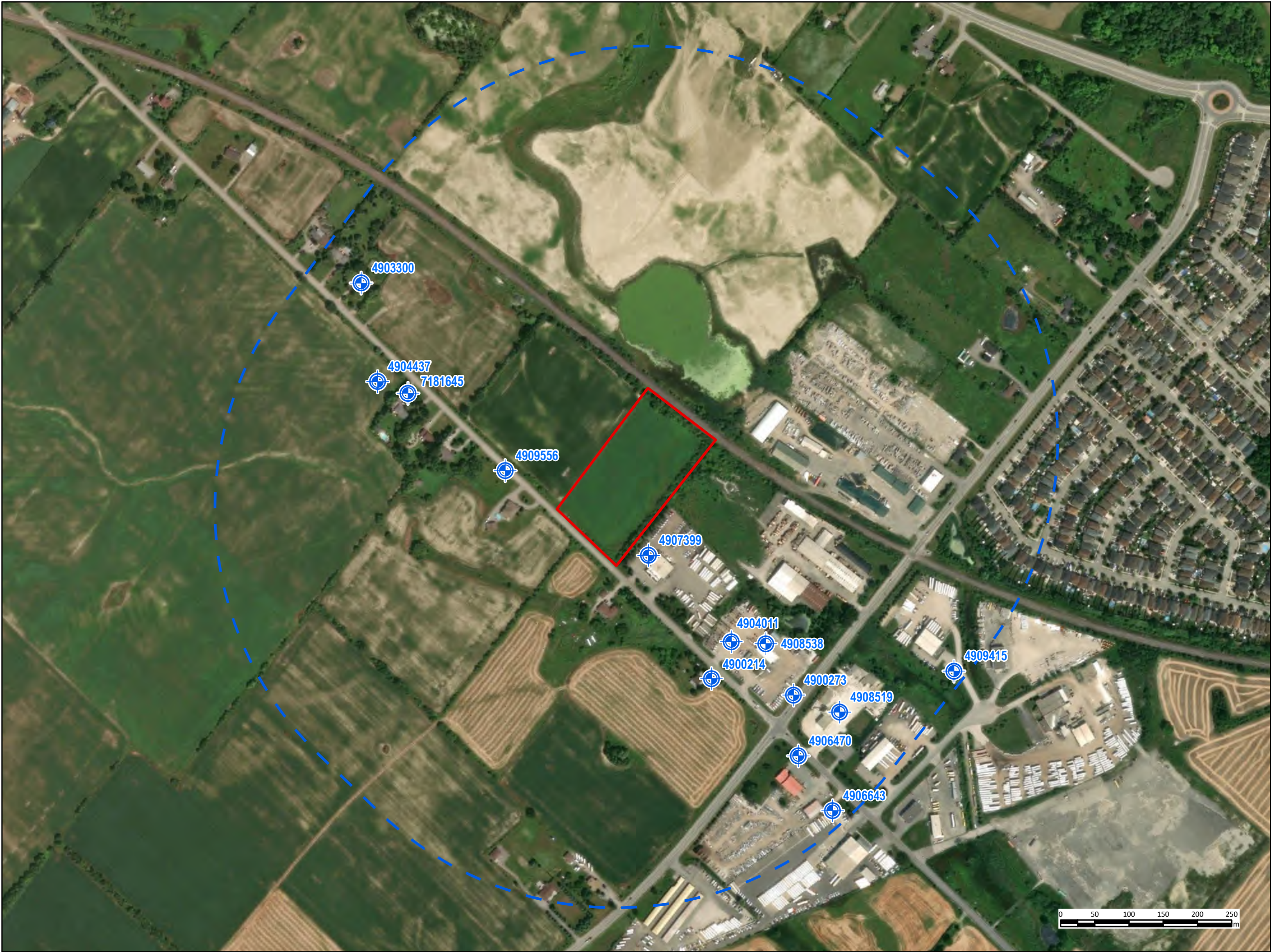
Prepared **K. Chawla**
Drawn **K. Chawla**
Checked **S. Abdus**

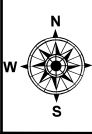
Discipline **GEOTECHNICAL**
Scale **N.T.S**
Date **July, 2025**

Project manager
S. Abdus
Sequence no.

Resp.	Project	Phase	Disc.	Type	Drawing no.	Rev.
01	02405205.000	0100	GS	D	2A	00

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Well Information System Ministry of the
Environment, Conservation and Parks, 2022



Notes:

- Legend:
-  MECP Water Supply Wells- With Well ID
 -  500 m Study Area
 -  Approximate Site Location

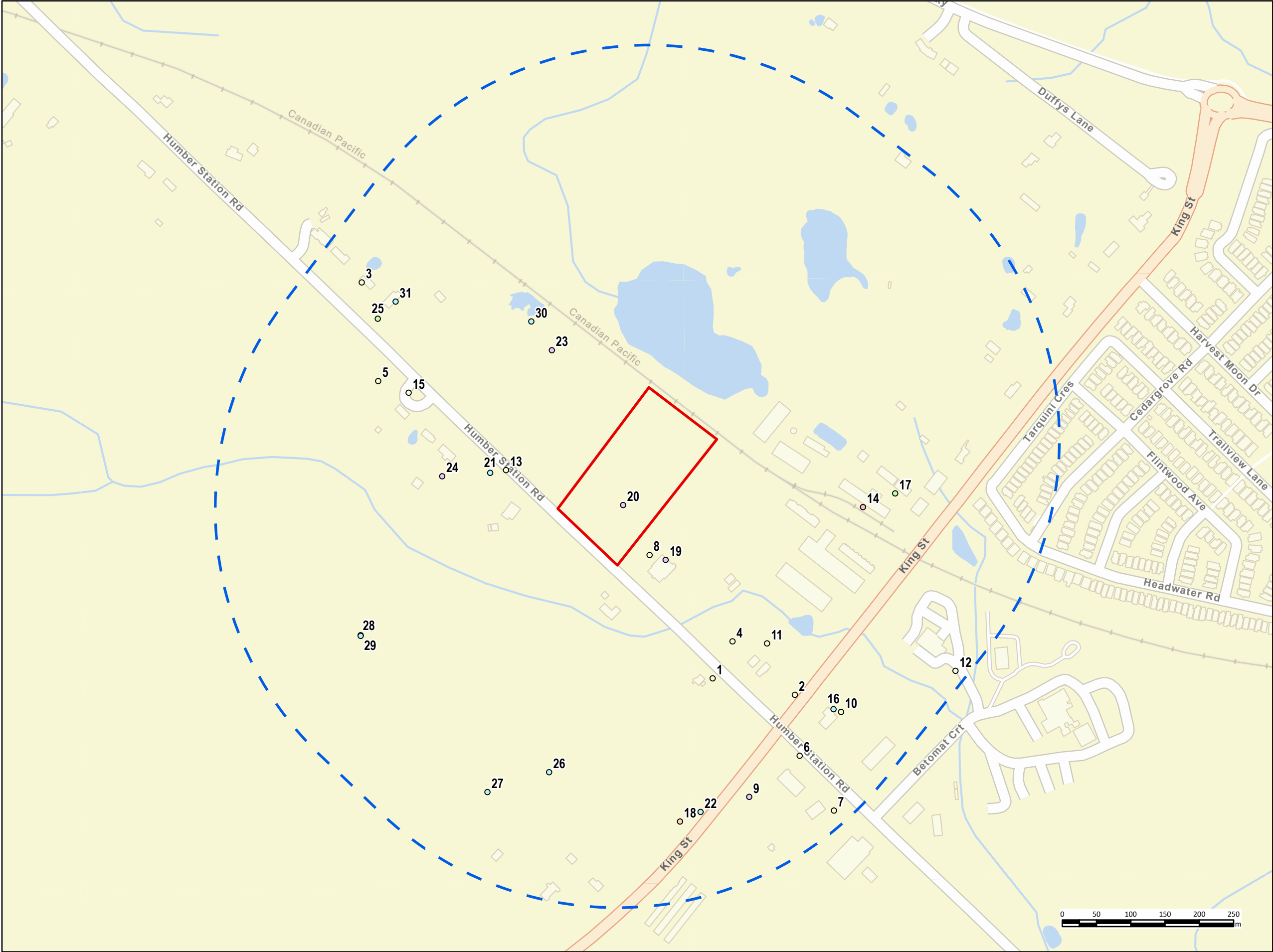
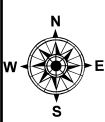
Project Title:
Hydrogeological Assessment

Site Location:
0 Humber Station Road
Caledon, Ontario

Figure Title:
MECP Well Records Map

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Drawn By: HK	Scale: As Shown
Reviewed By: MS	Figure No.: 3
Date: July 2025	

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Key Map



Notes:

Legend:

- MECP Wells-Final Use Status
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 - Abandoned-Other
 - Monitoring and Test Hole
 - Observation Wells
 - Test Hole
 - Water Supply
 -  500 m Study Area
 -  Approximate Site Location

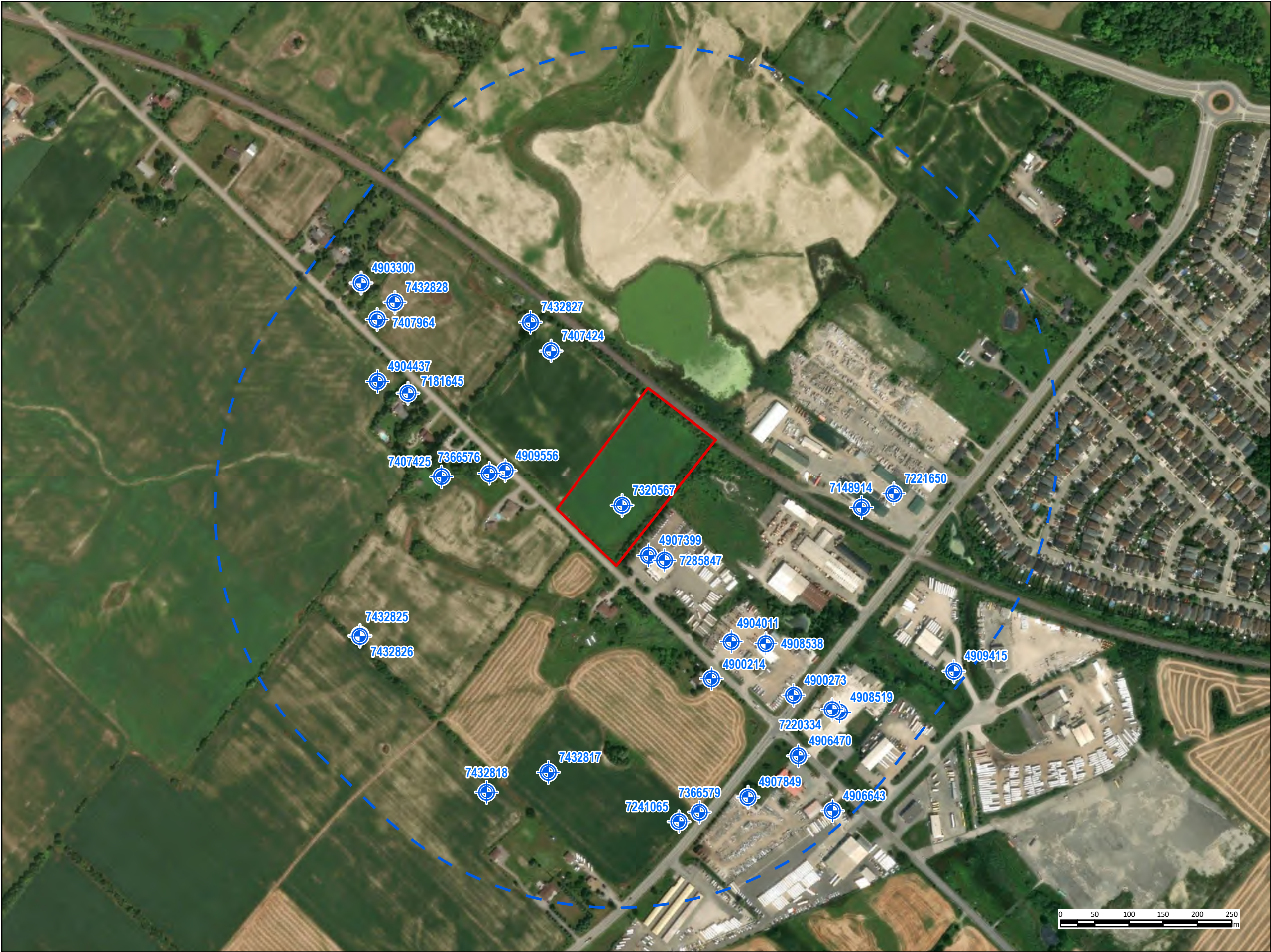
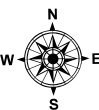
Project Title:
Hydrogeological Assessment

Site Location:
0 Humber Station Road
Caledon, Ontario

Figure Title:
MECP Well Records Map

Designed By: AQ	File No.: 02405205.000
Drawn By: HK	Scale: As Shown
Reviewed By: MS	Figure No.: 3
Date: July 2025	

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Key Map



Notes:

Legend:

- MECP Wells- With Well ID
- 500 m Study Area
- Approximate Site Location

Project Title:
Hydrogeological Assessment

Site Location:
0 Humber Station Road
Caledon, Ontario

Figure Title:
MECP Well Records Map

Designed By:
AQ

File No.:
02405205.000

Drawn By:
HK

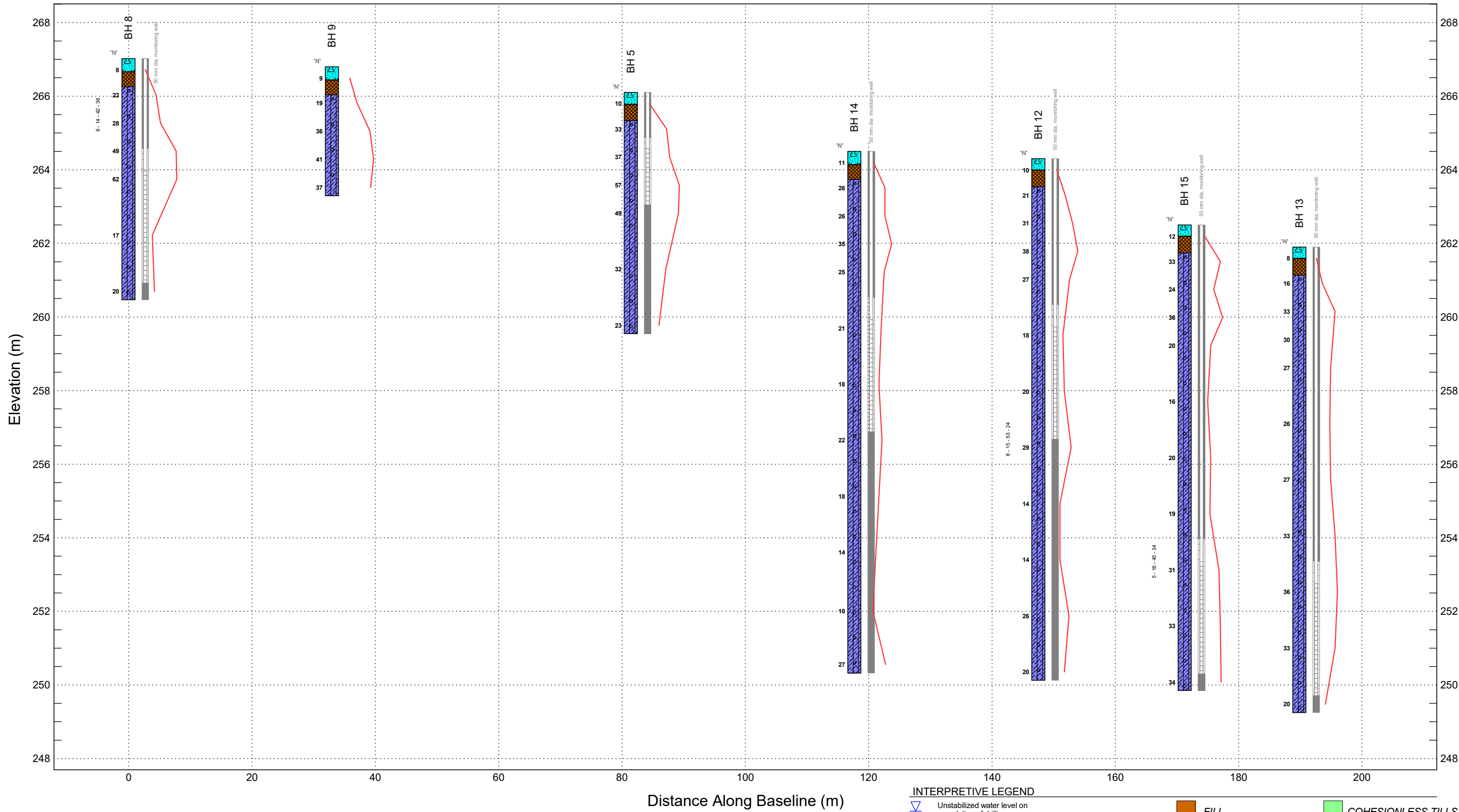
Scale:
As Shown

Reviewed By:
MS

Figure No.:
3

Date:
July 2025

Report: ISECTION - TABLOID - ELEV



LITHOLOGY GRAPHIC LEGEND

- Topsoil
- Fill
- Clayey Silt Till

INTERPRETIVE LEGEND

- Unstabilized water level on completion of drilling
- Stabilized water level, most recent
- 30 SPT N-Value

- FILL
- GRAVELS (gravel to gravelly sand)
- SILT TO SAND (not till)
- COHESIONLESS TILLS
- COHESIVE SOILS (clayey silt to clay, incl. tills)



Title: SUBSURFACE PROFILE CROSS-SECTION A-A'		
File No.:	02405205.000	No.: 4

Y:\Shared\CA\Terraprobe\Brampton\1-Project Files\2024\02405205.000 - HYD, 0 Humber Station Road, Caledon\0100 - HYD Assessment\A. Dwgs, Logs\PDF



References:

Service Layer Credits: Map Data©Open Street Map Contributors,Microsoft, Facebook Inc. & its affiliates, Map layer by ESRI.

Key Map

Notes:

Legend:

- Approximate Monitoring Wells Location; Groundwater Elevations July 2025 (masl)
- Railway
- Interpreted Groundwater Flow Direction
- Interpreted Groundwater Contours
- Approximate Site Location

Project Title:

Hydrogeological Investigation

Site Location:

0 Humber Station Road
Caledon, Ontario

Figure Title:

Groundwater Flow Direction

Designed By:	AQ	File No.:	02405205.000
Drawn By:	HK	Scale:	As Shown
Reviewed By:	MS	Figure No.:	5
Date:	July 2025		

Appendix A

Regulatory and Watershed Maps



eNGLOBE

Figure 3-7: Subwatersheds

**Humber River
Watershed**
Subwatersheds

LEGEND

-  Watershed Boundary*
-  Municipal Boundary
-  Road
-  Pond & Lake
-  Watercourse

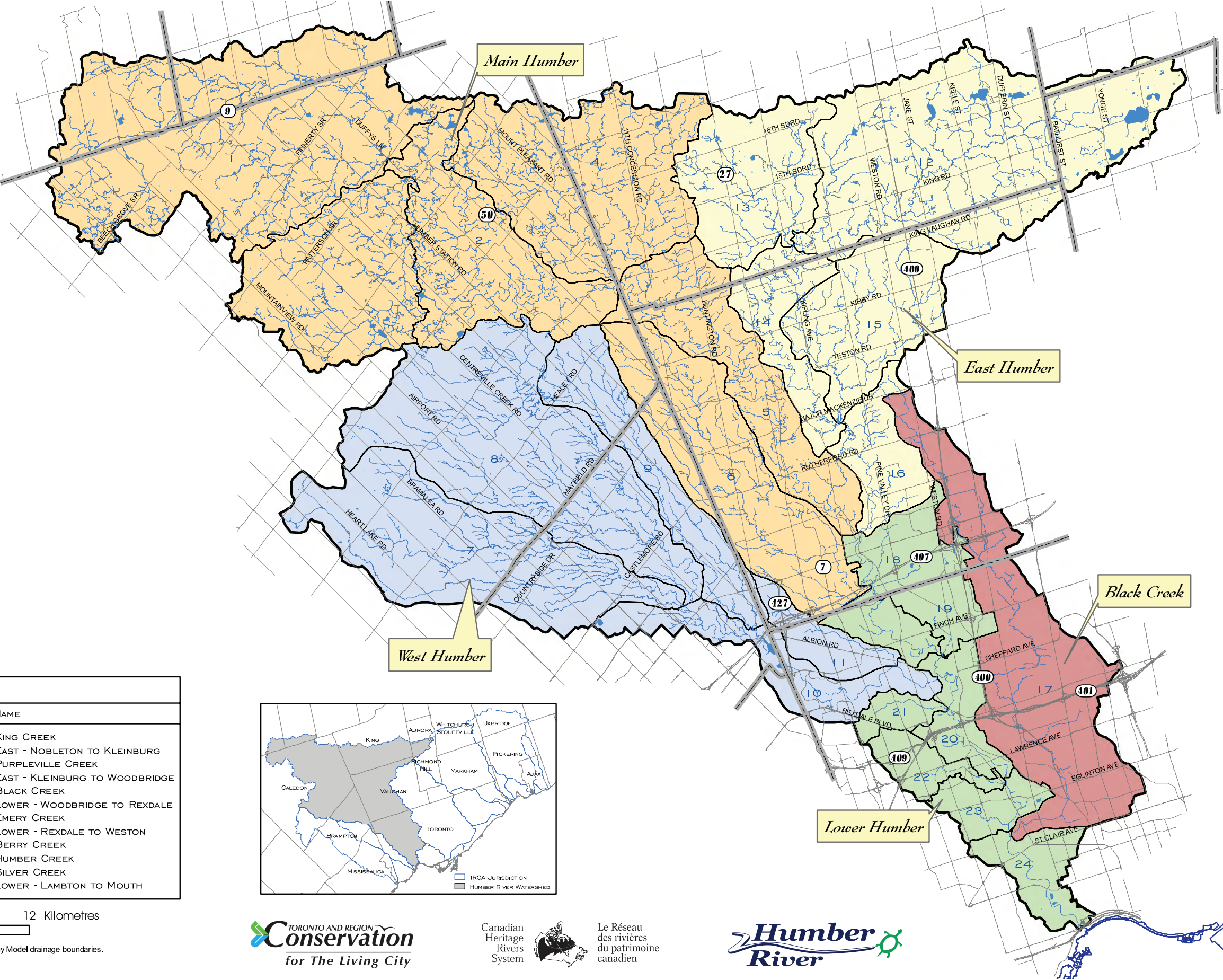
SECONDARY SUBWATERSHED UNITS*			
#	NAME	#	NAME
1	MAIN - UPPER	13	KING CREEK
2	MAIN - PALGRAVE TO BOLTON	14	EAST - NOBLETON TO KLEINBURG
3	CENTREVILLE CREEK	15	PURPLEVILLE CREEK
4	COLD CREEK	16	EAST - KLEINBURG TO WOODBRIDGE
5	MAIN - BOLTON TO WOODBRIDGE	17	BLACK CREEK
6	RAINBOW CREEK	18	LOWER - WOODBRIDGE TO REXDALE
7	WEST - WEST BRANCH	19	EMERY CREEK
8	WEST - MAIN BRANCH	20	LOWER - REXDALE TO WESTON
9	WEST - EAST BRANCH	21	BERRY CREEK
10	WEST - LOWER BRANCH	22	HUMBER CREEK
11	ALBION CREEK	23	SILVER CREEK
12	EAST - UPPER BRANCH	24	LOWER - LAMBTON TO MOUTH

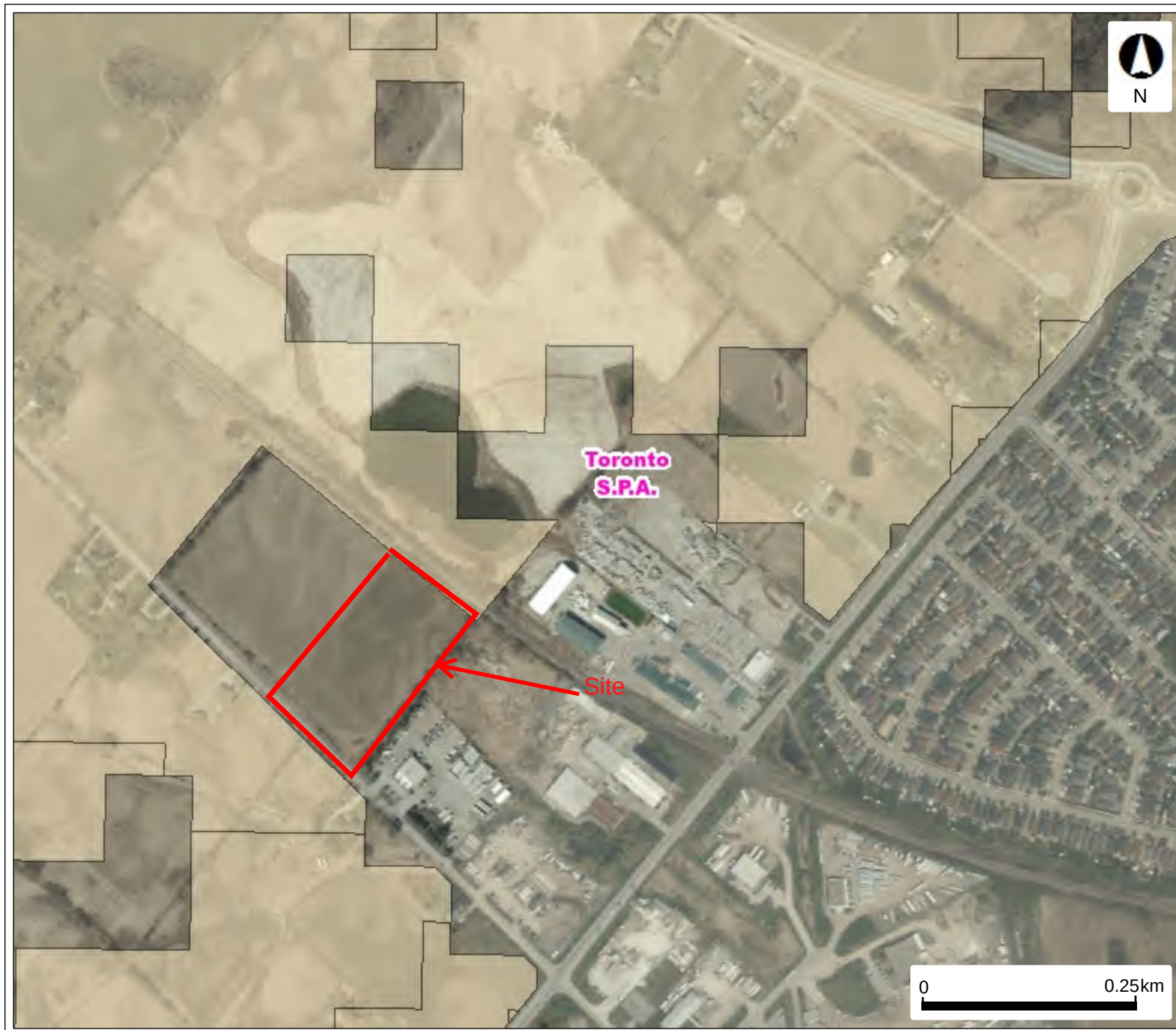
0 2 4 8 12 Kilometres

*Watershed boundary has been derived from the Humber River Hydrology Model drainage boundaries.
Date: February, 2007
Information Systems/Technology Group



Le Réseau
des rivières
du patrimoine
canadien





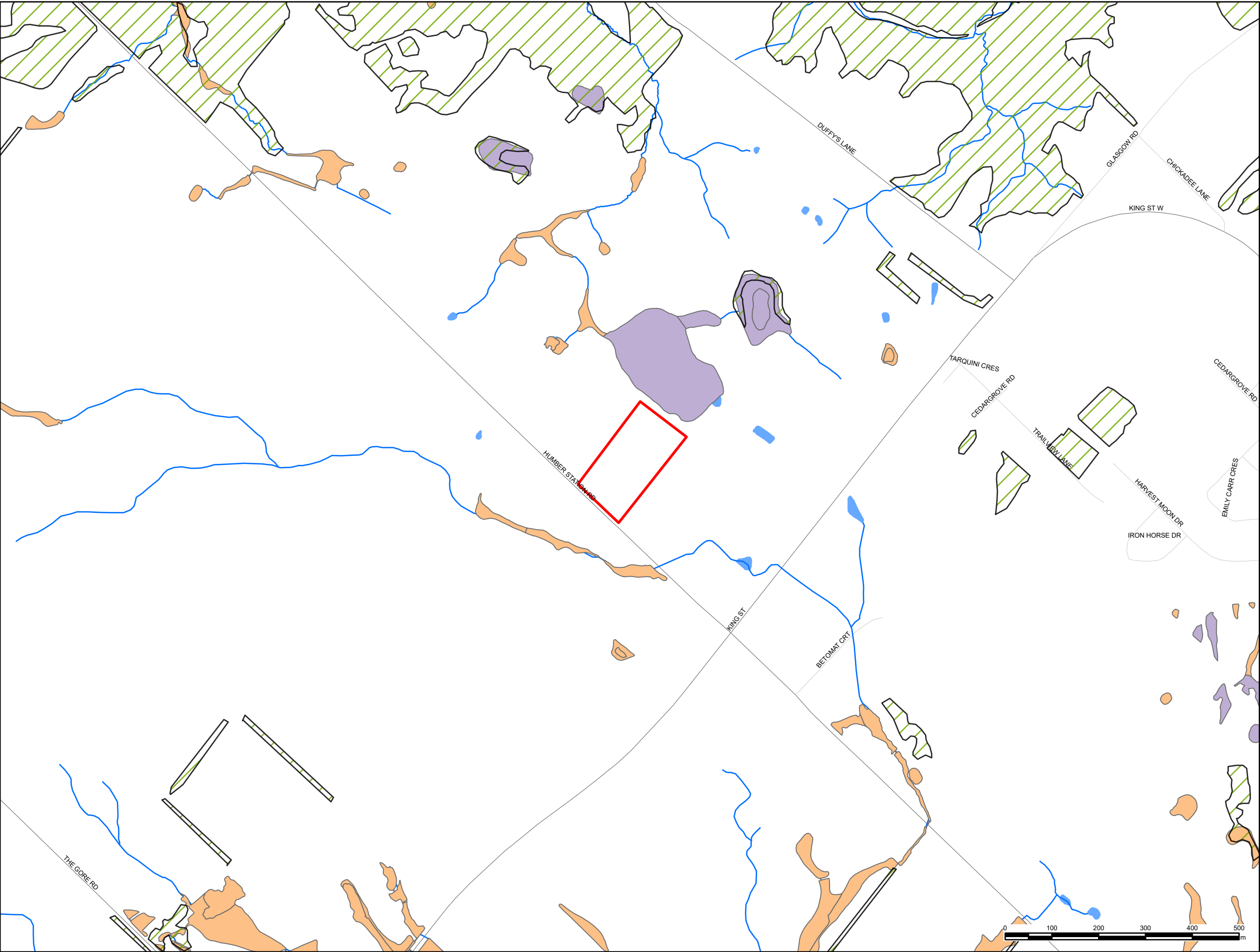
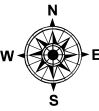
Legend

Significant Groundwater
Recharge Area

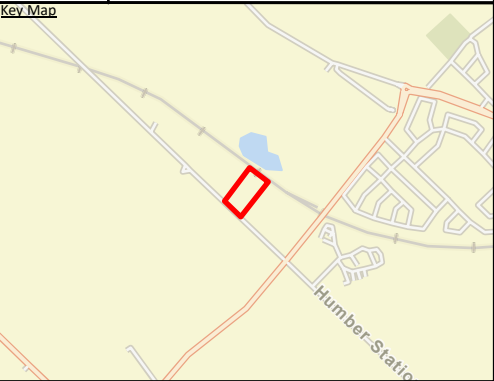


This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Environment, Conservation and Parks (MECP) shall not be liable in any way for the use or any information on this map. of, or reliance upon, this map.

Y:\Shared\CA\Terraprobe\Brampton\1-Project Files\2024\02405205.000 - HYD, 0 Humber Station Road, Caledon\0100 - HYD Assessment\VA. Dwgs. Logs\PDF



References:
Service Layer Credits: © Natural Heritage Map was Produced by Englobe Corp. under license from the Ministry of North Development and Mines (MNDM). Copyright (c) is held by the King's Printer for Ontario.



Notes:

- Legend:**
- Roads Type**
- Collector
 - Local / Street
 - Watercourse
 - Water Body
 - Approximate Site Location
 - Wooded Area
- Wetland Significance**
- Wetland Features-Evaluated-Provincial
 - Wetland Features-Not evaluated per OWES

Project Title:
Hydrogeological Assessment

Site Location:
0 Humber Station Road
Caledon, Ontario

Figure Title:
Natural Heritage Feature Map

Designed By: AQ	File No.: 02405205.000
Drawn By: HK	Scale: As Shown
Reviewed By: MS	Figure No.:
Date: July 2025	

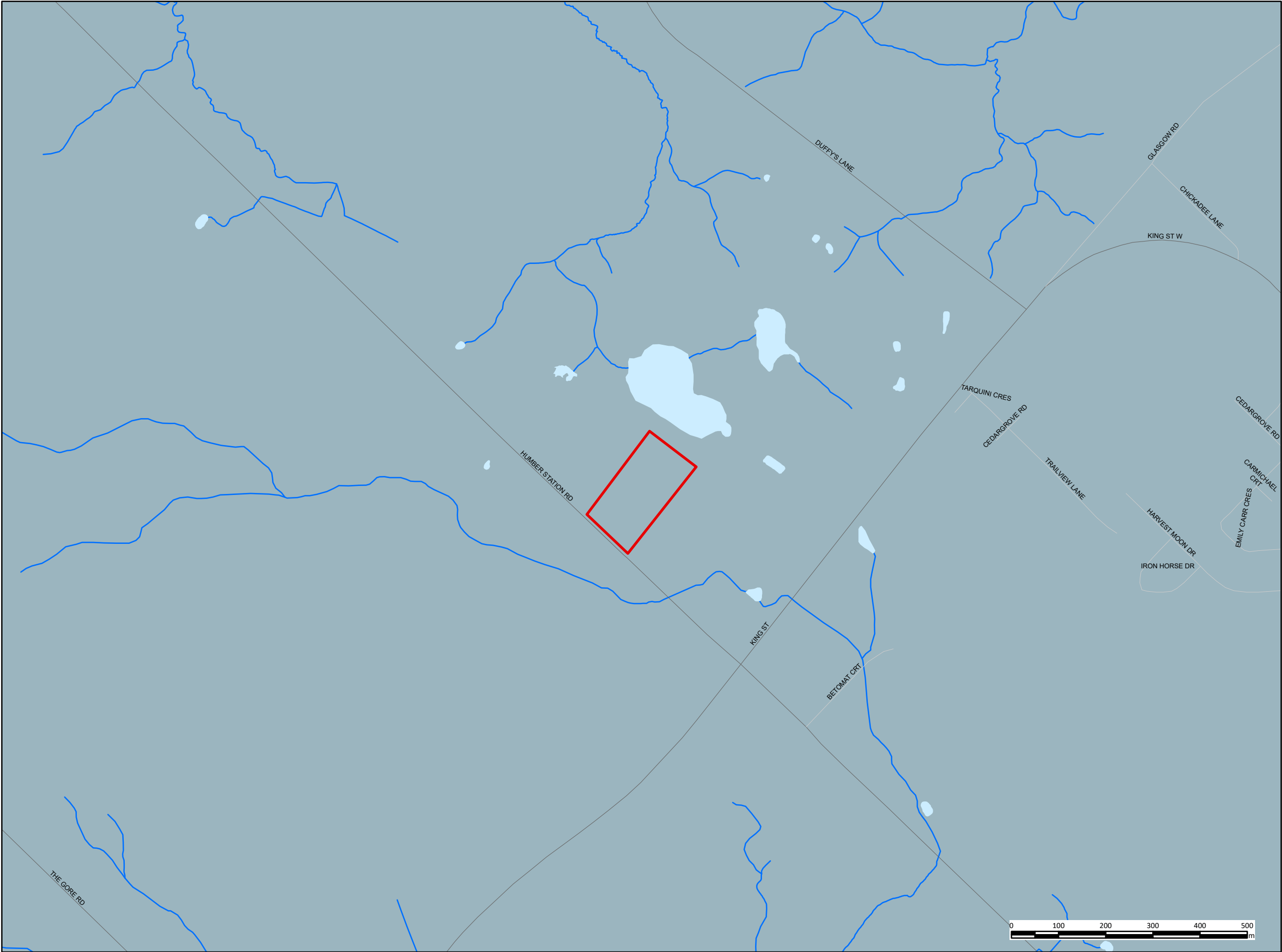
Appendix B

Regional Hydrogeology Surficial Geology,
Physiography and Topography



eNGLOBE

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References:
 Service Layer Credits: © Physiography Map was Produced by Englobe Corp. under license from the Ministry of North Development and Mines (MNDM). Copyright (c) is held by the King's Printer for Ontario. Physiography of Southern Ontario, Ontario, 2007, Ontario Geological Survey, Miscellaneous Release— Data 228.

Key Map

Notes:

Legend:

- Watercourse
- ROADS TYPE**
 - Collector
 - Local / Street
- UNIT, REGION**
 - 32, South Slope
 - Water Body
 - Approximate Site Location

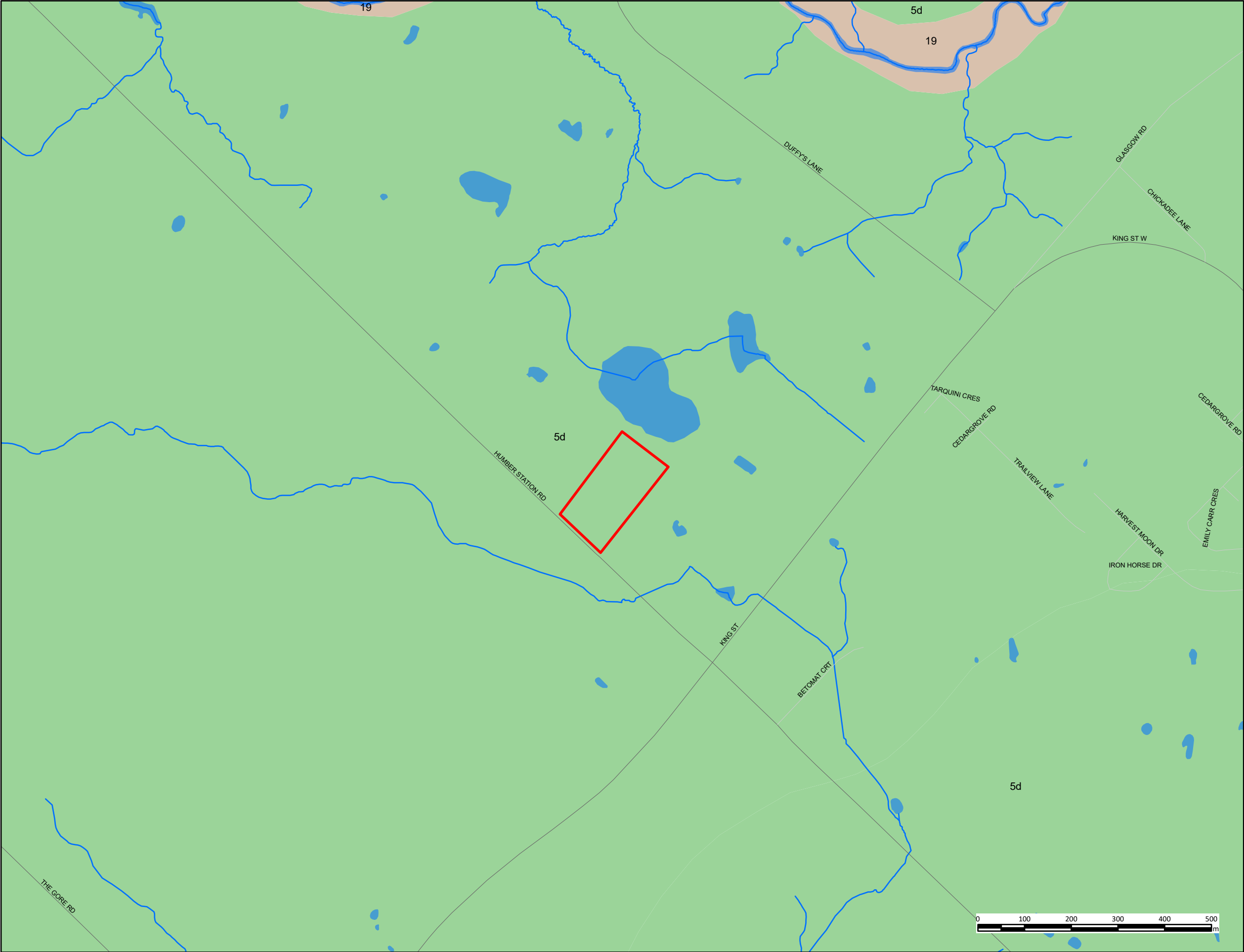
Project Title:
Hydrogeological Assessment

Site Location:
0 Humber Station Road
Caledon, Ontario

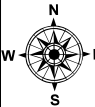
Figure Title:
Physiography Map

Designed By: AQ	File No.: 02405205.000
Drawn By: HK	Scale: As Shown
Reviewed By: MS	Figure No.:
Date: July 2025	

Y:\Shared\CA\Terraprobe\Brampton\1-Project Files\2024\02405205.000 - HYD, 0 Humber Station Road, Caledon\0100 - HYD Assessment\A. Dwgs, Logs\PDF







N
W E
S

References:

Service Layer Credits: © Surface Geology Map was Produced by Englobe Corp. under license from the Ministry of Natural Resources and Forestry (MNR).
Copyright (c) is held by the King's Printer for Ontario.
Surficial geology of southern Ontario, 2003, Ontario Geological Survey, Miscellaneous Release— Data 128 – Revised.

Key Map



Notes:

Legend:

- Watercourse
- Roads Type
 - Collector
 - Local / Street
- Approximate Site Location
- Water Body
- Surface Geology
 - 19: Modern Alluvial Deposits
 - 5d: Glaciolacustrine-derived silty to clayey till

Project Title:

Hydrogeological Assessment

Site Location:

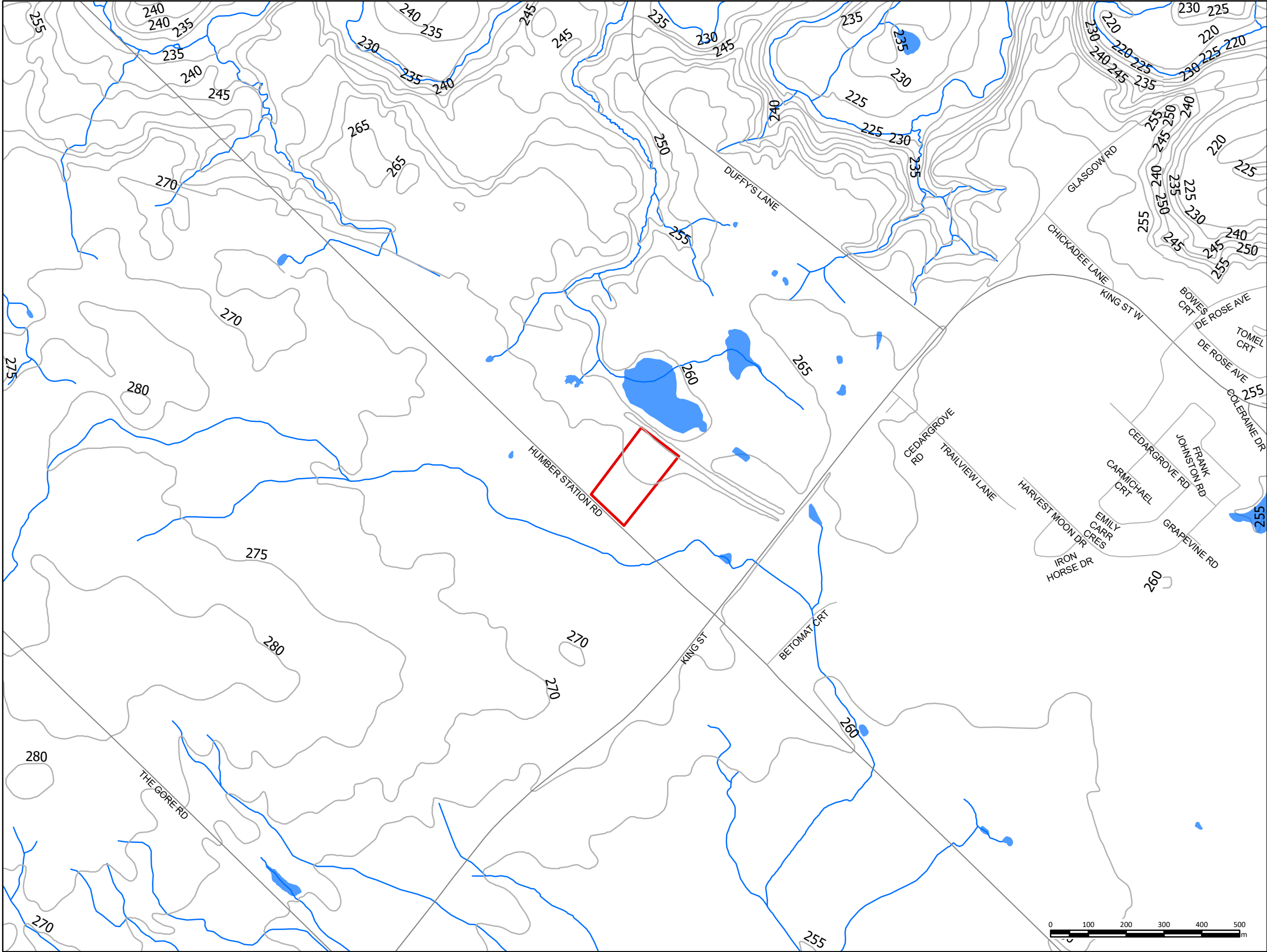
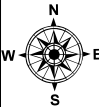
0 Humber Station Road
Caledon, Ontario

Figure Title:

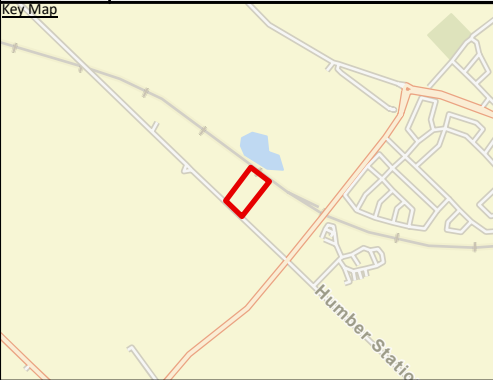
Surficial Geology Map

Designed By: AQ	File No.: 02405205.000
Drawn By: HK	Scale: As Shown
Reviewed By: MS	Figure No.:
Date: July 2025	

Y:\Shared\CA\Terraprobe\Brampton\1-Project Files\2024\02405205.000 - HYD, 0 Humber Station Road, Caledon\0100 - HYD Assessment\A. Dwgs, Logs\PDF



References:
Service Layer Credits: © Topography, Water Body and Watercourse Map was Produced by Englobe Corp. under license from the Ministry of Natural Resources and Forestry (MNRF). Copyright (c) is held by the King's Printer for Ontario 2023.



Notes:

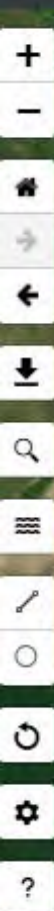
- Legend:**
- Watercourse
 - City of Caledon, Topographic Contours
 - Roads Type**
 - Collector
 - Local / Street
 - Approximate Site Location
 - Water Body

Project Title:
Hydrogeological Assessment

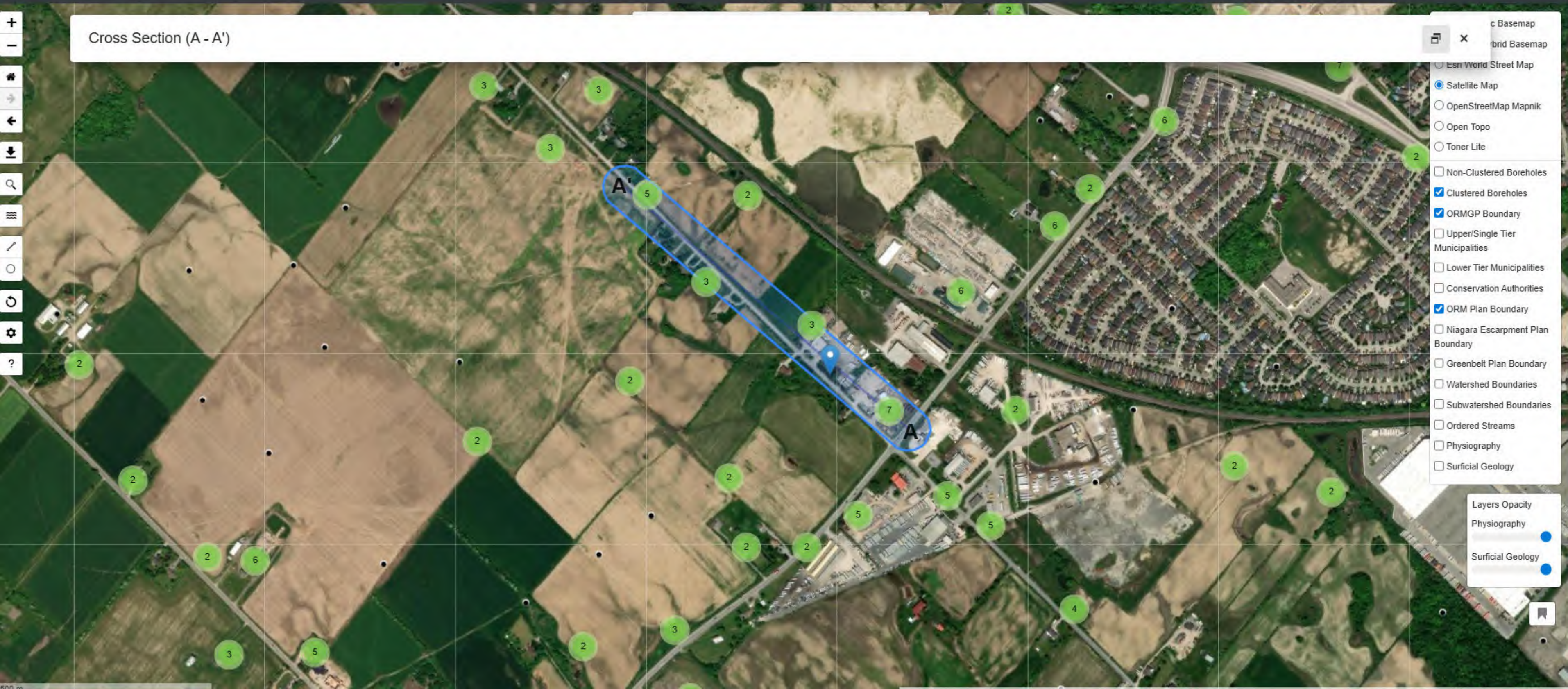
Site Location:
0 Humber Station Road
Caledon, Ontario

Figure Title:
Topography Map

Designed By: AQ	File No.: 02405205.000
Drawn By: HK	Scale: As Shown
Reviewed By: MS	Figure No.:
Date: July 2025	



Cross Section (A - A')



- Basemap
- ☐ Esri World Street Map
 - ☒ Satellite Map
 - ☐ OpenStreetMap Mapnik
 - ☐ Open Topo
 - ☐ Toner Lite
- Layers
- ☐ Non-Clustered Boreholes
 - ☒ Clustered Boreholes
 - ☒ ORMGP Boundary
 - ☐ Upper/Single Tier Municipalities
 - ☐ Lower Tier Municipalities
 - ☐ Conservation Authorities
 - ☒ ORM Plan Boundary
 - ☐ Niagara Escarpment Plan Boundary
 - ☐ Greenbelt Plan Boundary
 - ☐ Watershed Boundaries
 - ☐ Subwatershed Boundaries
 - ☐ Ordered Streams
 - ☐ Physiography
 - ☐ Surficial Geology

Layers Opacity

Physiography

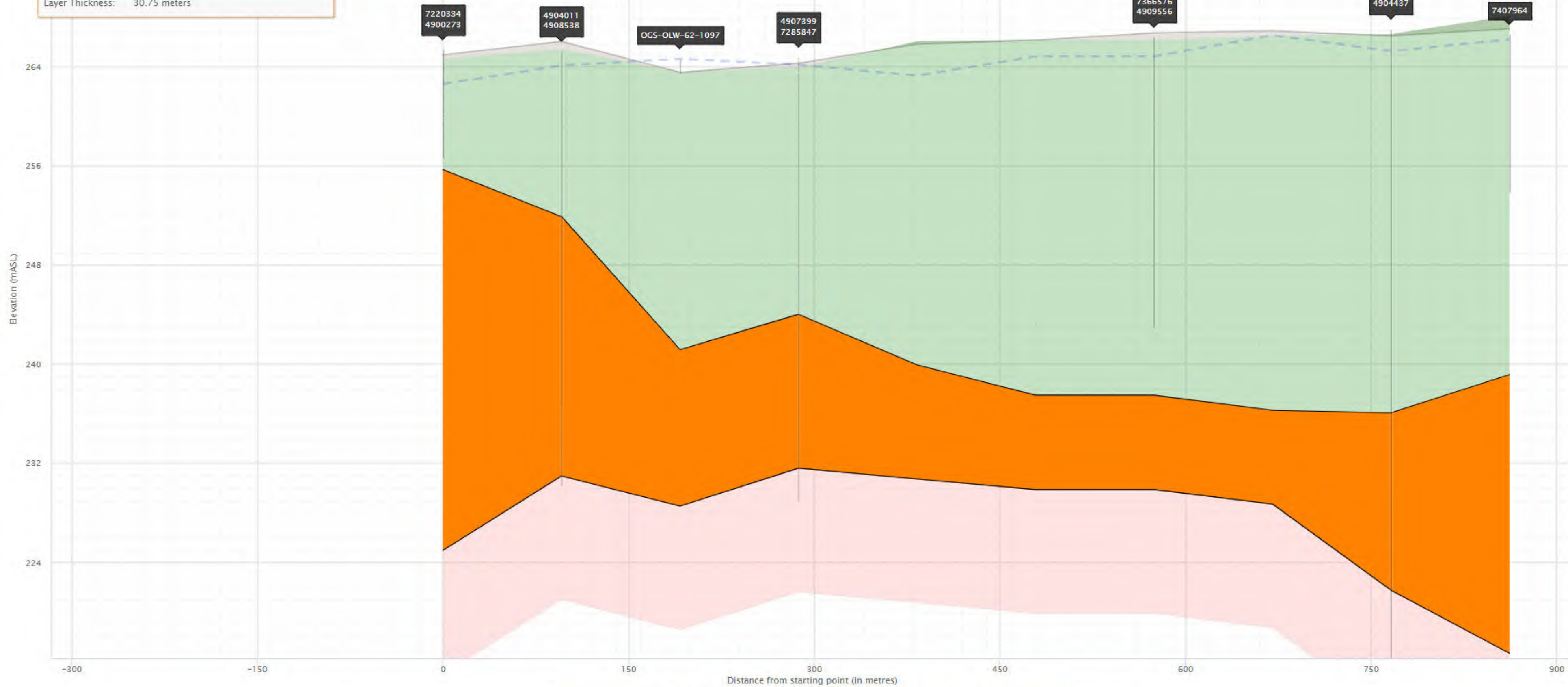
Surficial Geology

A

Cross Section

A' ≡

Series: Oak Ridges Moraine (or equiv. upper aquifer)
Elevation: 224.98 meters
Distance From Start: 0.00 meters
Depth From Surface: 40.02 meters
Layer Thickness: 30.75 meters



- Ground Surface
- Channel Sand Aquifer
- Scarborough Fm. (or equiv. lower aquitard)
- Water Table
- Upper Newmarket Till
- Bedrock
- Undifferentiated Upper Sediments
- Inter-Newmarket Sediment
- Wells
- Halton Till (or equiv. upper till)
- Lower Newmarket Till
- Oak Ridges Moraine (or equiv. upper aquifer)
- Thorncliffe Fm.
- Channel Silt Aquitard
- Sunnybrook Drift (or equiv. lower aquitard)

Appendix C

MECP Well Records



eNGLOBE

Well Id	Northing	Easting	TAG	Township	Received	Final Status	Street	Date Completed	Depth (m)	Water_kind
4900214	598726.6	4858045	<Null>	CALEDON TOWN (ALBION)	4-Jul-66	Water Supply	<Null>	13-Apr-66	6.4008	FRESH
4900273	598846.6	4858021	<Null>	CALEDON TOWN (ALBION)	13-Dec-60	Water Supply	<Null>	7-Nov-60	1.8288	FRESH
4903300	598214.6	4858623	<Null>	CALEDON TOWN (ALBION)	10-Sep-69	Water Supply	<Null>	11-Aug-69	53.34	FRESH
4904011	598755.6	4858099	<Null>	CALEDON TOWN (ALBION)	15-Jan-73	Water Supply	<Null>	26-Aug-72	33.528	FRESH
4904437	598238.6	4858479	<Null>	CALEDON TOWN (ALBION)	1-Oct-74	Water Supply	<Null>	30-Jul-73	30.48	FRESH
4906470	598853.6	4857932	<Null>	CALEDON TOWN (ALBION)	1-Jun-86	Water Supply	<Null>	1-Nov-85	24.384001	FRESH
4906643	598903.6	4857852	<Null>	CALEDON TOWN (ALBION)	21-Jul-87	Water Supply	<Null>	30-Aug-86	25.603201	FRESH
4907399	598634.6	4858225	<Null>	CALEDON TOWN (ALBION)	9-Nov-90	Water Supply	<Null>	<Null>	26.822401	FRESH
4907849	598780	4857872	<Null>	CALEDON TOWN (ALBION)	15-Jul-94	<Null>	<Null>	<Null>	<Null>	<Null>
4908519	598914	4857996	<Null>	CALEDON TOWN (ALBION)	3-Dec-99	Water Supply	<Null>	18-Oct-99	<Null>	FRESH
4908538	598806	4858096	<Null>	CALEDON TOWN (ALBION)	24-Jan-00	Water Supply	<Null>	1-Oct-99	24.384001	FRESH
4909415	599081	4858056	A006241	CALEDON TOWN (ALBION)	6-May-04	Water Supply	#4 BETOMAT COURT	13-Apr-04	<Null>	FRESH
4909556	598425.1	4858349	A011004	CALEDON TOWN (ALBION)	29-Nov-04	Water Supply	<Null>	24-Oct-04	22.9	FRESH
7148914	598946	4858295	A104330	CALEDON TOWN (ALBION)	26-Jul-10	Test Hole	8112 KING ST W	14-Jul-10	<Null>	FRESH
7181645	598283	4858462	A119607	CALEDON TOWN (ALBION)	28-May-12	Water Supply	<Null>	20-Feb-12	35.661602	FRESH
7220334	598903	4858000	A162429	CALEDON TOWN (ALBION)	15-May-14	Observation Wells	13975 HUMBER STATTON RD	1-May-14	<Null>	<Null>
7221650	598993	4858315	<Null>	CALEDON TOWN (ALBION)	9-Jun-14	Abandoned-Other	8112 KING STREET	14-May-14	1.2	FRESH
7241065	598679	4857836	A174013	CALEDON TOWN (ALBION)	6-May-15	Monitoring and Test Hole	14275 THE GORE ROAD	24-Mar-15	2.1336	Untested
7285847	598658	4858218	A212500	CALEDON TOWN (ALBION)	2-May-17	<Null>	<Null>	25-Jan-17	<Null>	<Null>
7320567	598596	4858298	A234711	CALEDON TOWN (ALBION)	19-Sep-18	<Null>	<Null>	11-Jul-18	<Null>	<Null>
7366576	598402	4858345	A303246	CALEDON TOWN (ALBION)	31-Aug-20	Observation Wells	14275 The Gore Rd	31-Jul-20	<Null>	<Null>
7366579	598709	4857850	A303244	CALEDON TOWN (ALBION)	31-Aug-20	Observation Wells	14275 The Gore Road	31-Jul-20	<Null>	<Null>
7407424	598492	4858524	A320633	CALEDON TOWN (ALBION)	31-Dec-21	<Null>	<Null>	29-Sep-21	<Null>	<Null>
7407425	598332	4858340	A320632	CALEDON TOWN (ALBION)	31-Dec-21	<Null>	<Null>	4-Oct-21	<Null>	<Null>
7407964	598238	4858570	_NO_TAG	CALEDON TOWN (ALBION)	13-Jan-22	Abandoned-Other	14259 Humber station road	9-Dec-21	<Null>	<Null>
7432817	598488	4857908	A360667	CALEDON TOWN (ALBION)	24-Oct-22	Observation Wells	14155 The Gore Rd.	6-Sep-22	<Null>	<Null>
7432818	598398	4857879	A360666	CALEDON TOWN (ALBION)	24-Oct-22	Observation Wells	14155 The Gore Rd.	6-Sep-22	<Null>	<Null>
7432825	598213	4858108	A357788	CALEDON TOWN (ALBION)	24-Oct-22	Observation Wells	14155 The Gore Rd.	6-Sep-22	<Null>	<Null>
7432826	598213	4858107	A355076	CALEDON TOWN (ALBION)	24-Oct-22	Observation Wells	14155 The Gore Rd.	6-Sep-22	<Null>	<Null>
7432827	598462	4858566	A360669	CALEDON TOWN (ALBION)	24-Oct-22	Observation Wells	14155 The Gore Rd.	6-Sep-22	<Null>	<Null>
7432828	598264	4858595	A357824	CALEDON TOWN (ALBION)	24-Oct-22	Observation Wells	14155 The Gore Rd.	6-Sep-22	<Null>	<Null>

Appendix D

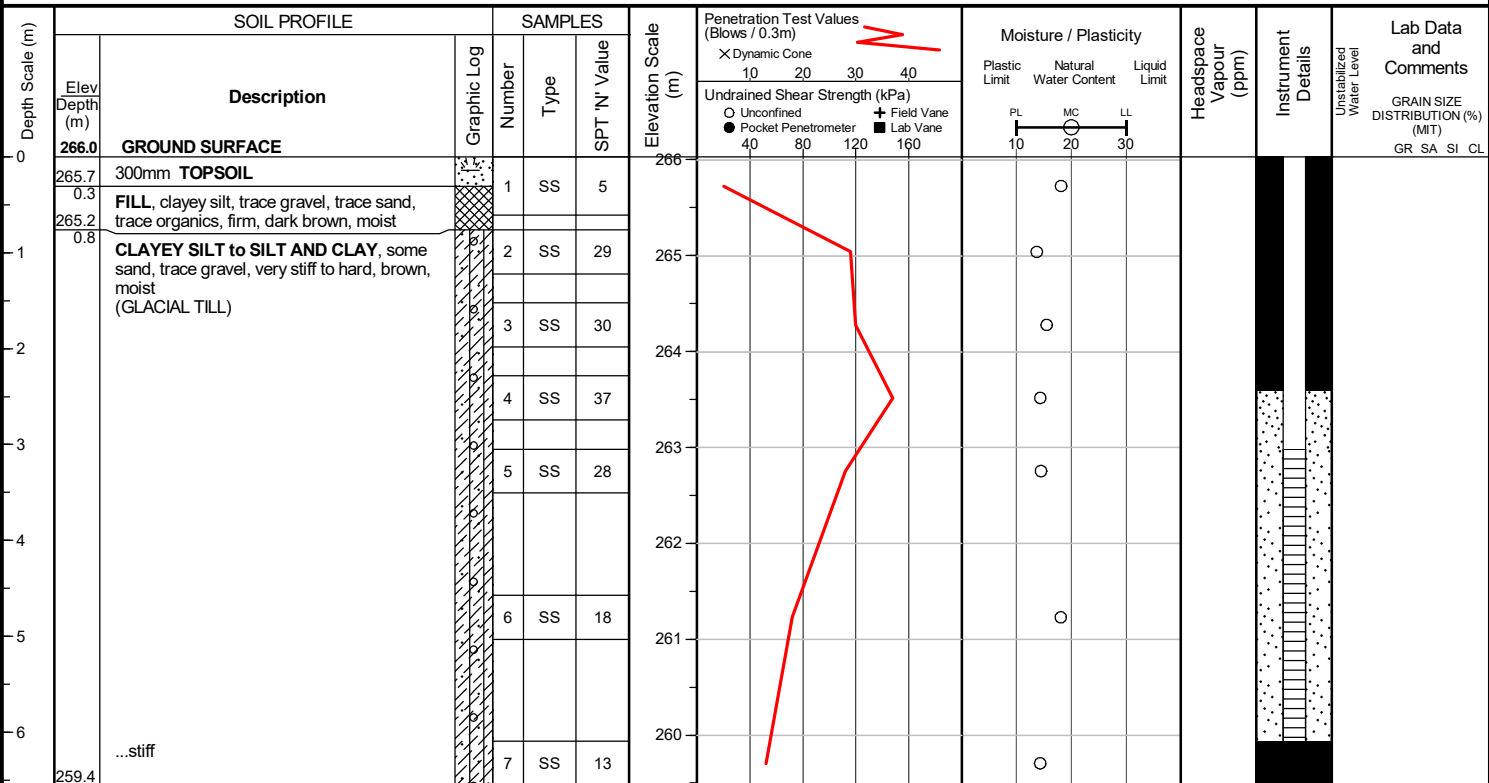
Borehole Logs



ENGLOBE

Project No. : 02405205.000 Client : Mr. Satwant Deol Originated by : SM
 Date started : January 30, 2025 Project : 0 Humber Station Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Caledon, ON. Checked by : AS

Position : E: 598590, N: 4858230 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers



END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

Project No. : 02405205.000 Client : Mr. Satwant Deol Originated by : SM
 Date started : January 30, 2025 Project : 0 Humber Station Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Caledon, ON. Checked by : AS

Position : E: 598642, N: 4858301 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone Undrained Shear Strength (kPa) ○ Unconfined ● Pocket Penetrometer	Moisture / Plasticity Plastic Limit Natural Water Content Liquid Limit PL MC LL	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments Unstabilized Water Level GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0	265.3	GROUND SURFACE										
0.3	265.0	325mm TOPSOIL		1	SS	7	265					
0.8	264.5	FILL, clayey silt, trace gravel, trace sand, trace organics, firm, dark brown, moist		2	SS	20	264					
		CLAYEY SILT to SILT AND CLAY, some sand, trace gravel, very stiff to hard, brown, moist (GLACIAL TILL)		3	SS	30	263					
				4	SS	38	262					
		...brownish grey below		5	SS	31	261					
				6	SS	19	260					
				7	SS	16	259					
	258.7	END OF BOREHOLE										
	6.6											

END OF BOREHOLE

Unstabilized water level measured at 5.9 m below ground surface; borehole was open upon completion of drilling.

Project No. : 02405205.000 Client : Mr. Satwant Deol Originated by : SM
 Date started : January 30, 2025 Project : 0 Humber Station Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Caledon, ON. Checked by : AS

Position : E: 598622, N: 4858275 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers

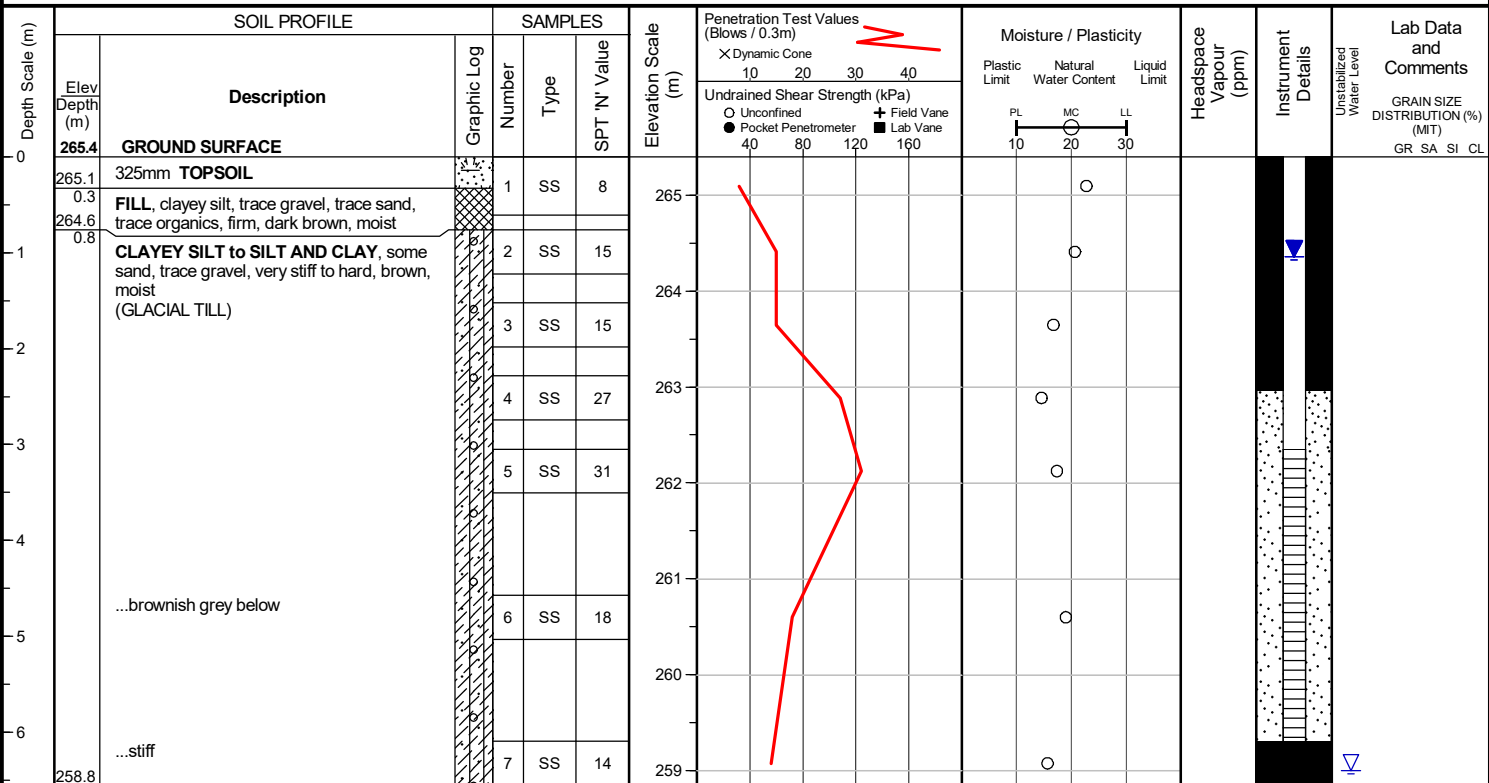
Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone 10 20 30 40 Undrained Shear Strength (kPa) ○ Unconfined + Field Vane ● Pocket Penetrometer ■ Lab Vane 40 80 120 160	Moisture / Plasticity Plastic Limit Natural Water Content Liquid Limit PL MC LL 10 20 30			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value								
0	265.9	GROUND SURFACE												
0.4	265.5	350mm TOPSOIL		1	SS	7								
0.8	265.1	FILL, clayey silt, trace gravel, trace sand, trace organics, firm, dark brown, moist		2	SS	38								
1		CLAYEY SILT to SILT AND CLAY, some sand, trace gravel, very stiff to hard, brown, moist (GLACIAL TILL)		3	SS	31								
2				4	SS	44								
3				5	SS	34								
4														
5		...brownish grey below		6	SS	19								
6														
6.6	259.3			7	SS	17								

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

Project No. : 02405205.000 Client : Mr. Satwant Deol Originated by : SM
 Date started : January 30, 2025 Project : 0 Humber Station Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Caledon, ON. Checked by : AS

Position : E: 598616, N: 4858307 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers



END OF BOREHOLE

Unstabilized water level measured at 6.4 m below ground surface; borehole was open upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date Jul 15, 2025 Water Depth (m) 1.0 Elevation (m) 264.4

Project No. : 02405205.000

Client : Mr. Satwant Deol

Originated by : SM

Date started : January 29, 2025

Project : 0 Humber Station Road

Compiled by : AS

Sheet No. : 1 of 1

Location : Caledon, ON.

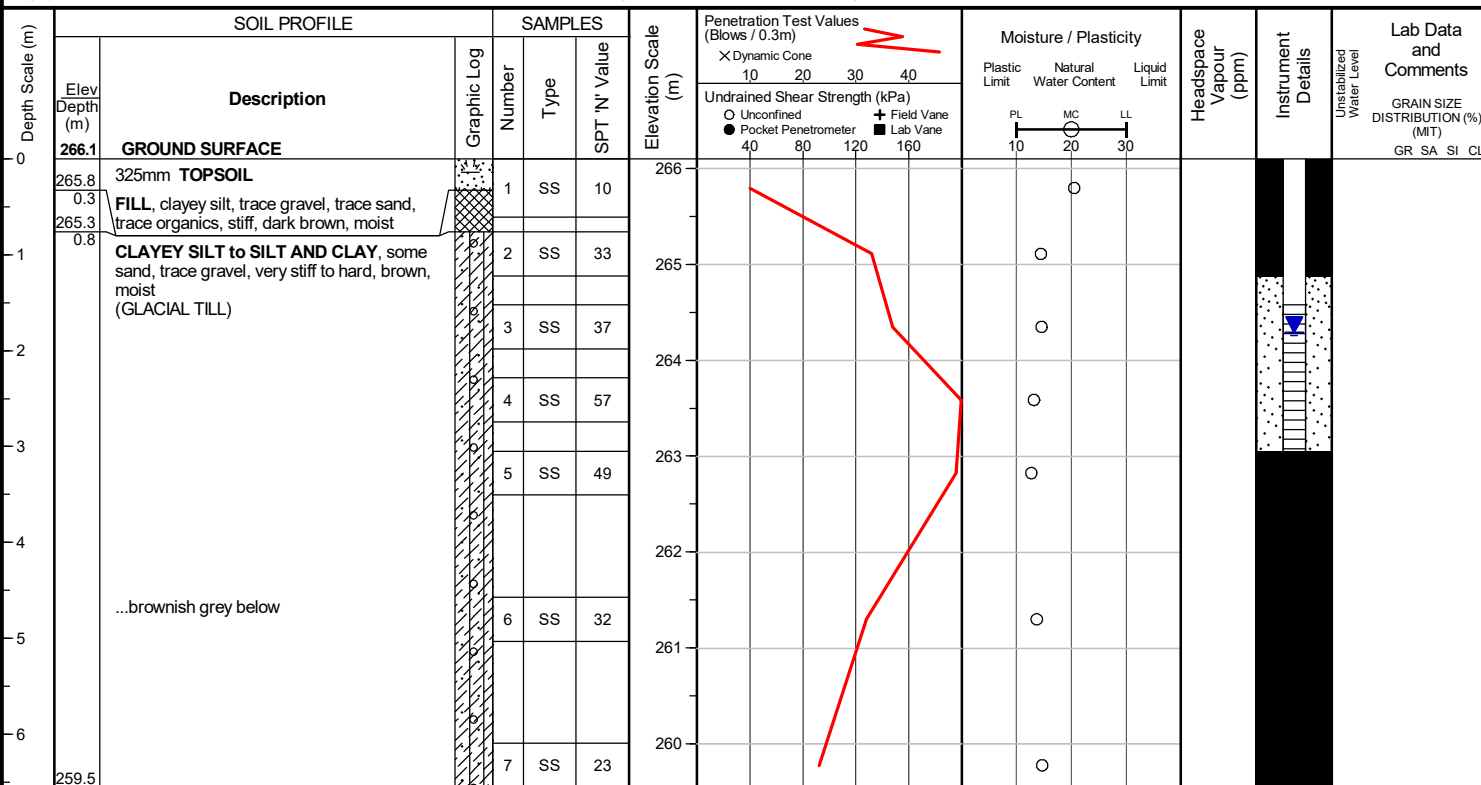
Checked by : AS

Position : E: 598589, N: 4858329 (UTM 17T)

Elevation Datum : Geodetic

Rig type : Track-mounted

Drilling Method : Solid stem augers



END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

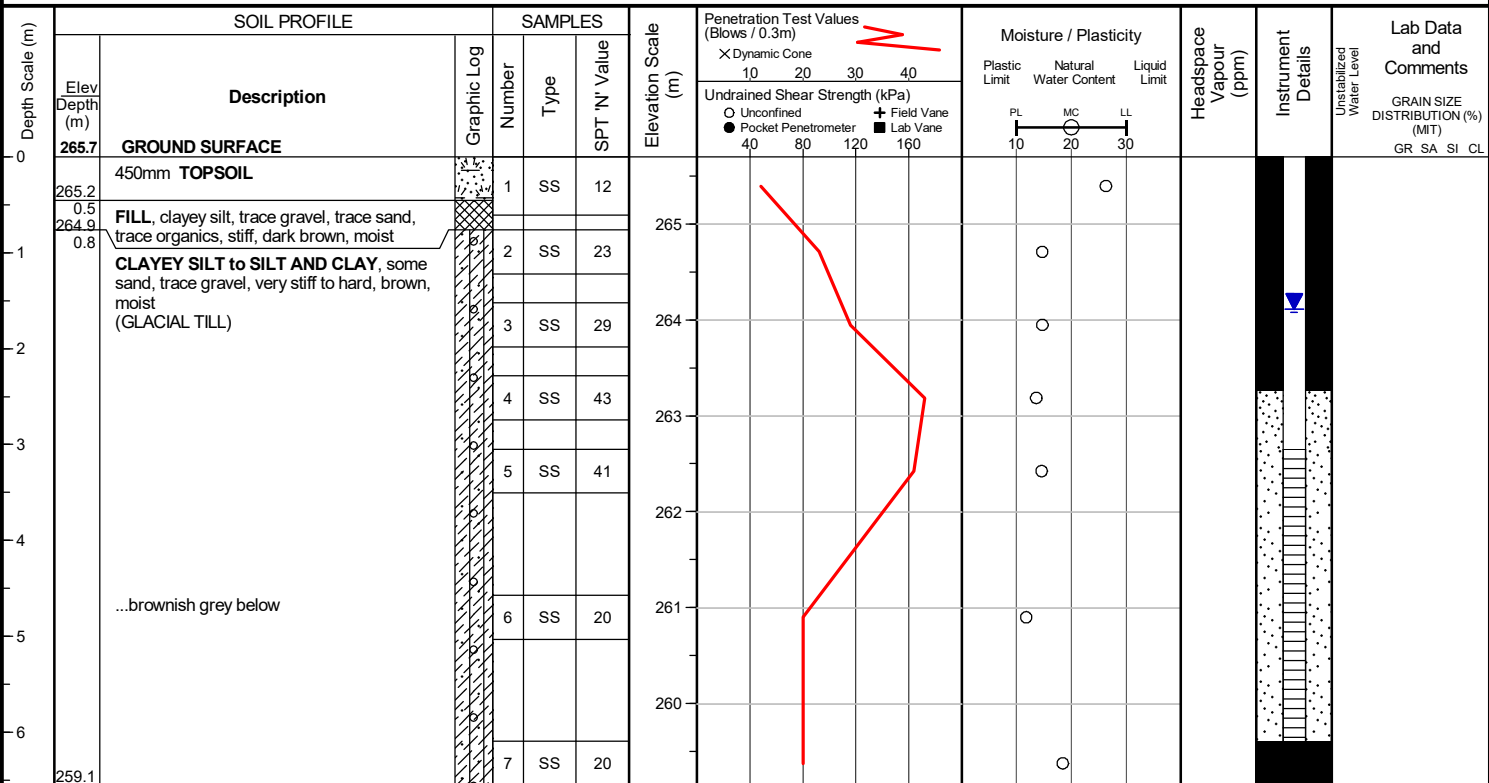
50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Jul 15, 2025	1.8	264.3

Project No. : 02405205.000 Client : Mr. Satwant Deol Originated by : SM
 Date started : January 29, 2025 Project : 0 Humber Station Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Caledon, ON. Checked by : AS

Position : E: 598564, N: 4858358 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers



END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date Jul 15, 2025 Water Depth (m) 1.6 Elevation (m) 264.1

Project No. : 02405205.000 Client : Mr. Satwant Deol Originated by : SM
 Date started : January 29, 2025 Project : 0 Humber Station Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Caledon, ON. Checked by : AS

Position : E: 598555, N: 4858328 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone Undrained Shear Strength (kPa) ○ Unconfined ● Pocket Penetrometer	Moisture / Plasticity Plastic Limit Natural Water Content Liquid Limit PL MC LL	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments Unstabilized Water Level GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0	266.5	GROUND SURFACE										
0.3	266.2	300mm TOPSOIL		1	SS	12	266					
0.8	265.7	FILL, clayey silt, trace gravel, trace sand, trace organics, stiff, dark brown, moist										
1		CLAYEY SILT to SILT AND CLAY, some sand, trace gravel, very stiff to hard, brown, moist (GLACIAL TILL)		2	SS	34	265					
2				3	SS	34	264					
3				4	SS	35	263					
4				5	SS	48	262					
5		...brownish grey below		6	SS	20	261					
6				7	SS	20	260					
6.6	259.9											

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

Project No. : 02405205.000

Client : Mr. Satwant Deol

Originated by : SM

Date started : January 29, 2025

Project : 0 Humber Station Road

Compiled by : AS

Sheet No. : 1 of 1

Location : Caledon, ON.

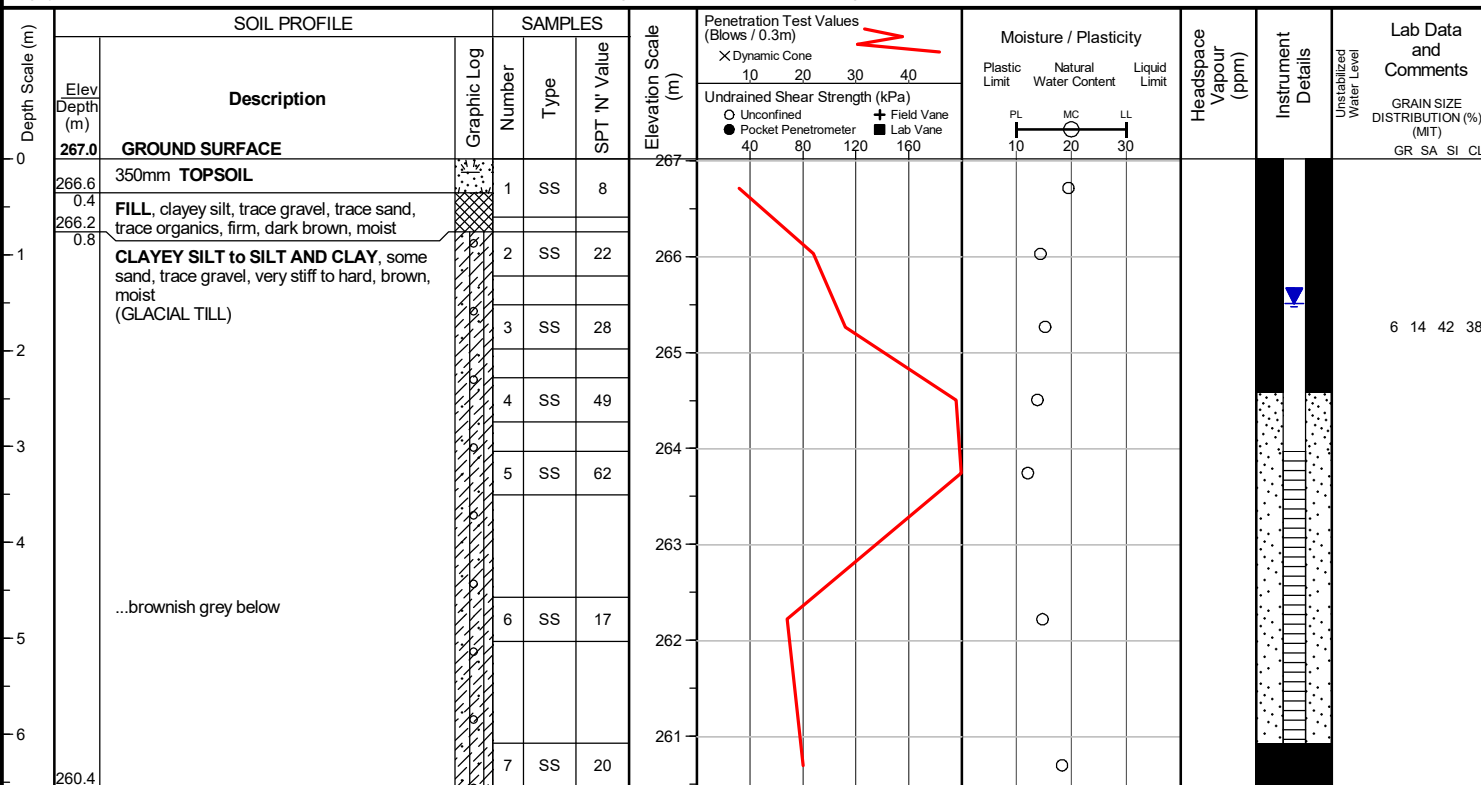
Checked by : AS

Position : E: 598516, N: 4858293 (UTM 17T)

Elevation Datum : Geodetic

Rig type : Track-mounted

Drilling Method : Solid stem augers



END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date Jul 15, 2025 Water Depth (m) 1.5 Elevation (m) 265.5

Project No. : 02405205.000 Client : Mr. Satwant Deol Originated by : SM
 Date started : January 29, 2025 Project : 0 Humber Station Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Caledon, ON. Checked by : AS

Position : E: 598552, N: 4858295 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone Undrained Shear Strength (kPa) ○ Unconfined ● Pocket Penetrometer	Moisture / Plasticity Plastic Limit Natural Water Content Liquid Limit PL MC LL	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0	266.8	GROUND SURFACE										
0.4	266.4	350mm TOPSOIL		1	SS	9						
0.8	266.0	FILL, clayey silt, trace gravel, trace sand, trace organics, stiff, dark brown, moist		2	SS	19						
		CLAYEY SILT to SILT AND CLAY, some sand, trace gravel, very stiff to hard, brown, moist (GLACIAL TILL)		3	SS	36						
				4	SS	41						
				5	SS	37						
3.5	263.3	END OF BOREHOLE										

Borehole was dry and open upon completion of drilling.

Project No. : 02405205.000 Client : Mr. Satwant Deol Originated by : SM
 Date started : January 29, 2025 Project : 0 Humber Station Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Caledon, ON. Checked by : AS

Position : E: 598568, N: 4858259 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone 10 20 30 40 Undrained Shear Strength (kPa) ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane 40 80 120 160	Moisture / Plasticity Plastic Limit Natural Water Content Liquid Limit PL MC LL 10 20 30			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value								
0	266.3	GROUND SURFACE					266							
0.3	266.0	300mm TOPSOIL		1	SS	12	266							
0.8	265.5	FILL, clayey silt, trace gravel, trace sand, trace organics, stiff, dark brown, moist					265							
1		CLAYEY SILT to SILT AND CLAY, some sand, trace gravel, very stiff to hard, brown, moist (GLACIAL TILL)		2	SS	28	265							
2				3	SS	36	264							
3				4	SS	36	263							
3.5	262.8			5	SS	36								

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

Project No. : 02405205.000 Client : Mr. Satwant Deol Originated by : SM
 Date started : January 30, 2025 Project : 0 Humber Station Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Caledon, ON. Checked by : AS

Position : E: 598602, N: 4858285 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone 10 20 30 40 Undrained Shear Strength (kPa) ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane 40 80 120 160	Moisture / Plasticity Plastic Limit Natural Water Content Liquid Limit PL MC LL 10 20 30			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments Unstabilized Water Level GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value								
0	266.1	GROUND SURFACE					266							
0.4	265.7	350mm TOPSOIL		1	SS	7	265.7							
0.8	265.3	FILL, clayey silt, trace gravel, trace sand, trace organics, firm, dark brown, moist		2	SS	26	265.3							
1		CLAYEY SILT to SILT AND CLAY, some sand, trace gravel, very stiff to hard, brown, moist (GLACIAL TILL)		3	SS	32	265							
2				4	SS	31	264							
3				5	SS	40	263							
3.5	262.6													

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

Project No. : 02405205.000

Client : Mr. Satwant Deol

Originated by : SM

Date started : January 27, 2025

Project : 0 Humber Station Road

Compiled by : AS

Sheet No. : 1 of 1

Location : Caledon, ON.

Checked by : AS

Position : E: 598663, N: 4858329 (UTM 17T)

Elevation Datum : Geodetic

Rig type : Track-mounted

Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)		Moisture / Plasticity			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value		Dynamic Cone	Undrained Shear Strength (kPa)	Plastic Limit	Natural Water Content	Liquid Limit			
0	264.3	GROUND SURFACE													
0.3	264.0	300mm TOPSOIL		1	SS	10	264								
0.8	263.5	FILL, clayey silt, trace gravel, trace sand, trace organics, stiff, dark brown, moist													
1		CLAYEY SILT to SILT AND CLAY, some sand, trace gravel, very stiff to hard, brown, moist (GLACIAL TILL)		2	SS	21	263								
2				3	SS	31	262								
3		...brownish grey below		4	SS	38	261								
4				5	SS	27	260								
5				6	SS	18	259								
6				7	SS	20	258								
7				8	SS	29	257								
8				9	SS	14	256								
9		...stiff to very stiff below		10	SS	14	255								
10				11	SS	26	254								
11				12	SS	20	253								
12							252								
13							251								
14	250.1 14.2	END OF BOREHOLE													

WATER LEVEL READINGS

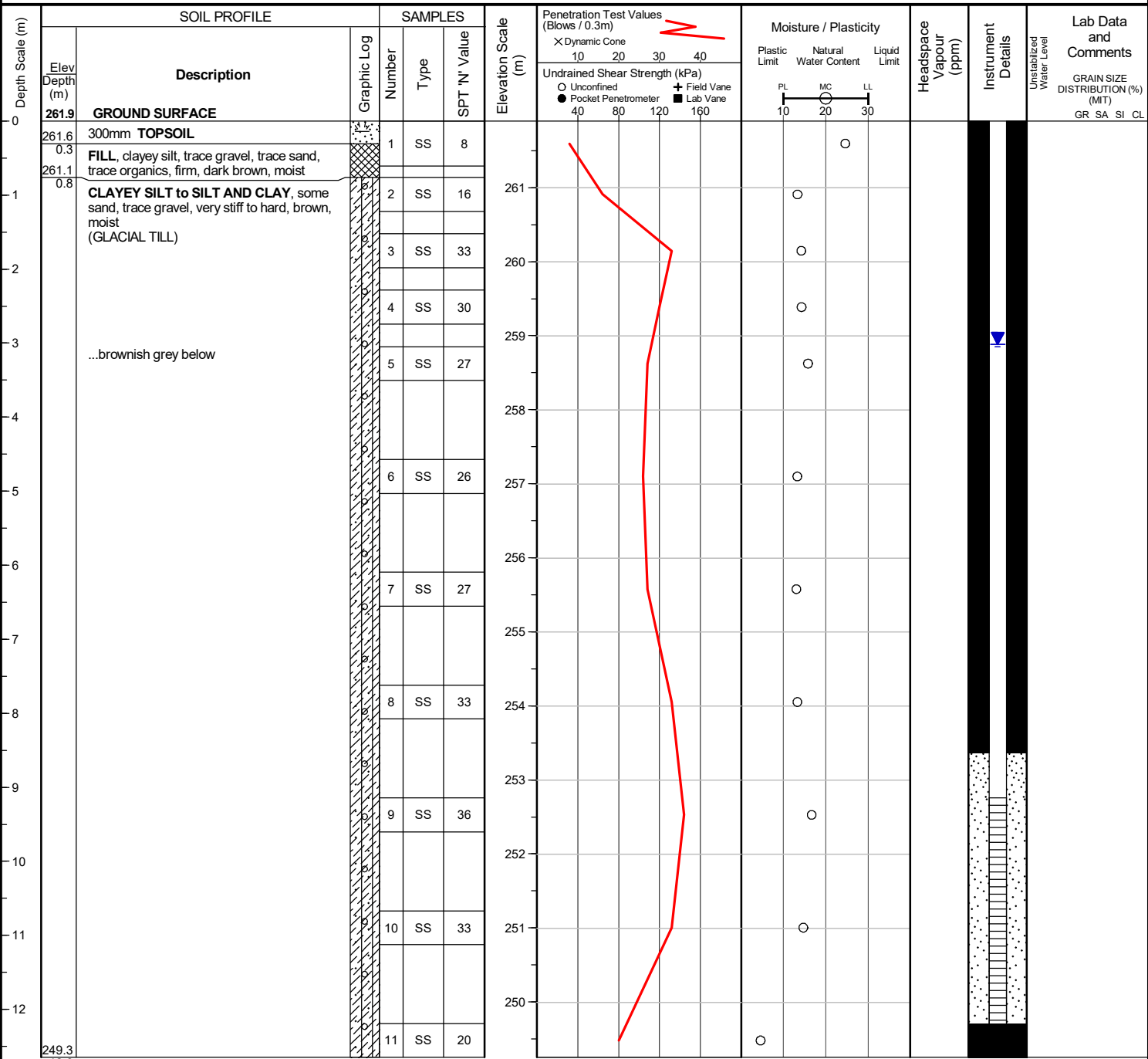
Date: Jul 15, 2025
Water Depth (m): 1.7
Elevation (m): 262.7

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

Project No. : 02405205.000 Client : Mr. Satwant Deol Originated by : SM
 Date started : January 27, 2025 Project : 0 Humber Station Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Caledon, ON. Checked by : AS

Position : E: 598687, N: 4858375 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers



END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date Jul 15, 2025 Water Depth (m) 3.0 Elevation (m) 258.9

Project No. : 02405205.000 Client : Mr. Satwant Deol Originated by : SM
 Date started : January 27, 2025 Project : 0 Humber Station Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Caledon, ON. Checked by : AS

Position : E: 598606, N: 4858376 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone Undrained Shear Strength (kPa) ○ Unconfined ● Pocket Penetrometer	Moisture / Plasticity			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value			Plastic Limit	Natural Water Content	Liquid Limit			
0	264.5	GROUND SURFACE												
0.4	264.1	350mm TOPSOIL		1	SS	11	264			○				
0.8	263.7	FILL, clayey silt, trace gravel, trace sand, trace organics, firm, dark brown, moist		2	SS	26	263			○				
		CLAYEY SILT to SILT AND CLAY, some sand, trace gravel, very stiff to hard, brown, moist (GLACIAL TILL)		3	SS	26	262			○				
				4	SS	35	261			○				
				5	SS	25	260			○				
		...brownish grey below		6	SS	21	259			○				
				7	SS	18	258			○				
				8	SS	22	257			○				
				9	SS	18	256			○				
				10	SS	14	255			○				
		...stiff, brown		11	SS	10	254			○				
				12	SS	27	253			○				
		...very stiff					252			○				
14	250.3	END OF BOREHOLE					251			○				

WATER LEVEL READINGS
 Date Jul 15, 2025 Water Depth (m) 2.8 Elevation (m) 261.7

Borehole was dry and open upon completion of drilling.
 50 mm dia. monitoring well installed.

Project No. : 02405205.000 Client : Mr. Satwant Deol Originated by : SM
 Date started : January 28, 2025 Project : 0 Humber Station Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Caledon, ON. Checked by : AS

Position : E: 598616, N: 4858425 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone Undrained Shear Strength (kPa) ○ Unconfined ● Pocket Penetrometer	Moisture / Plasticity Plastic Limit Natural Water Content Liquid Limit PL MC LL	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0	262.5	GROUND SURFACE										
0.3	262.2	300mm TOPSOIL		1	SS	12	262					
0.8	261.7	FILL, clayey silt, trace gravel, trace sand, trace organics, stiff, dark brown, moist										
1		CLAYEY SILT to SILT AND CLAY, some sand, trace gravel, very stiff to hard, brown, moist (GLACIAL TILL)		2	SS	33	261					
2				3	SS	24	260					
3				4	SS	36	259					
4				5	SS	20	258					
5		...brownish grey below		6	SS	16	257					
6				7	SS	20	256					
7				8	SS	19	255					
8				9	SS	31	254					
9				10	SS	33	253					
10				11	SS	34	252					
12	249.9						251					
12.6							250					

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

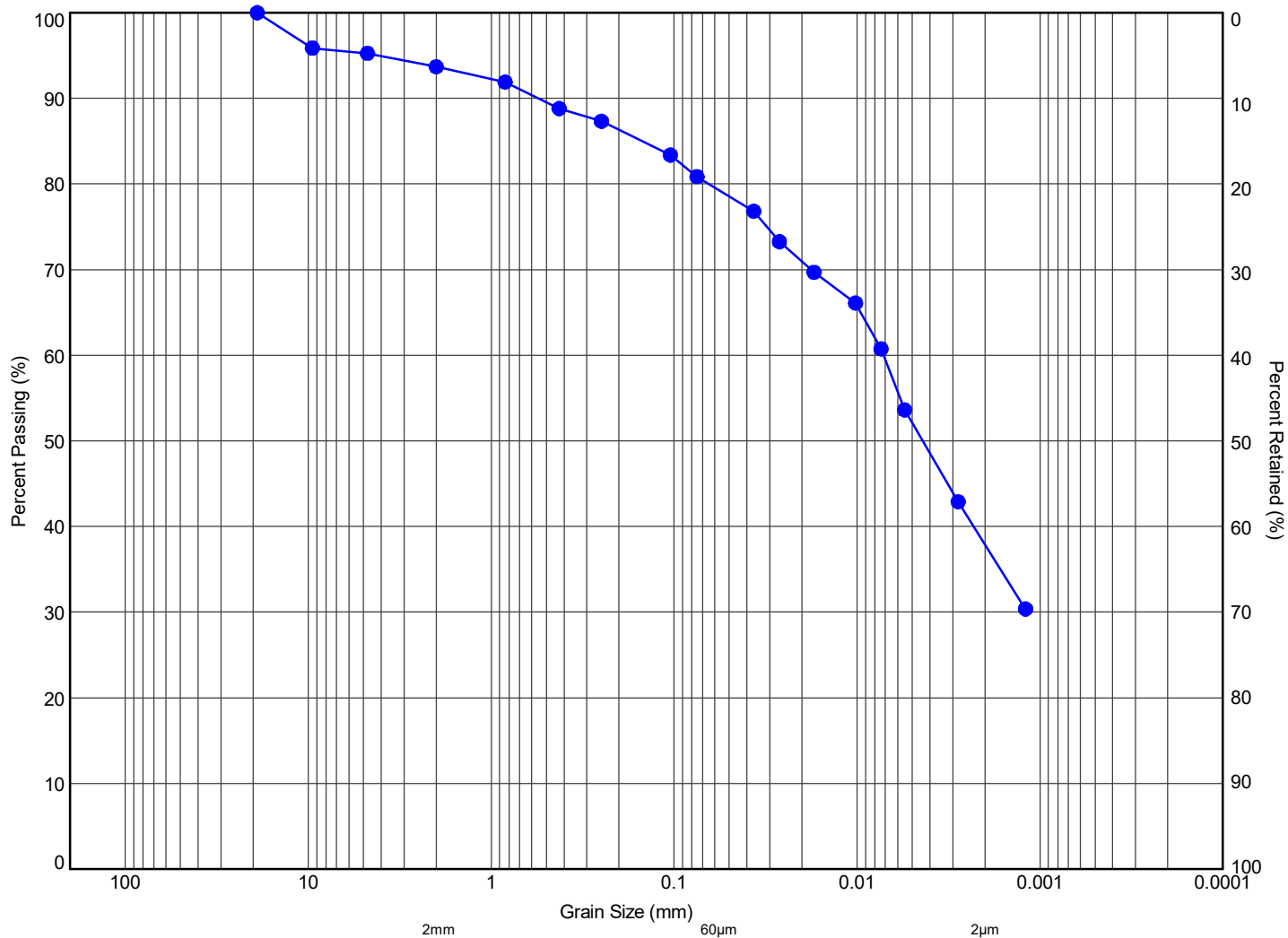
WATER LEVEL READINGS
 Date Jul 15, 2025 Water Depth (m) 3.3 Elevation (m) 259.2

Appendix E

Geotechnical Laboratory Test Results



ENGLOBE



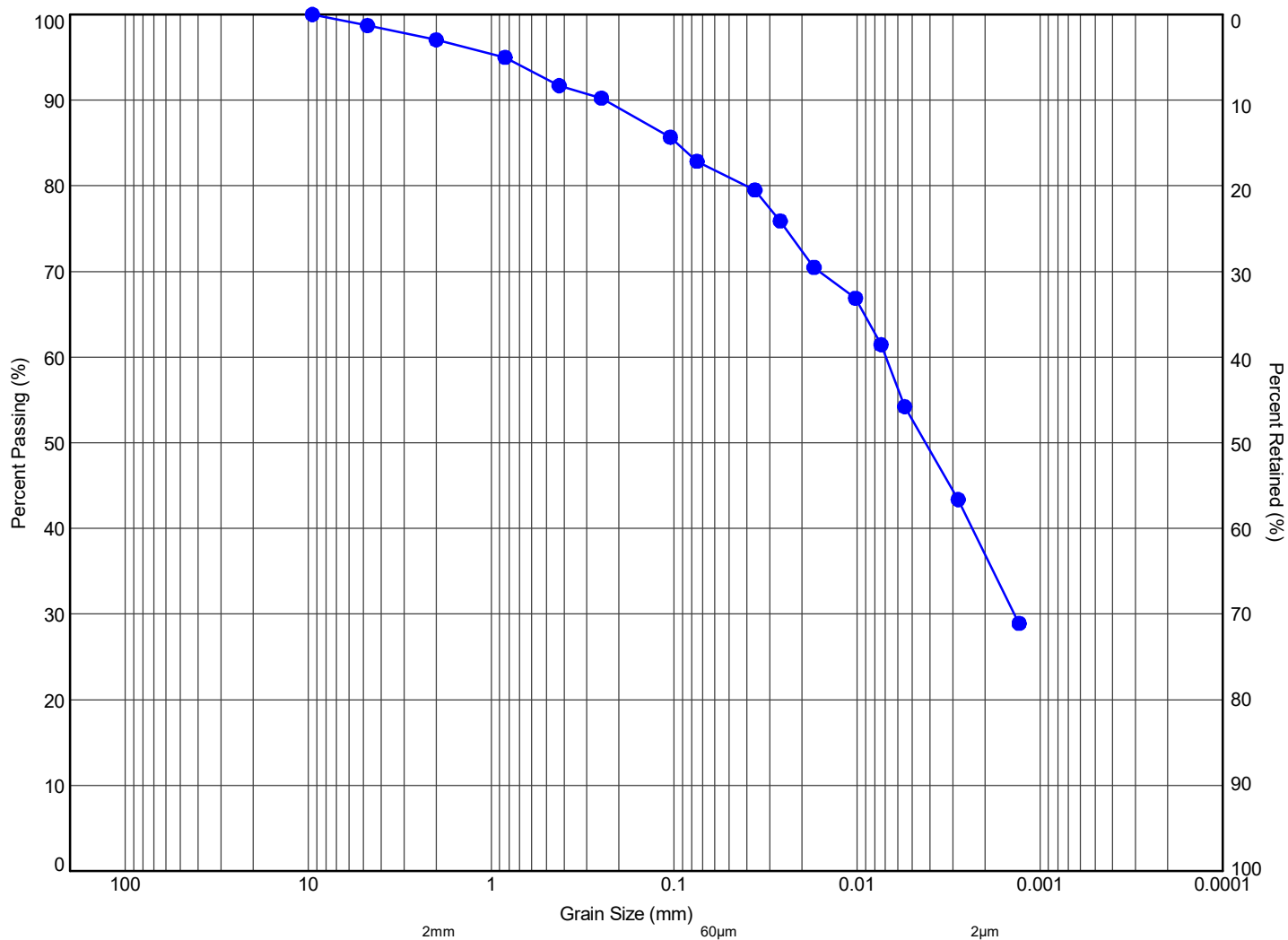
MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM									
Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	(Fines, %)	
● 8	SS3	1.8	265.3	6	14	42	38		



Title: **GRAIN SIZE DISTRIBUTION
SILT AND CLAY, SOME SAND, TRACE GRAVEL**

File No.: **02405205.000**



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	(Fines, %)
11	SS2	1.0	265.1	3	15	45	37	

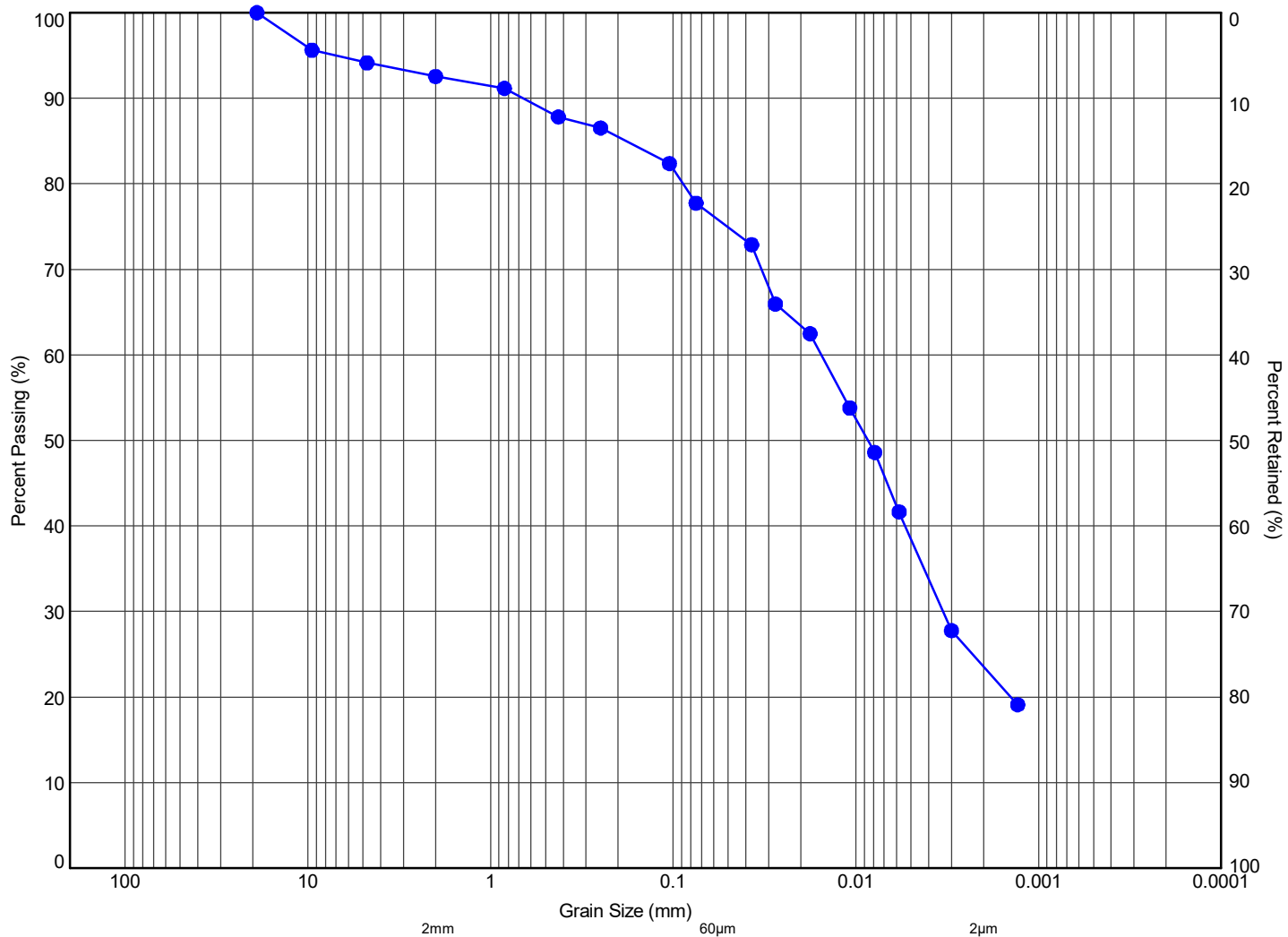


Title:

**GRAIN SIZE DISTRIBUTION
SILT AND CLAY, SOME SAND, TRACE GRAVEL**

File No.:

02405205.000



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM									
Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	(Fines, %)	
12	SS8	7.8	256.5	8	15	53	24		

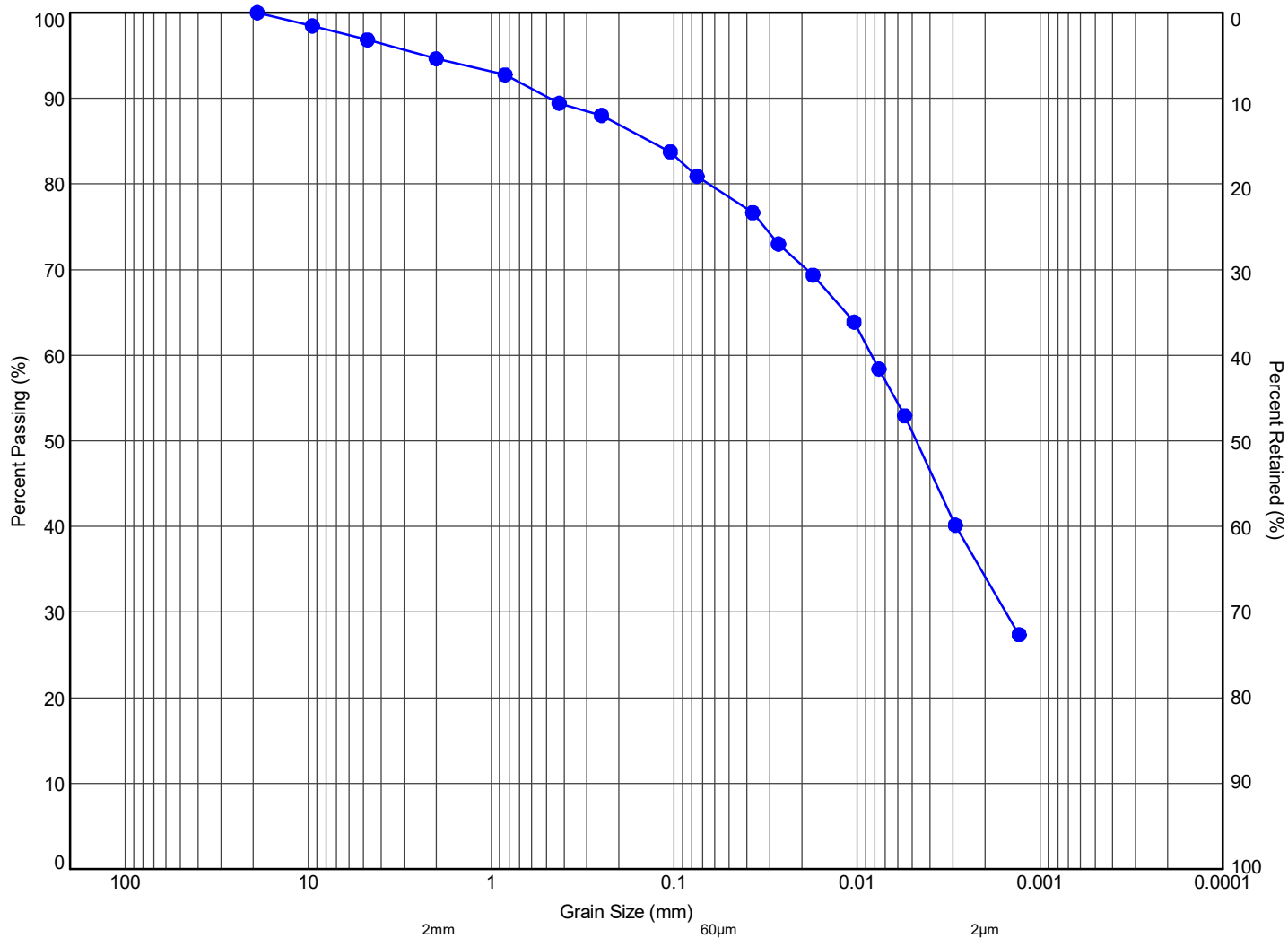


Title:

**GRAIN SIZE DISTRIBUTION
CLAYEY SILT, SOME SAND, TRACE GRAVEL**

File No.:

02405205.000



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	(Fines, %)
15	SS9	9.4	253.1	5	16	45	34	



Title:

**GRAIN SIZE DISTRIBUTION
SILT AND CLAY, SOME SAND, TRACE GRAVEL**

File No.:

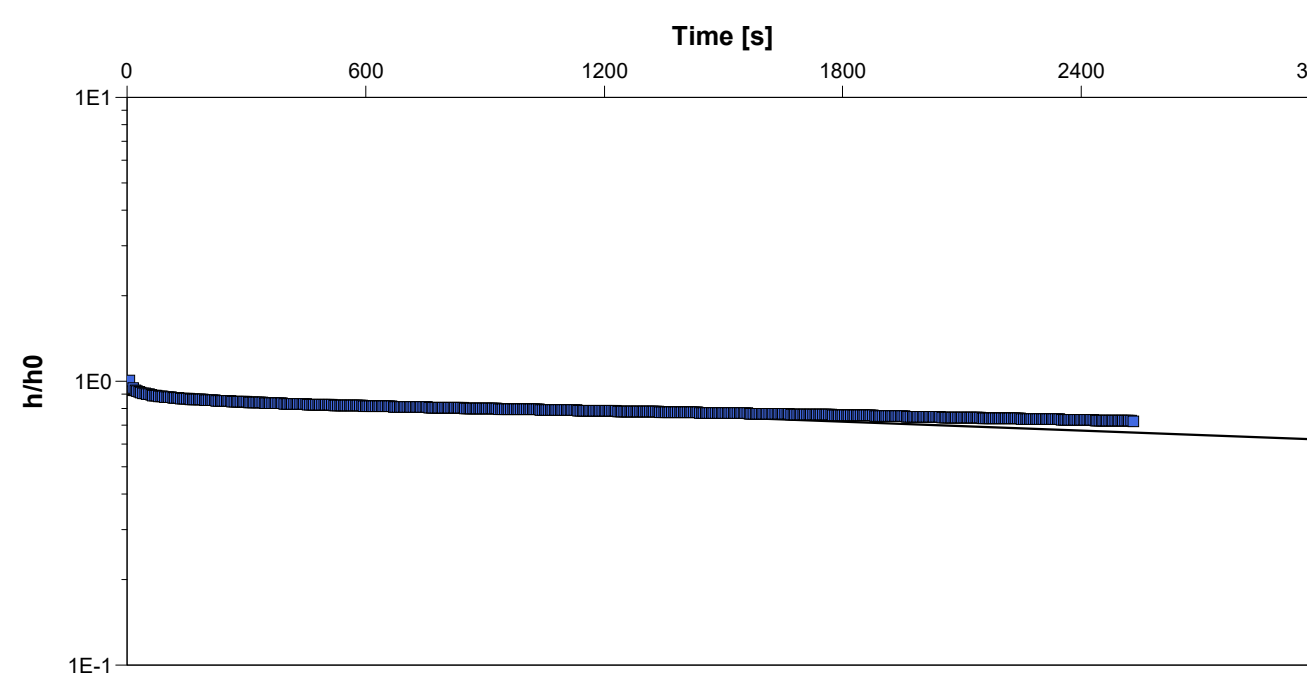
02405205.000

Appendix F

In-Situ Hydraulic Conductivity Tests

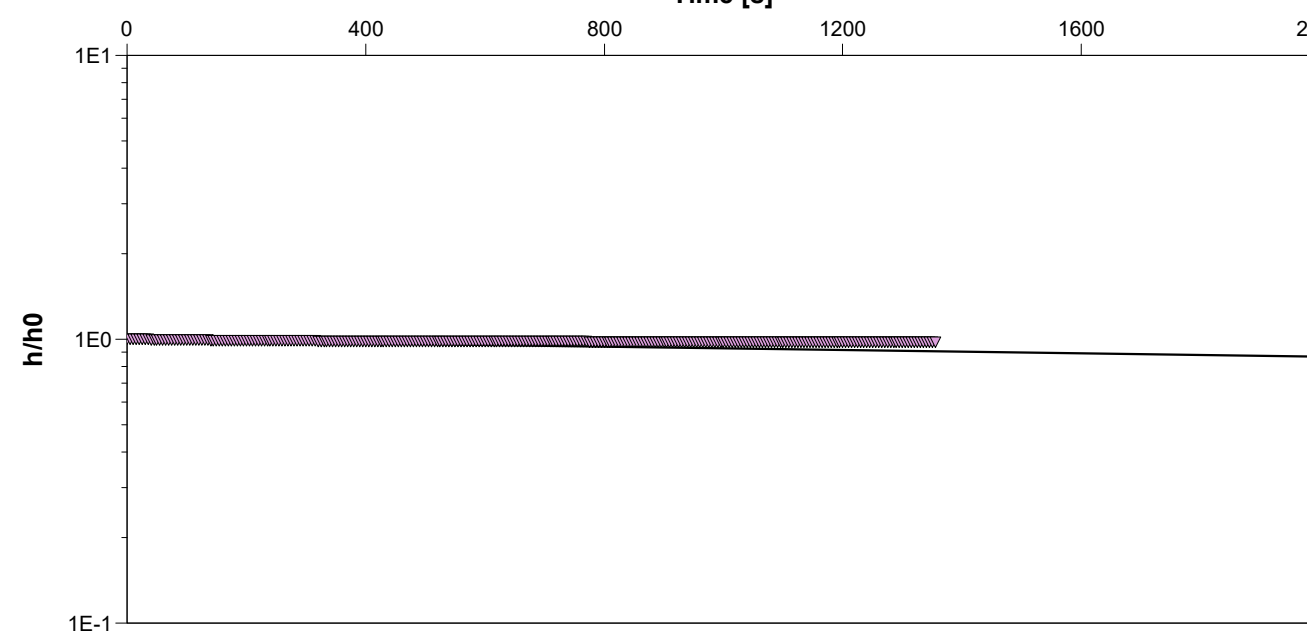


eNGLOBE

		Slug Test Analysis Report	
		Project: 0 HUmber Station Rd.	
		Number: 02405205.000	
		Client:	
Location: CALEDON		Slug Test: BH4	Test Well: BH4
Test Conducted by: A.Q		Test Date: 7/18/2025	
Analysis Performed by: A.Q		BH4 RHT	Analysis Date: 7/29/2025
Aquifer Thickness:			
<div><p>Time [s]</p></div>			
Calculation using Hvorslev			
Observation Well	Hydraulic Conductivity [m/s]		
BH4	5.20 × 10 ⁻⁸		

		Slug Test Analysis Report	
		Project: 0 HUmber Station Rd.	
		Number: 02405205.000	
		Client:	
Location: CALEDON		Slug Test: BH8	Test Well: BH8
Test Conducted by: A.Q		Test Date: 7/18/2025	
Analysis Performed by: A.Q		BH8 RHT	Analysis Date: 7/29/2025
Aquifer Thickness:			
<div><p>Time [s]</p><p>h/h0</p></div>			
Calculation using Hvorslev			
Observation Well	Hydraulic Conductivity [m/s]		
BH8	1.28×10^{-7}		

			Slug Test Analysis Report		
			Project: 0 HUmber Station Rd.		
			Number: 02405205.000		
			Client:		
Location: CALEDON		Slug Test: BH12		Test Well: BH12	
Test Conducted by: A.Q				Test Date: 7/18/2025	
Analysis Performed by: A.Q		BH12 RHT		Analysis Date: 7/29/2025	
Aquifer Thickness:					
<div><p>Time [s]</p></div>					
Calculation using Hvorslev					
Observation Well		Hydraulic Conductivity			
		[m/s]			
BH12		4.57 × 10 ⁻⁸			

			Slug Test Analysis Report		
			Project: 0 HUmber Station Rd.		
			Number: 02405205.000		
			Client:		
Location: CALEDON		Slug Test: BH13		Test Well: BH13	
Test Conducted by: A.Q				Test Date: 7/18/2025	
Analysis Performed by: A.Q		BH13 RHT		Analysis Date: 7/29/2025	
Aquifer Thickness:					
<div><div>Time [s]</div><div><div>0400800120016002000</div><div>1E1</div><div>1E0</div><div>1E-1</div></div></div>					
Calculation using Hvorslev					
Observation Well		Hydraulic Conductivity [m/s]			
BH13		2.89 × 10 ⁻⁸			

		Slug Test Analysis Report																	
		Project: 0 HUmber Station Rd.																	
		Number: 02405205.000																	
		Client:																	
Location: CALEDON		Slug Test: BH15		Test Well: BH15															
Test Conducted by: A.Q				Test Date: 7/19/2025															
Analysis Performed by:		BH15 RHT		Analysis Date: 7/29/2025															
Aquifer Thickness:																			
<div><p>Time [s]</p><table><caption>Approximate data points from the graph</caption><thead><tr><th>Time [s]</th><th>h/h0</th></tr></thead><tbody><tr><td>0</td><td>1.0</td></tr><tr><td>1000</td><td>0.98</td></tr><tr><td>2000</td><td>0.95</td></tr><tr><td>3000</td><td>0.92</td></tr><tr><td>4000</td><td>0.85</td></tr><tr><td>5000</td><td>0.75</td></tr></tbody></table></div>						Time [s]	h/h0	0	1.0	1000	0.98	2000	0.95	3000	0.92	4000	0.85	5000	0.75
Time [s]	h/h0																		
0	1.0																		
1000	0.98																		
2000	0.95																		
3000	0.92																		
4000	0.85																		
5000	0.75																		
Calculation using Hvorslev																			
Observation Well		Hydraulic Conductivity [m/s]																	
BH15		1.51 × 10 ⁻⁸																	

Appendix G

Groundwater Quality Results



eNGLOBE



Your Project #: 02405205.000
Site Location: HUMBER STATION RD; CALEDON
Your C.O.C. #: C#1053303-01-01

Attention: Abdul Qadir

Englobe Corp
20 Carlson Court
Etobicoke, ON
CANADA M9W 7K6

Report Date: 2025/07/28
Report #: R8583950
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C587335

Received: 2025/07/19, 13:30

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	1	2025/07/21	2025/07/22	CAM SOP-00301	EPA 8270E m
Carbonaceous BOD	1	2025/07/21	2025/07/26	CAM SOP-00427	SM 24 5210B m
Total Cyanide	1	2025/07/22	2025/07/22	CAM SOP-00457	OMOE E3015 5 m
Fluoride	1	2025/07/22	2025/07/22	CAM SOP-00449	SM 24 4500-F C m
Mercury in Water by CVAA	1	2025/07/24	2025/07/25	CAM SOP-00453	EPA 7470A m
Total Metals Analysis by ICPMS	1	2025/07/24	2025/07/24	CAM SOP-00447	EPA 6020B m
E.coli, (CFU/100mL)	1	N/A	2025/07/19	CAM SOP-00552	SM9222B, MECP E3371
Total Nonylphenol in Liquids by HPLC	1	2025/07/24	2025/07/24	CAM SOP-00313	In-house Method
Nonylphenol Ethoxylates in Liquids: HPLC	1	2025/07/24	2025/07/24	CAM SOP-00313	Bureau Veritas
Animal and Vegetable Oil and Grease	1	N/A	2025/07/24	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2025/07/24	2025/07/24	CAM SOP-00326	EPA1664B m,SM5520B m
Polychlorinated Biphenyl in Water	1	2025/07/22	2025/07/23	CAM SOP-00309	EPA 8082A m
Phenols (4AAP)	1	N/A	2025/07/26	CAM SOP-00444	OMOE E3179 m
pH	1	2025/07/22	2025/07/22	CAM SOP-00413	SM 24th-4500H+ B
Sulphate by Automated Turbidimetry	1	N/A	2025/07/23	CAM SOP-00464	SM 24 4500-SO42- E m
Total Kjeldahl Nitrogen in Water	1	2025/07/23	2025/07/24	CAM SOP-00938	SM 4500-N B m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2025/07/24	2025/07/24	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2025/07/23	2025/07/23	CAM SOP-00428	SM 24 2540D m
Volatile Organic Compounds in Water	1	N/A	2025/07/23	CAM SOP-00228	EPA 8260D

Remarks:

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

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

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report.



Your Project #: 02405205.000
Site Location: HUMBER STATION RD; CALEDON
Your C.O.C. #: C#1053303-01-01

Attention: Abdul Qadir

Englobe Corp
20 Carlson Court
Etobicoke, ON
CANADA M9W 7K6

Report Date: 2025/07/28
Report #: R8583950
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C587335

Received: 2025/07/19, 13:30

Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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

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

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

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Bureau Veritas Job #: C587335
Report Date: 2025/07/28

Englobe Corp
Client Project #: 02405205.000
Site Location: HUMBER STATION RD; CALEDON
Sampler Initials: AQ

PEEL SANITARY & STORM SEWER (53-2010)

Bureau Veritas ID				ATDY52	ATDY52		
Sampling Date				2025/07/18 14:00	2025/07/18 14:00		
COC Number				C#1053303-01-01	C#1053303-01-01		
	UNITS	Criteria	Criteria-2	BH15	BH15 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Total Animal/Vegetable Oil and Grease	mg/L	150	-	2.8	N/A	0.50	9973000
Inorganics							
Total Carbonaceous BOD	mg/L	300	15	<2	N/A	2	9973898
Fluoride (F-)	mg/L	10	-	0.24	N/A	0.10	9974293
Total Kjeldahl Nitrogen (TKN)	mg/L	100	1	0.23	N/A	0.10	9975581
pH	pH	5.5:10.0	6.0:9.0	7.74	N/A	N/A	9974085
Phenols-4AAP	mg/L	1	0.008	0.0019	N/A	0.0010	9977309
Total Suspended Solids	mg/L	350	15	25	N/A	10	9975489
Dissolved Sulphate (SO4)	mg/L	1500	-	140	N/A	1.0	9974309
Total Cyanide (CN)	mg/L	2	0.02	<0.0050	N/A	0.0050	9974140
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	-	-	2.8	N/A	0.50	9976201
Total Oil & Grease Mineral/Synthetic	mg/L	15	-	<0.50	N/A	0.50	9976206
Miscellaneous Parameters							
Nonylphenol Ethoxylate (Total)	mg/L	0.2	-	<0.025	<0.025	0.025	9975801
Nonylphenol (Total)	mg/L	0.02	-	<0.001	N/A	0.001	9975795
Metals							
Mercury (Hg)	mg/L	0.01	0.0004	<0.00010	N/A	0.00010	9976808
Total Aluminum (Al)	ug/L	50000	-	490	N/A	4.9	9976130
Total Antimony (Sb)	ug/L	5000	-	<0.50	N/A	0.50	9976130
Total Arsenic (As)	ug/L	1000	20	2.7	N/A	1.0	9976130
Total Cadmium (Cd)	ug/L	700	8	<0.090	N/A	0.090	9976130
Total Chromium (Cr)	ug/L	5000	80	<5.0	N/A	5.0	9976130
Total Cobalt (Co)	ug/L	5000	-	11	N/A	0.50	9976130
Total Copper (Cu)	ug/L	3000	50	19	N/A	0.90	9976130
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Lab-Dup = Laboratory Initiated Duplicate							
Criteria: The Regional Municipality of Peel Sanitary Sewer Discharge.							
By-Law Number 53-2010.							
Criteria-2: The Regional Municipality of Peel Storm Sewer Discharge.							
By-Law Number 53-2010.							
N/A = Not Applicable							



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PEEL SANITARY & STORM SEWER (53-2010)

Bureau Veritas ID				ATDY52	ATDY52		
Sampling Date				2025/07/18 14:00	2025/07/18 14:00		
COC Number				C#1053303-01-01	C#1053303-01-01		
	UNITS	Criteria	Criteria-2	BH15	BH15 Lab-Dup	RDL	QC Batch
Total Lead (Pb)	ug/L	3000	120	0.93	N/A	0.50	9976130
Total Manganese (Mn)	ug/L	5000	50	98	N/A	2.0	9976130
Total Molybdenum (Mo)	ug/L	5000	-	19	N/A	0.50	9976130
Total Nickel (Ni)	ug/L	3000	80	7.3	N/A	1.0	9976130
Total Phosphorus (P)	ug/L	10000	-	<100	N/A	100	9976130
Total Selenium (Se)	ug/L	1000	20	<2.0	N/A	2.0	9976130
Total Silver (Ag)	ug/L	5000	120	<0.090	N/A	0.090	9976130
Total Tin (Sn)	ug/L	5000	-	<1.0	N/A	1.0	9976130
Total Titanium (Ti)	ug/L	5000	-	16	N/A	5.0	9976130
Total Zinc (Zn)	ug/L	3000	40	24	N/A	5.0	9976130
Semivolatile Organics							
Bis(2-ethylhexyl)phthalate	ug/L	12	8.8	<8.0	N/A	8.0	9973849
Di-N-butyl phthalate	ug/L	80	15	18	N/A	8.0	9973849
Volatile Organics							
Benzene	ug/L	10	2	<0.20	N/A	0.20	9974397
Chloroform	ug/L	40	2	<0.20	N/A	0.20	9974397
1,2-Dichlorobenzene	ug/L	50	5.6	<0.40	N/A	0.40	9974397
1,4-Dichlorobenzene	ug/L	80	6.8	<0.40	N/A	0.40	9974397
cis-1,2-Dichloroethylene	ug/L	4000	5.6	<0.50	N/A	0.50	9974397
trans-1,3-Dichloropropene	ug/L	140	5.6	<0.40	N/A	0.40	9974397
Ethylbenzene	ug/L	160	2	<0.20	N/A	0.20	9974397
Methylene Chloride(Dichloromethane)	ug/L	2000	5.2	<2.0	N/A	2.0	9974397
Methyl Ethyl Ketone (2-Butanone)	ug/L	8000	-	<10	N/A	10	9974397
Styrene	ug/L	200	-	<0.40	N/A	0.40	9974397
1,1,2,2-Tetrachloroethane	ug/L	1400	17	<0.40	N/A	0.40	9974397
Tetrachloroethylene	ug/L	1000	4.4	<0.20	N/A	0.20	9974397
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Lab-Dup = Laboratory Initiated Duplicate							
Criteria: The Regional Municipality of Peel Sanitary Sewer Discharge.							
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Sampling Date				2025/07/18 14:00	2025/07/18 14:00		
COC Number				C#1053303-01-01	C#1053303-01-01		
	UNITS	Criteria	Criteria-2	BH15	BH15 Lab-Dup	RDL	QC Batch
Toluene	ug/L	270	2	<0.20	N/A	0.20	9974397
Trichloroethylene	ug/L	400	8	<0.20	N/A	0.20	9974397
p+m-Xylene	ug/L	-	-	<0.20	N/A	0.20	9974397
o-Xylene	ug/L	-	-	<0.20	N/A	0.20	9974397
Total Xylenes	ug/L	1400	4.4	<0.20	N/A	0.20	9974397
PCBs							
Total PCB	ug/L	1	0.4	<0.05	N/A	0.05	9974040
Microbiological							
Escherichia coli	CFU/100mL	-	200	<10	N/A	10	9973135
Surrogate Recovery (%)							
2,4,6-Tribromophenol	%	-	-	82	N/A	N/A	9973849
2-Fluorobiphenyl	%	-	-	63	N/A	N/A	9973849
2-Fluorophenol	%	-	-	40	N/A	N/A	9973849
D14-Terphenyl	%	-	-	99	N/A	N/A	9973849
D5-Nitrobenzene	%	-	-	84	N/A	N/A	9973849
D5-Phenol	%	-	-	27	N/A	N/A	9973849
Decachlorobiphenyl	%	-	-	79	N/A	N/A	9974040
4-Bromofluorobenzene	%	-	-	103	N/A	N/A	9974397
D4-1,2-Dichloroethane	%	-	-	97	N/A	N/A	9974397
D8-Toluene	%	-	-	96	N/A	N/A	9974397
No Fill	No Exceedance						
Grey	Exceeds 1 criteria policy/level						
Black	Exceeds both criteria/levels						
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Lab-Dup = Laboratory Initiated Duplicate							
Criteria: The Regional Municipality of Peel Sanitary Sewer Discharge. By-Law Number 53-2010.							
Criteria-2: The Regional Municipality of Peel Storm Sewer Discharge. By-Law Number 53-2010.							
N/A = Not Applicable							



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TEST SUMMARY

Bureau Veritas ID: ATDY52
Sample ID: BH15
Matrix: Water

Collected: 2025/07/18
Shipped:
Received: 2025/07/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
ABN Compounds in Water by GC/MS	GC/MS	9973849	2025/07/21	2025/07/22	Ahmed Ismail
Carbonaceous BOD	DO	9973898	2025/07/21	2025/07/26	Frank Zhang
Total Cyanide	SKAL/CN	9974140	2025/07/22	2025/07/22	Prgya Panchal
Fluoride	ISE	9974293	2025/07/22	2025/07/22	Nachiketa Gohil
Mercury in Water by CVAA	CV/AA	9976808	2025/07/24	2025/07/25	Maitri PATIL
Total Metals Analysis by ICPMS	ICP/MS	9976130	2025/07/24	2025/07/24	Thuy Linh Nguyen
E.coli, (CFU/100mL)	PL	9973135	N/A	2025/07/19	Jing (Sammy) Sun
Total Nonylphenol in Liquids by HPLC	LC/FLU	9975795	2025/07/24	2025/07/24	Furneesh Kumar
Nonylphenol Ethoxylates in Liquids: HPLC	LC/FLU	9975801	2025/07/24	2025/07/24	Furneesh Kumar
Animal and Vegetable Oil and Grease	BAL	9973000	N/A	2025/07/24	Automated Statchk
Total Oil and Grease	BAL	9976201	2025/07/24	2025/07/24	Kishan Patel
Polychlorinated Biphenyl in Water	GC/ECD	9974040	2025/07/22	2025/07/23	Debashis Saha
Phenols (4AAP)	TECH/PHEN	9977309	N/A	2025/07/26	Jency Sara Johnson
pH	AT	9974085	2025/07/22	2025/07/22	Sreena Thekkoot
Sulphate by Automated Turbidimetry	SKAL	9974309	N/A	2025/07/23	Alina Dobreanu
Total Kjeldahl Nitrogen in Water	SKAL	9975581	2025/07/23	2025/07/24	Rajni Tyagi
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	9976206	2025/07/24	2025/07/24	Kishan Patel
Total Suspended Solids	BAL	9975489	2025/07/23	2025/07/24	Hiu Fung Yan (James)
Volatile Organic Compounds in Water	GC/MS	9974397	N/A	2025/07/23	Narayan Ghimire

Bureau Veritas ID: ATDY52 Dup
Sample ID: BH15
Matrix: Water

Collected: 2025/07/18
Shipped:
Received: 2025/07/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nonylphenol Ethoxylates in Liquids: HPLC	LC/FLU	9975801	2025/07/24	2025/07/25	Furneesh Kumar



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GENERAL COMMENTS

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

Package 1	9.7°C
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Sample ATDY52 [BH15] : ABN Analysis: Due to the sample matrix, a smaller than usual portion of the sample was used for extraction. Detection limits were adjusted accordingly.

Results relate only to the items tested.



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QUALITY ASSURANCE REPORT

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9973849	AHI	Matrix Spike		2,4,6-Tribromophenol	2025/07/21		92	%	10 - 130
				2-Fluorobiphenyl	2025/07/21		72	%	30 - 130
				2-Fluorophenol	2025/07/21		38	%	10 - 130
				D14-Terphenyl	2025/07/21		97	%	30 - 130
				D5-Nitrobenzene	2025/07/21		82	%	30 - 130
				D5-Phenol	2025/07/21		27	%	10 - 130
				Bis(2-ethylhexyl)phthalate	2025/07/21		109	%	30 - 130
				Di-N-butyl phthalate	2025/07/21		111	%	30 - 130
9973849	AHI	Spiked Blank		2,4,6-Tribromophenol	2025/07/21		95	%	10 - 130
				2-Fluorobiphenyl	2025/07/21		73	%	30 - 130
				2-Fluorophenol	2025/07/21		50	%	10 - 130
				D14-Terphenyl	2025/07/21		97	%	30 - 130
				D5-Nitrobenzene	2025/07/21		97	%	30 - 130
				D5-Phenol	2025/07/21		32	%	10 - 130
				Bis(2-ethylhexyl)phthalate	2025/07/21		107	%	30 - 130
				Di-N-butyl phthalate	2025/07/21		115	%	30 - 130
9973849	AHI	Method Blank		2,4,6-Tribromophenol	2025/07/21		68	%	10 - 130
				2-Fluorobiphenyl	2025/07/21		85	%	30 - 130
				2-Fluorophenol	2025/07/21		41	%	10 - 130
				D14-Terphenyl	2025/07/21		95	%	30 - 130
				D5-Nitrobenzene	2025/07/21		98	%	30 - 130
				D5-Phenol	2025/07/21		26	%	10 - 130
				Bis(2-ethylhexyl)phthalate	2025/07/21	<2.0		ug/L	
				Di-N-butyl phthalate	2025/07/21	<2.0		ug/L	
9973849	AHI	RPD		Bis(2-ethylhexyl)phthalate	2025/07/22	NC		%	40
				Di-N-butyl phthalate	2025/07/22	NC		%	40
9973898	FZH	QC Standard		Total Carbonaceous BOD	2025/07/26		96	%	80 - 120
9973898	FZH	Method Blank		Total Carbonaceous BOD	2025/07/26	<2		mg/L	
9973898	FZH	RPD		Total Carbonaceous BOD	2025/07/26	6.7		%	30
9974040	DS1	Matrix Spike		Decachlorobiphenyl	2025/07/23		73	%	60 - 130
				Total PCB	2025/07/23		67	%	60 - 130
9974040	DS1	Spiked Blank		Decachlorobiphenyl	2025/07/23		73	%	60 - 130
				Total PCB	2025/07/23		61	%	60 - 130
9974040	DS1	Method Blank		Decachlorobiphenyl	2025/07/23		75	%	60 - 130
				Total PCB	2025/07/23	<0.05		ug/L	
9974040	DS1	RPD		Total PCB	2025/07/23	NC		%	40
9974085	SRT	Spiked Blank		pH	2025/07/22		102	%	98 - 103
9974085	SRT	RPD		pH	2025/07/22	0.43		%	N/A
9974140	GYA	Matrix Spike		Total Cyanide (CN)	2025/07/22		88	%	80 - 120
9974140	GYA	Spiked Blank		Total Cyanide (CN)	2025/07/22		101	%	80 - 120
9974140	GYA	Method Blank		Total Cyanide (CN)	2025/07/22	<0.0050		mg/L	
9974140	GYA	RPD		Total Cyanide (CN)	2025/07/22	0		%	20
9974293	NGI	Matrix Spike		Fluoride (F-)	2025/07/22		102	%	80 - 120
9974293	NGI	Spiked Blank		Fluoride (F-)	2025/07/22		100	%	80 - 120
9974293	NGI	Method Blank		Fluoride (F-)	2025/07/22	<0.10		mg/L	
9974293	NGI	RPD		Fluoride (F-)	2025/07/22	2.4		%	20
9974309	ADB	Matrix Spike		Dissolved Sulphate (SO4)	2025/07/23		NC	%	75 - 125
9974309	ADB	Spiked Blank		Dissolved Sulphate (SO4)	2025/07/23		96	%	80 - 120
9974309	ADB	Method Blank		Dissolved Sulphate (SO4)	2025/07/23	<1.0		mg/L	
9974309	ADB	RPD		Dissolved Sulphate (SO4)	2025/07/23	0.29		%	20
9974397	NGH	Matrix Spike		4-Bromofluorobenzene	2025/07/23		104	%	70 - 130



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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC	Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9974397	NGH	Spiked Blank		D4-1,2-Dichloroethane	2025/07/23		95	%	70 - 130
				D8-Toluene	2025/07/23		98	%	70 - 130
				Benzene	2025/07/23		98	%	70 - 130
				Chloroform	2025/07/23		98	%	70 - 130
				1,2-Dichlorobenzene	2025/07/23		102	%	70 - 130
				1,4-Dichlorobenzene	2025/07/23		103	%	70 - 130
				cis-1,2-Dichloroethylene	2025/07/23		103	%	70 - 130
				trans-1,3-Dichloropropene	2025/07/23		96	%	70 - 130
				Ethylbenzene	2025/07/23		95	%	70 - 130
				Methylene Chloride(Dichloromethane)	2025/07/23		105	%	70 - 130
				Methyl Ethyl Ketone (2-Butanone)	2025/07/23		93	%	60 - 140
				Styrene	2025/07/23		97	%	70 - 130
				1,1,2,2-Tetrachloroethane	2025/07/23		93	%	70 - 130
				Tetrachloroethylene	2025/07/23		101	%	70 - 130
				Toluene	2025/07/23		97	%	70 - 130
				Trichloroethylene	2025/07/23		104	%	70 - 130
				p+m-Xylene	2025/07/23		95	%	70 - 130
				o-Xylene	2025/07/23		107	%	70 - 130
				4-Bromofluorobenzene	2025/07/23		101	%	70 - 130
				D4-1,2-Dichloroethane	2025/07/23		99	%	70 - 130
				D8-Toluene	2025/07/23		100	%	70 - 130
				Benzene	2025/07/23		93	%	70 - 130
				Chloroform	2025/07/23		94	%	70 - 130
				1,2-Dichlorobenzene	2025/07/23		97	%	70 - 130
				1,4-Dichlorobenzene	2025/07/23		97	%	70 - 130
				cis-1,2-Dichloroethylene	2025/07/23		98	%	70 - 130
				trans-1,3-Dichloropropene	2025/07/23		94	%	70 - 130
				Ethylbenzene	2025/07/23		89	%	70 - 130
				Methylene Chloride(Dichloromethane)	2025/07/23		101	%	70 - 130
				Methyl Ethyl Ketone (2-Butanone)	2025/07/23		89	%	60 - 140
				Styrene	2025/07/23		90	%	70 - 130
				1,1,2,2-Tetrachloroethane	2025/07/23		87	%	70 - 130
				Tetrachloroethylene	2025/07/23		95	%	70 - 130
				Toluene	2025/07/23		93	%	70 - 130
				Trichloroethylene	2025/07/23		98	%	70 - 130
				p+m-Xylene	2025/07/23		88	%	70 - 130
				o-Xylene	2025/07/23		98	%	70 - 130
9974397	NGH	Method Blank		4-Bromofluorobenzene	2025/07/23		99	%	70 - 130
				D4-1,2-Dichloroethane	2025/07/23		98	%	70 - 130
				D8-Toluene	2025/07/23		98	%	70 - 130
				Benzene	2025/07/23	<0.20		ug/L	
				Chloroform	2025/07/23	<0.20		ug/L	
				1,2-Dichlorobenzene	2025/07/23	<0.40		ug/L	
				1,4-Dichlorobenzene	2025/07/23	<0.40		ug/L	
				cis-1,2-Dichloroethylene	2025/07/23	<0.50		ug/L	
				trans-1,3-Dichloropropene	2025/07/23	<0.40		ug/L	
				Ethylbenzene	2025/07/23	<0.20		ug/L	
				Methylene Chloride(Dichloromethane)	2025/07/23	<2.0		ug/L	
				Methyl Ethyl Ketone (2-Butanone)	2025/07/23	<10		ug/L	
				Styrene	2025/07/23	<0.40		ug/L	
				1,1,2,2-Tetrachloroethane	2025/07/23	<0.40		ug/L	



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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9974397	NGH	RPD	Tetrachloroethylene	2025/07/23	<0.20		ug/L	
			Toluene	2025/07/23	<0.20		ug/L	
			Trichloroethylene	2025/07/23	<0.20		ug/L	
			p+m-Xylene	2025/07/23	<0.20		ug/L	
			o-Xylene	2025/07/23	<0.20		ug/L	
			Total Xylenes	2025/07/23	<0.20		ug/L	
			Benzene	2025/07/23	NC		%	30
			Chloroform	2025/07/23	NC		%	30
			1,2-Dichlorobenzene	2025/07/23	NC		%	30
			1,4-Dichlorobenzene	2025/07/23	NC		%	30
			cis-1,2-Dichloroethylene	2025/07/23	1.2		%	30
			trans-1,3-Dichloropropene	2025/07/23	NC		%	30
			Ethylbenzene	2025/07/23	NC		%	30
			Methylene Chloride(Dichloromethane)	2025/07/23	NC		%	30
			Methyl Ethyl Ketone (2-Butanone)	2025/07/23	NC		%	30
			Styrene	2025/07/23	3.5		%	30
			1,1,2,2-Tetrachloroethane	2025/07/23	NC		%	30
			Tetrachloroethylene	2025/07/23	NC		%	30
			Toluene	2025/07/23	NC		%	30
			Trichloroethylene	2025/07/23	2.2		%	30
9975489	HFY	Spiked Blank	p+m-Xylene	2025/07/23	NC		%	30
			o-Xylene	2025/07/23	NC		%	30
			Total Xylenes	2025/07/23	NC		%	30
			Total Suspended Solids	2025/07/24		100	%	80 - 120
			Total Suspended Solids	2025/07/24	<10		mg/L	
			Total Suspended Solids	2025/07/24	15		%	20
			Total Kjeldahl Nitrogen (TKN)	2025/07/24		NC	%	80 - 120
			Total Kjeldahl Nitrogen (TKN)	2025/07/24		102	%	80 - 120
			Total Kjeldahl Nitrogen (TKN)	2025/07/24		97	%	80 - 120
			Total Kjeldahl Nitrogen (TKN)	2025/07/24	<0.10		mg/L	
			Total Kjeldahl Nitrogen (TKN)	2025/07/24	0.36		%	20
			Nonylphenol (Total)	2025/07/24		NC (1)	%	50 - 130
			Nonylphenol (Total)	2025/07/24		92	%	50 - 130
			Nonylphenol (Total)	2025/07/24	<0.001		mg/L	
			Nonylphenol (Total)	2025/07/25	NC		%	40
			Nonylphenol Ethoxylate (Total)	2025/07/24		NC (1)	%	50 - 130
			Nonylphenol Ethoxylate (Total)	2025/07/24		100	%	50 - 130
			Nonylphenol Ethoxylate (Total)	2025/07/24	<0.025		mg/L	
			Nonylphenol Ethoxylate (Total)	2025/07/25	NC		%	40
9976130	TLG	Matrix Spike	Total Aluminum (Al)	2025/07/24		103	%	80 - 120
			Total Antimony (Sb)	2025/07/24		99	%	80 - 120
			Total Arsenic (As)	2025/07/24		102	%	80 - 120
			Total Cadmium (Cd)	2025/07/24		100	%	80 - 120
			Total Chromium (Cr)	2025/07/24		94	%	80 - 120
			Total Cobalt (Co)	2025/07/24		103	%	80 - 120
			Total Copper (Cu)	2025/07/24		104	%	80 - 120
			Total Lead (Pb)	2025/07/24		97	%	80 - 120
			Total Manganese (Mn)	2025/07/24		99	%	80 - 120
			Total Molybdenum (Mo)	2025/07/24		94	%	80 - 120
			Total Nickel (Ni)	2025/07/24		99	%	80 - 120
			Total Phosphorus (P)	2025/07/24		101	%	80 - 120



Bureau Veritas Job #: C587335
Report Date: 2025/07/28

Englobe Corp
Client Project #: 02405205.000
Site Location: HUMBER STATION RD; CALEDON
Sampler Initials: AQ

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9976130	TLG	Spiked Blank	Total Selenium (Se)	2025/07/24		105	%	80 - 120
			Total Silver (Ag)	2025/07/24		92	%	80 - 120
			Total Tin (Sn)	2025/07/24		98	%	80 - 120
			Total Titanium (Ti)	2025/07/24		99	%	80 - 120
			Total Zinc (Zn)	2025/07/24		103	%	80 - 120
			Total Aluminum (Al)	2025/07/24		97	%	80 - 120
			Total Antimony (Sb)	2025/07/24		95	%	80 - 120
			Total Arsenic (As)	2025/07/24		99	%	80 - 120
			Total Cadmium (Cd)	2025/07/24		96	%	80 - 120
			Total Chromium (Cr)	2025/07/24		91	%	80 - 120
			Total Cobalt (Co)	2025/07/24		97	%	80 - 120
			Total Copper (Cu)	2025/07/24		99	%	80 - 120
			Total Lead (Pb)	2025/07/24		95	%	80 - 120
			Total Manganese (Mn)	2025/07/24		95	%	80 - 120
			Total Molybdenum (Mo)	2025/07/24		91	%	80 - 120
			Total Nickel (Ni)	2025/07/24		96	%	80 - 120
			Total Phosphorus (P)	2025/07/24		93	%	80 - 120
			Total Selenium (Se)	2025/07/24		102	%	80 - 120
			Total Silver (Ag)	2025/07/24		89	%	80 - 120
			Total Tin (Sn)	2025/07/24		94	%	80 - 120
9976130	TLG	Method Blank	Total Titanium (Ti)	2025/07/24		95	%	80 - 120
			Total Zinc (Zn)	2025/07/24		101	%	80 - 120
			Total Aluminum (Al)	2025/07/24	<4.9		ug/L	
			Total Antimony (Sb)	2025/07/24	<0.50		ug/L	
			Total Arsenic (As)	2025/07/24	<1.0		ug/L	
			Total Cadmium (Cd)	2025/07/24	<0.090		ug/L	
			Total Chromium (Cr)	2025/07/24	<5.0		ug/L	
			Total Cobalt (Co)	2025/07/24	<0.50		ug/L	
			Total Copper (Cu)	2025/07/24	<0.90		ug/L	
			Total Lead (Pb)	2025/07/24	<0.50		ug/L	
			Total Manganese (Mn)	2025/07/24	<2.0		ug/L	
			Total Molybdenum (Mo)	2025/07/24	<0.50		ug/L	
			Total Nickel (Ni)	2025/07/24	<1.0		ug/L	
			Total Phosphorus (P)	2025/07/24	<100		ug/L	
			Total Selenium (Se)	2025/07/24	<2.0		ug/L	
			Total Silver (Ag)	2025/07/24	<0.090		ug/L	
			Total Tin (Sn)	2025/07/24	<1.0		ug/L	
			Total Titanium (Ti)	2025/07/24	<5.0		ug/L	
			Total Zinc (Zn)	2025/07/24	<5.0		ug/L	
9976130	TLG	RPD	Total Aluminum (Al)	2025/07/24	4.8		%	20
			Total Antimony (Sb)	2025/07/24	NC		%	20
			Total Arsenic (As)	2025/07/24	0.41		%	20
			Total Cadmium (Cd)	2025/07/24	NC		%	20
			Total Chromium (Cr)	2025/07/24	NC		%	20
			Total Cobalt (Co)	2025/07/24	NC		%	20
			Total Copper (Cu)	2025/07/24	NC		%	20
			Total Lead (Pb)	2025/07/24	8.4		%	20
			Total Manganese (Mn)	2025/07/24	4.7		%	20
			Total Molybdenum (Mo)	2025/07/24	4.0		%	20
			Total Nickel (Ni)	2025/07/24	NC		%	20
			Total Phosphorus (P)	2025/07/24	NC		%	20



QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Selenium (Se)	2025/07/24	NC		%	20
			Total Silver (Ag)	2025/07/24	NC		%	20
			Total Tin (Sn)	2025/07/24	NC		%	20
			Total Titanium (Ti)	2025/07/24	NC		%	20
			Total Zinc (Zn)	2025/07/24	NC		%	20
9976201	K1P	Spiked Blank	Total Oil & Grease	2025/07/24		98	%	80 - 110
9976201	K1P	RPD	Total Oil & Grease	2025/07/24	0.25		%	25
9976201	K1P	Method Blank	Total Oil & Grease	2025/07/24	<0.50		mg/L	
9976206	K1P	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2025/07/24		96	%	65 - 130
9976206	K1P	RPD	Total Oil & Grease Mineral/Synthetic	2025/07/24	0.52		%	25
9976206	K1P	Method Blank	Total Oil & Grease Mineral/Synthetic	2025/07/24	<0.50		mg/L	
9976808	MPJ	Matrix Spike	Mercury (Hg)	2025/07/25		98	%	75 - 125
9976808	MPJ	Spiked Blank	Mercury (Hg)	2025/07/25		98	%	80 - 120
9976808	MPJ	Method Blank	Mercury (Hg)	2025/07/25	<0.00010		mg/L	
9976808	MPJ	RPD	Mercury (Hg)	2025/07/25	NC		%	20
9977309	JJH	Matrix Spike	Phenols-4AAP	2025/07/26		81	%	80 - 120
9977309	JJH	Spiked Blank	Phenols-4AAP	2025/07/26		91	%	80 - 120
9977309	JJH	Method Blank	Phenols-4AAP	2025/07/26	<0.0010		mg/L	
9977309	JJH	RPD	Phenols-4AAP	2025/07/26	6.1		%	20

N/A = Not Applicable

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

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

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

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

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

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

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

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

(1) The recovery in the matrix spike was not calculated (NC) due to background interference.



Bureau Veritas Job #: C587335
Report Date: 2025/07/28

Englobe Corp
Client Project #: 02405205.000
Site Location: HUMBER STATION RD; CALEDON
Sampler Initials: AQ

VALIDATION SIGNATURE PAGE

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

Cristina Carriere, Senior Scientific Specialist

Jing (Sammy) Sun, M.Sc. Biotechnology, Analyst 1

Louise Harding, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

C587335
2025/07/19 13:30

Bureau Veritas
6740 Campbell Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Page of

1 of 1



NONT-2025-07-4289

Bottle Order #:

1053303

Project Manager:

Kudrat Bajwa

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name:	#23079 Englobe Corp	Company Name:	Englobe	Quotation #:	C50895
Attention:	Accounts Payable	Attention:	Abdul Qadir	P.O. #:	
Address:	20 Carlson Court Etobicoke ON M9W 7K6	Address:	20 Carlson Court, Etobicoke	Project:	02405205.000
Tel:	(416) 213-1060	Tel:	204-951-8184	Project Name:	Winkler Station Rd, Caledon
Fax:	(416) 213-1070	Fax:		Site #:	
Email:	AP-Ont@englobecorp.com	Email:	Abdul.Qadir@englobecorp.com	Sampled By:	A-Q

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY						ANALYSIS REQUESTED (PLEASE BE SPECIFIC)														
Regulation 153 (2011)			Other Regulations			Special Instructions			Field Filled (please circle):											
☐ Table 1	☐ Res/Park	☐ Medium/Fine	☐ CCME	☒ Sanitary Sewer Bylaw					Peril Sanitary & Storm Sewer (SS-2010)											
☐ Table 2	☐ Ind/Comm	☐ Coarse	☐ Reg 558	☒ Storm Sewer Bylaw																
☐ Table 3	☐ Agri/Other	☐ For RSC	☐ MISA	☐ Municipality	Peel Region															
☐ Table			☐ PWQO	☐ Reg 406 Table																
Include Criteria on Certificate of Analysis (Y/N)?						Y														
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix																
1	BH15	18/July 2025	2:00 pm	GW	N	✓														
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only	
Abdul Qadir		25/07/19	1:20pm	Susan Smith		2025/07/19	1:30		Time Sensitive	Temperature (°C) on Reel
										10/8/11

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COCS-TERMS-AND-CONDITIONS.

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

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/CHAIN-CUSTODY-FORMS-COCS.

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

White: Bureau Veritas Yellow: Client

OK
100



Bureau Veritas Job #: C587335
Report Date: 2025/07/28

Englobe Corp
Client Project #: 02405205.000
Site Location: HUMBER STATION RD; CALEDON
Sampler Initials: AQ

Exceedance Summary Table – Peel Region Sanitary 2010
Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						
The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.						

Exceedance Summary Table – Peel Region Storm 2010
Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
BH15	ATDY52-03	Di-N-butyl phthalate	15	18	8.0	ug/L
BH15	ATDY52-10	Total Manganese (Mn)	50	98	2.0	ug/L
BH15	ATDY52-06	Total Suspended Solids	15	25	10	mg/L
The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.						

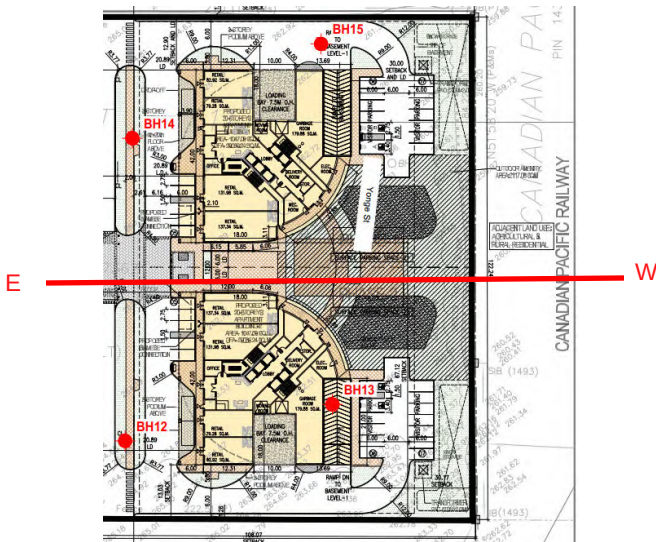
Appendix H

Finite Element Modelling



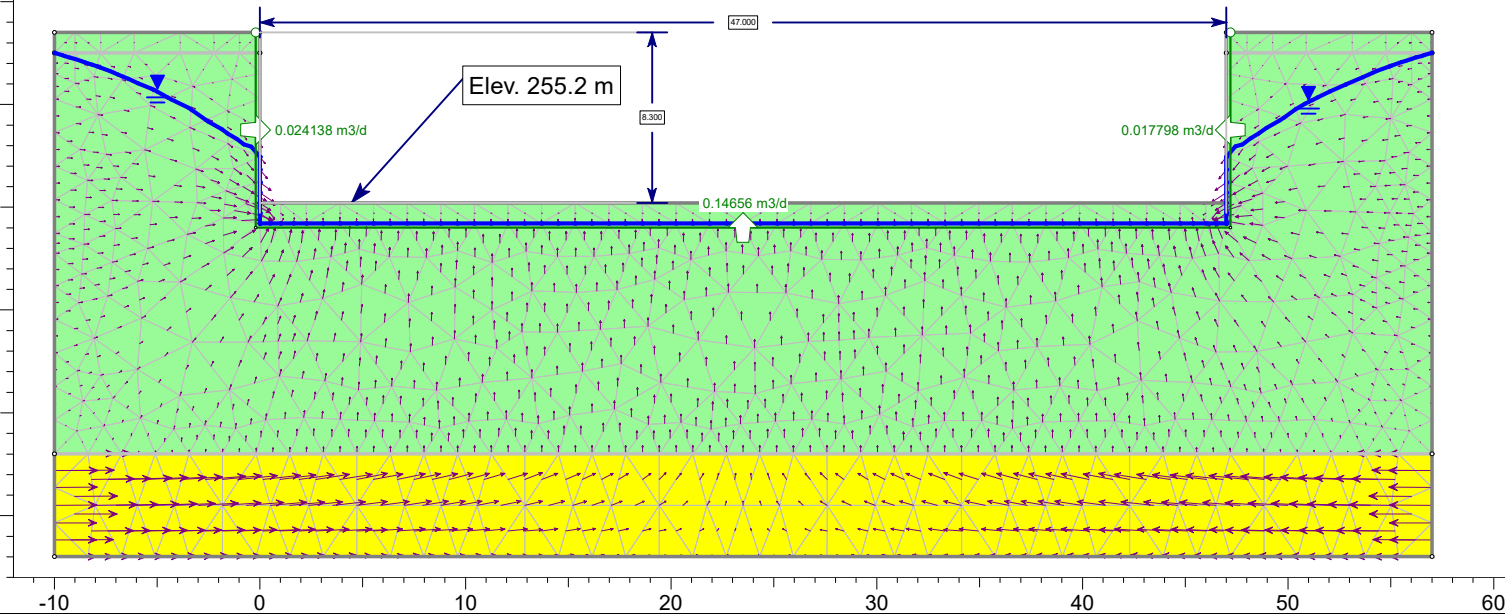
eNGLOBE

310
300
290
280
270
260
250
240



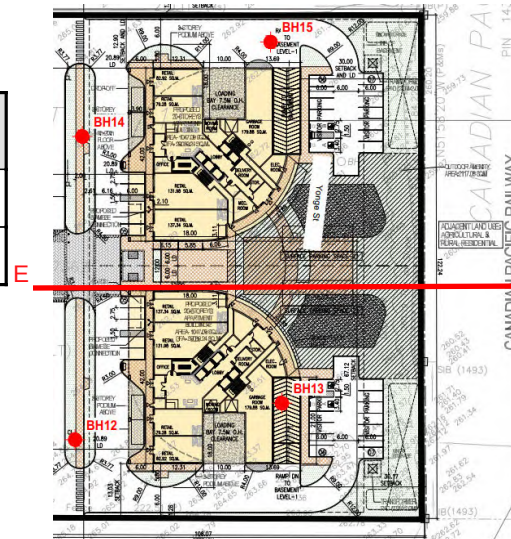
Material Name	Color	KS (m/s)
Halton Till		4.2e-008
ORM		5e-005

Excavation Dimensions: 47 (E-W) m X 123 (N-S) m
Section Cut: E-W
P2 Level Finished Floor: Elev. 257.2 masl
Base of Excavation: Elev. 255.2 masl
Dewatering Target: Elev. 254.2 masl
Groundwater Level: Elev. 262.5 masl
Q Ground Water = 70,000 L/day
(S.F.=2.0)
25 mm Rainfall Event = 145,500 L/day
Q Total = 215,000 L/day



Project			0 Humber Station Road,Caledon		
Analysis Description			Short-Term Construction Dewatering		
Drawn By		AQ	Scale	1:368	Company
Date		May 12, 2025.	File Name		02405205.000- 0 Humber Station-P2 Building 1 &

Material Name	Color	KS (m/s)
Halton Till		4.2e-008
ORM		5e-005



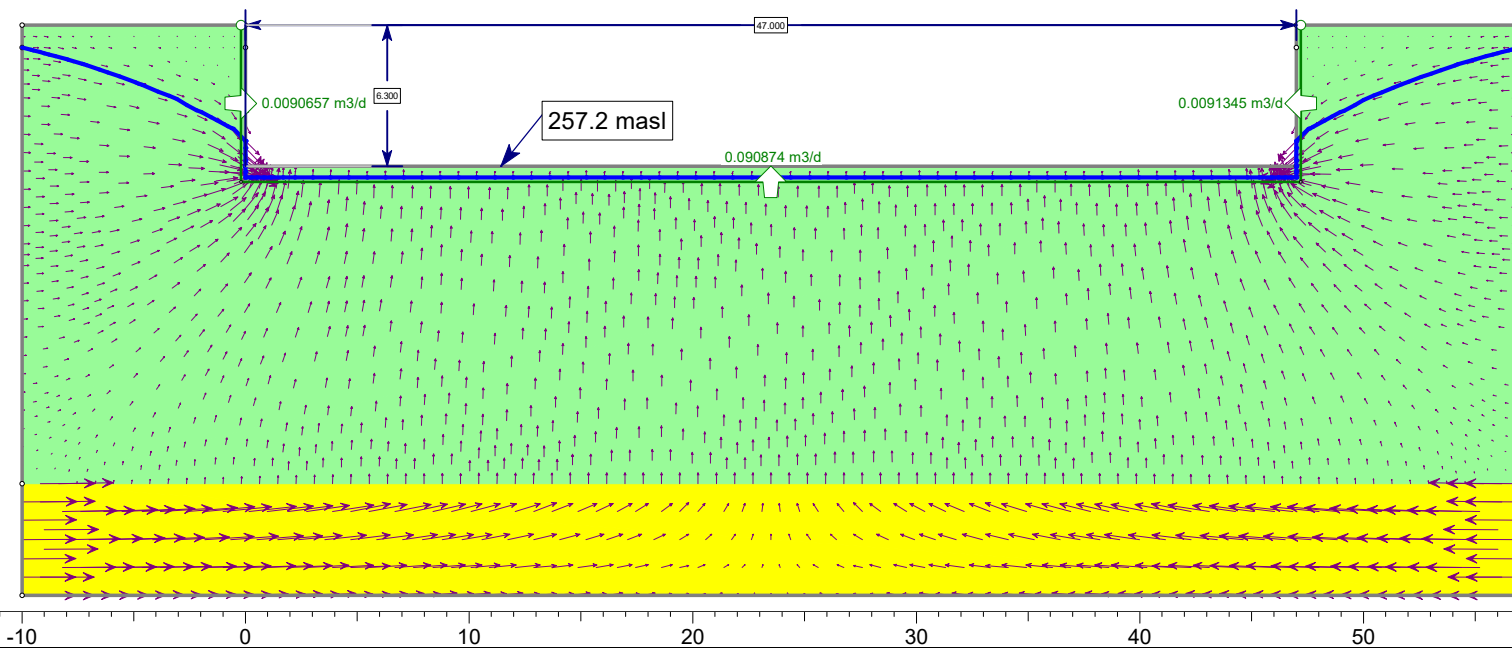
Excavation Dimensions: 47 (E-W) m X 123 (N-S) m
Section Cut: E-W

P2 Level Finished Floor: Elev. 257.2 masl
Drainage Layer : Elev. 256.7 masl

Groundwater Level: Elev. 262.5 masl

Q Ground Water = 30,000 L/day
(S.F.=2.0)

25 mm Rainfall Event = 4,250 L/day
Q Total = 35,000 L/day



Project		
0 Humber Station Road,Caledon		
Analysis Description		
Long-Term Foundation Drainage		
Drawn By	AQ	Scale 1:338
Date	May 12, 2025	Company
File Name		02405205.000- 0 Humber Station-P2 Building 1 & 2..slmd

Appendix I

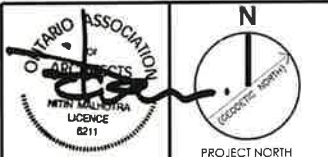
Site Plan



eNGLOBE



n Architecture Inc
PRINCIPAL: NITIN MALHOTRA, ARCHITECT
9120 Leslie Street, Suite-208
Richmond Hill, Ontario. L4B 3J9
T : 4 1 6 . 2 5 6 . 9 7 4 1
E : info@narchitecture.com
www.narchitecture.com



11 DEC. 2025

11th DECEMBER 2025
ISSUED FOR OPA APPLICATION #1
NOT FOR CONSTRUCTION

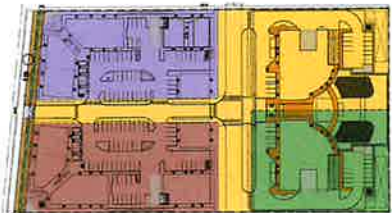
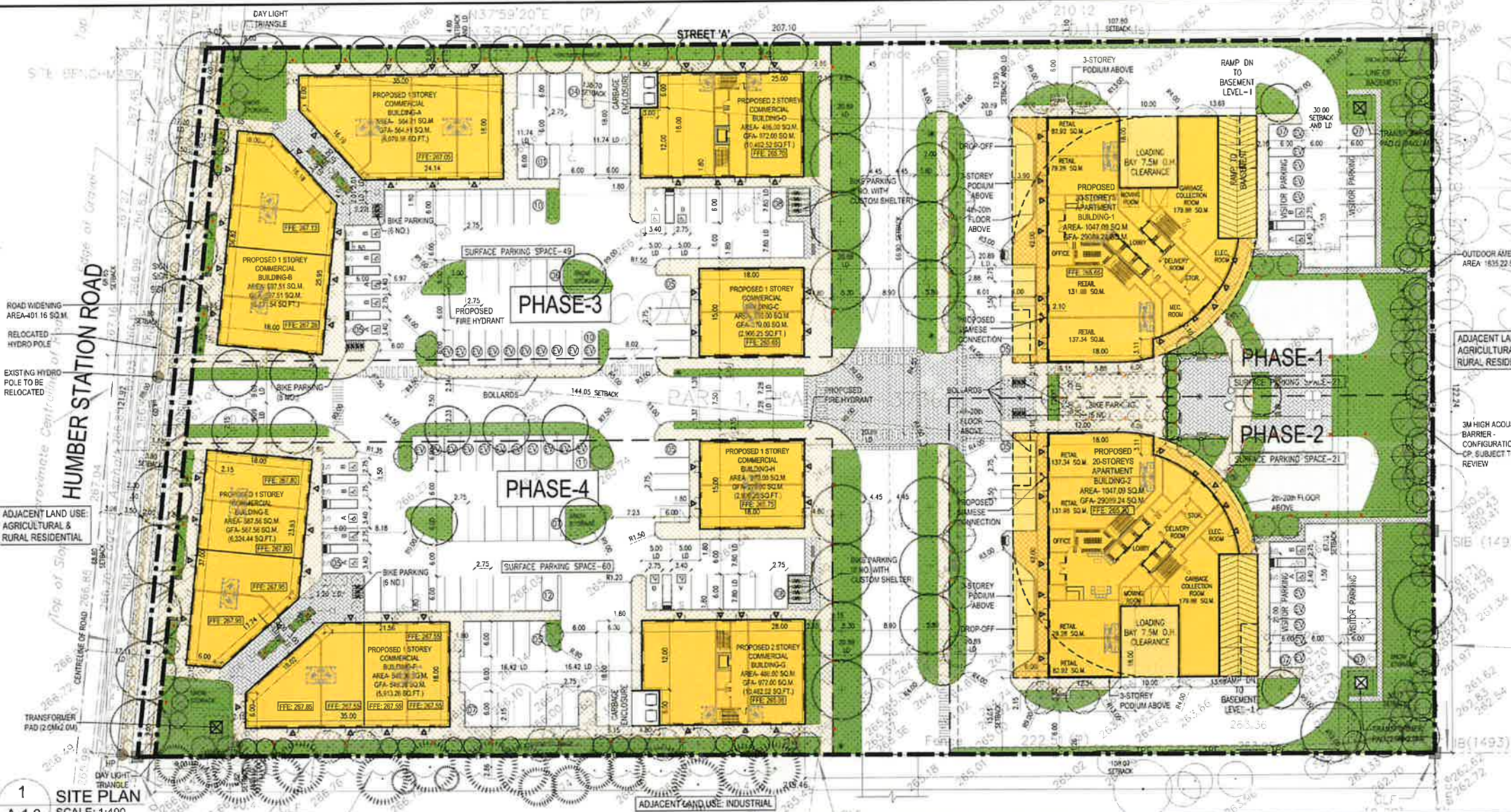
KEY PLAN

LEGEND

- PROPERTY LINE
- PHASING LINE
- NEW BUILDING
- EXISTING BUILDING
- LANDSCAPE
- CONC. PAVEMENT, 150MM RAISED
- PRECAST CONC. PAVERS
- ASPHALT
- BARRIER FREE PARKING
- BARRIER FREE CURB
- BARRIER CURB
- ROLLED CURB
- MAIN DOOR ENTRANCE
- OVERHEAD DOOR
- LIGHT STANDARD
- EXISTING FIRE HYDRANT
- LIGHT STANDARD
- WALL MOUNTED LIGHT
- LIGHT BOLLARDS
- PROPOSED FIRE HYDRANT

PHASING KEY MAP

PHASE-1	AREA 9033.22 SQ.M
PHASE-2	5079.88 SQ.M
PHASE-3	5732.21 SQ.M
PHASE-4	6117.24 SQ.M



1
A-1.0
SITE PLAN
SCALE: 1:400

PHASE-1 (APARTMENT BUILDING-1)					
PARKING CALCULATION		PROPOSED	SETBACKS		PROPOSED
APARTMENT - RETAIL(431.52 SQM)	231(0.7 SPACES PER UNIT)	220 (INC. B.F+EV PARKING)	NORTH SIDE (EXTERIOR SIDE LOT LINE)	3 M.	12.90 M.
ACCESSIBLE PARKING		10	SOUTH SIDE (INTERIOR SIDE LOT LINE)	3 M.	67.12 M.
RETAIL(431.52 SQM)	22 (1 PER 20 SQ.M. OF GFA)	05	EAST SIDE (REAR LOT LINE)	3 M.	30.00 M.
VISITOR PARKING (0.10 SPACES PER UNIT)	33	14(INC. B.F + EV PARKING)	WEST SIDE (FRONT LOT LINE)	NIL	138.70 M.
TOTAL PARKING	264	239			
BIKE PARKING		78			
PHASE-2 (APARTMENT BUILDING-2)					
PARKING CALCULATION		PROPOSED	SETBACKS		PROPOSED
APARTMENT - RETAIL(431.52 SQM)	231(0.7 SPACES PER UNIT)	220(INC. B.F PARKING)	NORTH SIDE (EXTERIOR SIDE LOT LINE)	3 M.	66.90 M.
ACCESSIBLE PARKING		10	SOUTH SIDE (INTERIOR SIDE LOT LINE)	3 M.	13.03 M.
RETAIL(431.52 SQM)	22(1 PER 20 SQ.M. OF GFA)	05	EAST SIDE (REAR LOT LINE)	3 M.	30.17 M.
VISITOR PARKING (0.10 SPACES PER UNIT)	33	14(INC. B.F PARKING)	WEST SIDE (FRONT LOT LINE)	NIL	144.05 M.
TOTAL PARKING	264	239			
BIKE PARKING		78			
PHASE-3 (COMMERCIAL BUILDINGS-A,B,C,D)					
PARKING CALCULATION		PROPOSED	SETBACKS		PROPOSED
COMMERCIAL-2404.32 SQM.	120 (1 PER 20 SQ.M. OF GFA)	49 (INC. B.F + EV PARKING)	NORTH SIDE (EXTERIOR SIDE LOT LINE)	3 M.	4.80 M.
ACCESSIBLE PARKING		07	SOUTH SIDE (INTERIOR SIDE LOT LINE)	3 M.	68.39 M.
TOTAL PARKING	120	49	EAST SIDE (REAR LOT LINE)	3 M.	107.80 M.
BIKE PARKING		22	WEST SIDE (FRONT LOT LINE)	NIL	3.80 M.
PHASE-4 (COMMERCIAL BUILDINGS-E,F,G,H)					
PARKING CALCULATION		PROPOSED	SETBACKS		PROPOSED
COMMERCIAL- 2378.92 SQM.	119 (1 PER 20 SQ.M. OF GFA)	60 (INC. B.F + EV PARKING)	NORTH SIDE (SIDE LOT LINE)	3 M.	67.96 M.
ACCESSIBLE PARKING		07	SOUTH SIDE (EXTERIOR SIDE LOT LINE)	3 M.	4.82 M.
TOTAL PARKING	119	60	EAST SIDE (INTERIOR REAR LOT LINE)	3 M.	108.87 M.
BIKE PARKING		14	WEST SIDE (FRONT LOT LINE)	NIL	3.80 M.
BUILDING AREA			REQUIRED		
PHASE 1 LOT AREA			9033.22 SQ.M.		
RETAIL BUILDING AREA			431.24 SQ.M.		
APARTMENT BUILDING #1 AREA			N/A		
PHASE 1 TOTAL COVERAGE			1047.09 SQ.M.(4.03%)		
PHASE 1 TOTAL GFA			29089.24 SQ.M.		
BUILDING AREA			REQUIRED		
PHASE 2 LOT AREA			5079.88 SQ.M.		
RETAIL BUILDING AREA			431.24 SQ.M.		
APARTMENT BUILDING #2 AREA			N/A		
PHASE 2 TOTAL COVERAGE			1047.09 SQ.M.(4.03%)		
PHASE 2 TOTAL GFA			29089.24 SQ.M.		
BUILDING AREA			REQUIRED		
PHASE 3 LOT AREA			5714.38 SQ.M.		
COMMERCIAL BUILDING -A			564.81 SQ.M.		
COMMERCIAL BUILDING -B			597.51 SQ.M.		
COMMERCIAL BUILDING -C			270.00 SQ.M.		
COMMERCIAL BUILDING -D			466.00 SQ.M.		
PHASE 3 TOTAL COVERAGE			1918.32 SQ.M.(7.39%)		
PHASE 3 TOTAL GFA			2404.32 SQ.M.		
BUILDING AREA			REQUIRED		
PHASE 4 LOT AREA			6099.70 SQ.M.		
COMMERCIAL BUILDING -E			587.56 SQ.M.		
COMMERCIAL BUILDING -F			549.36 SQ.M.		
COMMERCIAL BUILDING -G			486.00 SQ.M.		
COMMERCIAL BUILDING -H			270.00 SQ.M.		
PHASE 4 TOTAL COVERAGE			1892.92 SQ.M.(7.29%)		
PHASE 4 TOTAL GFA			2378.92 SQ.M.		

PROJECT STATISTICS		
ADDRESS: "0" HUMBER STATION RD CALEDON		
PROPOSED ZONING: RMD		
	REQUIRED	PROPOSED
TOTAL LOT AREA	NIL	26328.55 SQ.M.(6.50Acre)
ROAD WIDENING AREA (DEDUCTION)		365.79 SQ.M.
PROPOSED LOT AREA		25962.76 SQ.M.(6.41Acre)
LOT FRONTAGE	NIL	121.92 M.
TOTAL PAVED AREA		15435.9 SQ.M.(59.46%)
TOTAL LANDSCAPED AREA	15% OF LOT	4621.44 SQ.M.(17.80%)
BUILDING HEIGHT (MAX.)	20 STOREYS	20 STOREYS
TOTAL NO. OF RESIDENTIAL UNITS		660
BASEMENT LEVELS		2
TOTAL PARKING SPACES		587
EV READY PARKING SPACES (RESIDENTIAL PHASE 1 & 2)		94
EV READY PARKING SPACES (COMMERCIAL PHASE 3 & 4)		21
TOTAL LOADING AREAS		4
PLANTING STRIP	3M ALONG A STREET	
AMENITY AREA (BUILDING 1 & 2) (GYM+PARTY HALL+CO-SHARING OFFICE)	1320 SQ.M. (2M ² PER UNIT)	1243.14 SQ.M.
OUTDOOR AMENITY AREA	2592.74 SQ.M. (10% OF SITE AREA)	1835.22 SQ.M. (6.97%)
NUMBER OF UNITS FOR EACH APARTMENT BUILDING IN PHASE 1 AND 2: 330 UNITS (145 (1BR UNIT), 179 (2BR UNITS), 6 (3BR UNITS))		
PARKING SIZES: SURFACE PARKING SIZE (2.6M X 5.8M) UNDERGROUND PARKING SIZE (2.75M X 6.0M) ACCESSIBLE PARKING SIZE (TYPE-A-3.4M X 6.0M) (TYPE-B-2.75M X 6.0M)		
MUNICIPAL ADDRESS & LEGAL DESCRIPTION		
PART OF LOT 11 CONCESSION 5 (FORMERLY TOWNSHIP OF ALBION, COUNTY OF PEE) TOWN OF CALEDON REGIONAL MUNICIPALITY OF PEE		
SURVEY INFORMATION TAKEN FROM: 2 HOLLAND DRIVE, UNIT 5, BOLTON, ONTARIO L7E 1E1 PHONE 905.951.6000/ FAX 905.857.4811 /EMAIL-info@mouragroup.co		
OWNER: SATWANT DEOL, 188 La Rocca Avenue, Woodbridge, Ontario, L4H 2M3		

"0" HUMBER STATION RD CALEDON, ON.

SITE PLAN: GROUND LEVEL

DRAWN BY: MB
CHECKED BY: NM
PROJECT NO:

DATE: 08 JAN. 2025
SCALE: AS NOTED
DRAWING NO:

24-66 A-1.0



PRINCIPAL: NITIN MALHOTRA, ARCHITECT
9120 Leslie Street, Suite-208
Richmond Hill, Ontario L4B 3J9
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11 DEC. 202

11th DECEMBER 2025
ISSUED FOR OPA APPLICATION #1
NOT FOR CONSTRUCTION

No.	Date	Version	Dwn.

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PROJECT:

**"0" HUMBER
STATION RD
CALEDON, ON.**

DRAWING TITLE:

**BASEMENT
LEVEL(-1)**

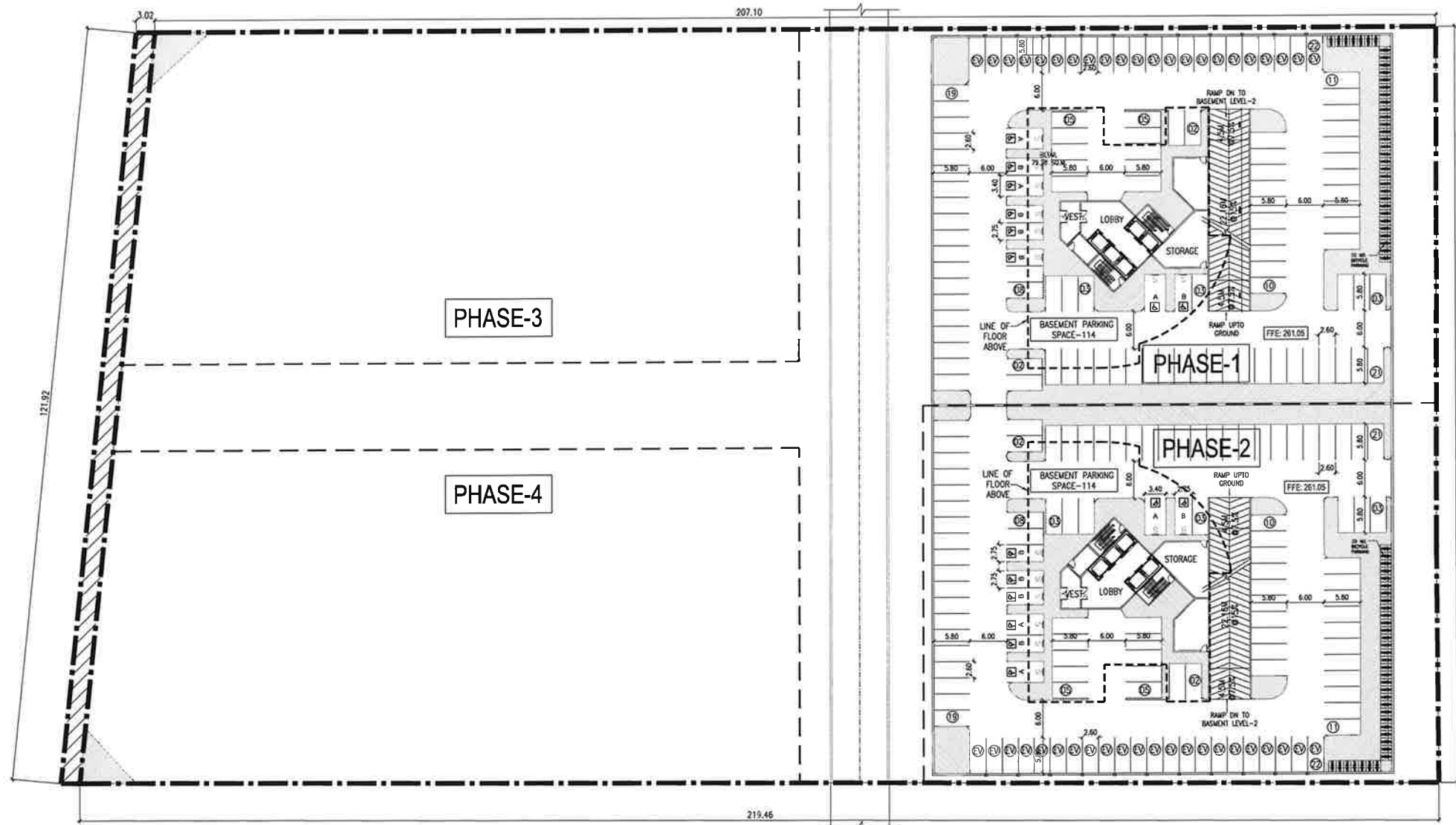
DRAWN BY: MB DATE: 08 JAN 2025

CHECKED BY: NM SCALE: AS NOTED

PROJECT NO.:	DRAWING NO.:
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24-66

A-1.5



1 BASEMENT PLAN LEVEL (-1)
A-1.5 SCALE: 1:400



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11 DEC. 2025

11th DECEMBER 2025
ISSUED FOR OPA APPLICATION #1
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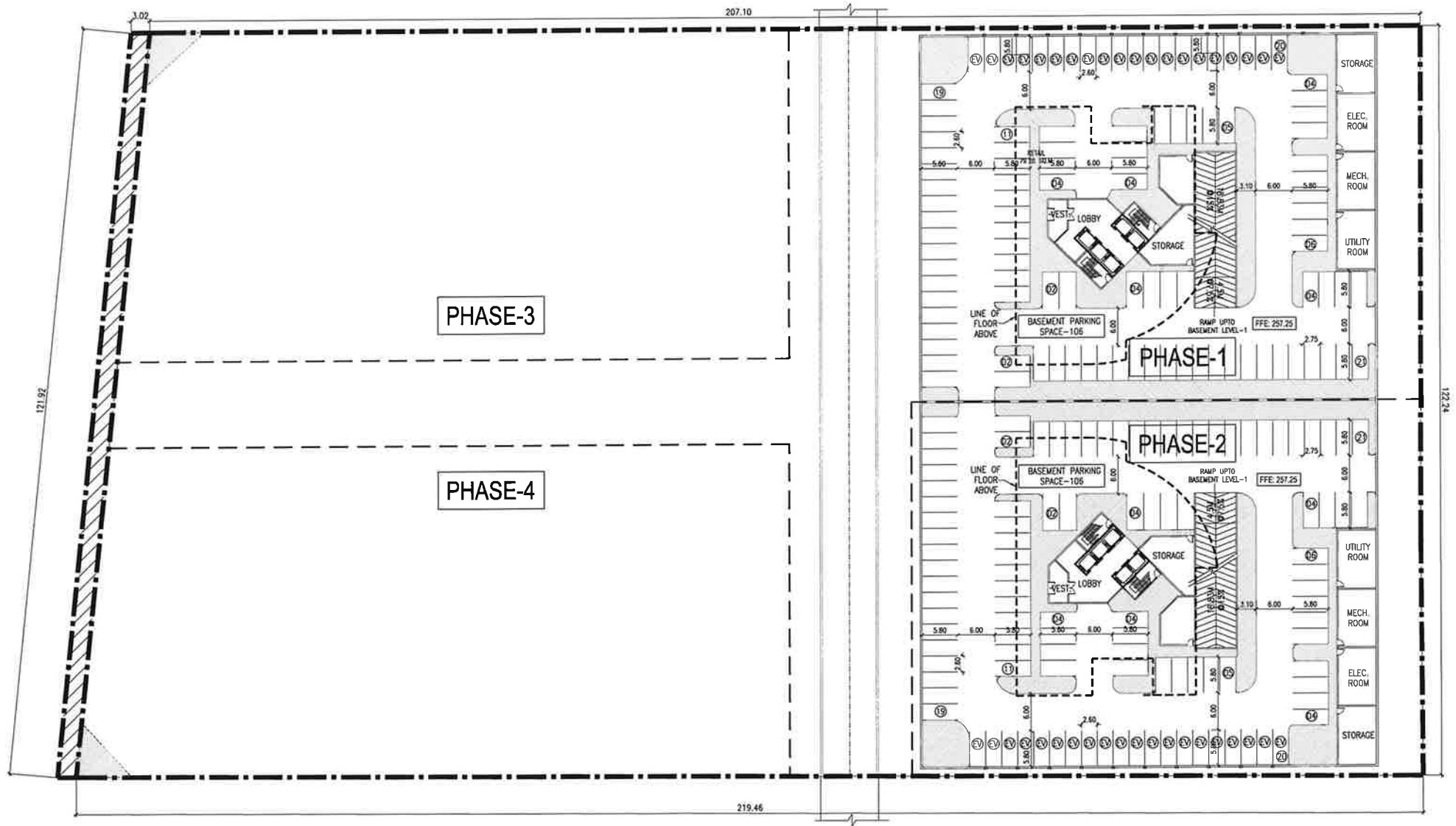
1.	11 DEC, 2025	ISSUED FOR OPA APPLICATION #1	MG.
No.	Date	Version	Dwn.

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PROJECT:
**"0" HUMBER
STATION RD
CALEDON, ON.**

DRAWING TITLE:
**BASEMENT
LEVEL(-2)**

DRAWN BY: MB	DATE: 08 JAN, 2025
CHECKED BY: NM	SCALE: AS NOTED
PROJECT NO: 24-66	DRAWING NO: A-1.6



Appendix J

Water Balance Assessment



eNGLOBE

Appendix J

CLIMATE NORMALS 1991-2020 (Pearson)

Water Balance - 0 Humber Station Rd.

Thornthwaite (1948)						
Month	Mean Temperature (°C)	Heat Index	Unadjusted Potential Evapotranspiration (mm)	Daylight Correction Value	Adjusted Potential Evapotranspiration (mm)	Total Precipitation (mm)
January	-4.8	0.0	0.0	0.81	0.0	61.6
February	-3.6	0.0	0.0	0.82	0.0	50.2
March	0.4	0.0	1.4	1.02	1.4	50.5
April	6.6	1.5	29.3	1.13	33.1	76.7
May	12.3	3.9	57.9	1.27	73.6	77.6
June	17.6	6.7	85.8	1.29	110.7	80.7
July	20.6	8.5	101.9	1.30	132.5	74.0
August	20.0	8.2	98.7	1.20	118.4	68.5
September	15.9	5.8	76.7	1.04	79.8	69.4
October	9.5	2.6	43.6	0.95	41.5	67.2
November	4.2	0.8	17.8	0.8	14.3	71.8
December	-1.2	0.0	0.0	0.76	0.0	58.6
TOTALS		38.0	513.2		605.2	806.8

Notes: Daylight Correction values obtained from Instruction and Tables For Computing Potential Evapotranspiration and The Water Balance (Thornthwaite & Mather, 1957)

Appendix J

Pre-development Water Balance

Water Balance - 0 Humber Station Rd.

			Month												Total		
			March	April	May	June	July	August	September	October	November	December	January	February			
PET - Adjusted Potential Evapotranspiration (mm)			1.38	33.08	73.56	110.67	132.52	118.43	79.82	41.46	14.27	0.00	0.00	0.00	605		
P - Total Precipitation (mm)			50.50	76.70	77.60	80.70	74.00	68.50	69.40	67.20	71.80	58.60	61.60	50.20	807		
P-PET (mm)			49.12	43.62	4.04	-29.97	-58.52	-49.93	-10.42	25.74	57.53	58.60	61.60	50.20	-		
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-29.97	-88.49	-138.42	-148.84	-123.10	-65.57	-6.97	0.00	0.00	-		
Site	Pervious Area (Pastures)	Soil Moisture Storage (mm)	100.00	100.00	100.00	70.03	11.51	0.00	0.00	25.74	83.27	100.00	100.00	100.00	-		
		Actual Potential Evapotranspiration (mm)	1.38	33.08	73.56	106.18	97.86	71.37	69.40	41.46	14.27	0.00	0.00	0.00	509		
		P-AET (mm)	49.12	43.62	4.04	-25.48	-23.86	-2.87	0.00	25.74	57.53	58.60	61.60	50.20	-		
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-25.48	-49.34	-52.21	-52.21	-26.47	0.00	0.00	0.00	0.00	-		
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	25.48	23.86	2.87	0.00	-25.74	-26.47	0.00	0.00	0.00	-		
		Precipitation Surplus (mm)	49.12	43.62	4.04	0.00	0.00	0.00	0.00	0.00	31.06	58.60	61.60	50.20	298		
		MECP Infiltration Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-		
		Run-Off Coefficient	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	-		
		Infiltration (mm)	24.56	21.81	2.02	0.00	0.00	0.00	0.00	0.00	15.53	29.30	30.80	25.10	149		
		Run-Off (mm)	24.56	21.81	2.02	0.00	0.00	0.00	0.00	0.00	15.53	29.30	30.80	25.10	149		
		Catchment Area (m ²) = 25962	Subcatchment Monthly Volumes														
		Infiltration (m ³)	637.60	566.21	52.40	0.00	0.00	0.00	0.00	0.00	403.19	760.69	799.63	651.65	3871		
		Run-Off (m ³)	637.60	566.21	52.40	0.00	0.00	0.00	0.00	0.00	403.19	760.69	799.63	651.65	3871		
		Total area			25962												
Total AET (m ³)			35.88	858.86	1909.86	2756.56	2540.67	1852.99	1801.76	1076.35	370.48	0.00	0.00	0.00	13203		
Total Evaporation (m ³)																	
Total Infiltration (m ³)			637.60	566.21	52.40	0.00	0.00	0.00	0.00	0.00	403.19	760.69	799.63	651.65	3871		
Total Runoff (m ³)			637.60	566.21	52.40	0.00	0.00	0.00	0.00	0.00	403.19	760.69	799.63	651.65	3871		

Appendix J

Post-development Water Balance

Water Balance - 0 Humber Station Rd.

Catchments and Hydrologic Components		Month												Total		
		March	April	May	June	July	August	September	October	November	December	January	February			
PET - Adjusted Potential Evapotranspiration (mm)		1.38	33.08	73.56	110.67	132.52	118.43	79.82	41.46	14.27	0.00	0.00	0.00	605		
P - Total Precipitation (mm)		50.50	76.70	77.60	80.70	74.00	68.50	69.40	67.20	71.80	58.60	61.60	50.20	807		
P-PET (mm)		49.12	43.62	4.04	-29.97	-58.52	-49.93	-10.42	25.74	57.53	58.60	61.60	50.20	-		
Soil Moisture Deficit (mm)		0.00	0.00	0.00	-29.97	-88.49	-138.42	-148.84	-123.10	-65.57	-6.97	0.00	0.00	-		
Site	Pervious Area (Landscapped/easements AND OUTDOOR AMENITY AREA)	Soil Moisture Storage (mm)	75.00	75.00	75.00	45.03	0.00	0.00	25.74	83.27	75.00	75.00	75.00	-		
		Actual Potential Evapotranspiration (mm)	1.38	33.08	73.56	104.68	91.57	68.50	69.40	41.46	14.27	0.00	0.00	0.00	498	
		P-AET (mm)	49.12	43.62	4.04	-23.98	-17.57	0.00	0.00	25.74	57.53	58.60	61.60	50.20	-	
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-23.98	-41.55	-41.55	-41.55	-15.81	0.00	0.00	0.00	0.00	-	
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	23.98	17.57	0.00	0.00	-25.74	-15.81	0.00	0.00	0.00	-	
		Precipitation Surplus (mm)	49.12	43.62	4.04	0.00	0.00	0.00	0.00	0.00	41.72	58.60	61.60	50.20	309	
		MECP Infiltration Factor	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	-	
		Run-Off Coefficient	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	-	
		Infiltration (mm)	27.01	23.99	2.22	0.00	0.00	0.00	0.00	0.00	22.95	32.23	33.88	27.61	170	
		Run-Off (mm)	22.10	19.63	1.82	0.00	0.00	0.00	0.00	0.00	18.77	26.37	27.72	22.59	139	
		Catchment Area (m²) = 4622	Subcatchment Monthly Volumes													
		Infiltration (m³)	124.86	110.88	10.26	0.00	0.00	0.00	0.00	0.00	106.06	148.97	156.59	127.61	785	
		Run-Off (m³)	102.16	90.72	8.40	0.00	0.00	0.00	0.00	0.00	86.78	121.88	128.12	104.41	642	
	Impervious Area (Buildings)	Precipitation Surplus (mm)	50.50	76.70	77.60	80.70	74.00	68.50	69.40	67.20	71.80	58.60	61.60	50.20	807	
		Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-	
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-	
		Evaporation (mm)	7.58	11.51	11.64	12.11	11.10	10.28	10.41	10.08	10.77	8.79	9.24	7.53	121	
		Run-Off (mm)	42.93	65.20	65.96	68.60	62.90	58.23	58.99	57.12	61.03	49.81	52.36	42.67	686	
		Catchment Area (m²) = 5905	Subcatchment Monthly Volumes													
		Evaporation (m³)	44.73	67.94	68.73	71.48	65.55	60.67	61.47	59.52	63.60	51.90	54.56	44.46	715	
		Run-Off (m³)	253.47	384.98	389.49	405.05	371.42	343.82	348.34	337.29	360.38	294.13	309.19	251.97	4050	
		Impervious Area (paved area)	Precipitation Surplus (mm)	50.50	76.70	77.60	80.70	74.00	68.50	69.40	67.20	71.80	58.60	61.60	50.20	807
			Evaporation Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
			Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
			Evaporation (mm)	7.58	11.51	11.64	12.11	11.10	10.28	10.41	10.08	10.77	8.79	9.24	7.53	121
			Run-Off (mm)	42.93	65.20	65.96	68.60	62.90	58.23	58.99	57.12	61.03	49.81	52.36	42.67	686
			Catchment Area (m²) = 15435	Subcatchment Monthly Volumes												
			Evaporation (m³)	116.92	177.58	179.66	186.84	171.33	158.59	160.68	155.58	166.23	135.67	142.62	116.23	1868
			Run-Off (m³)	662.55	1006.28	1018.09	1058.76	970.86	898.70	910.51	881.65	942.00	768.82	808.18	658.61	10585
Total Area			25962	Total Catchment Volumes												
Total AET (m³)			6.39	152.90	340.01	483.83	423.24	316.61	320.77	191.62	65.96	0.00	0.00	0.00	2301	
Total Evaporation (m³)		161.65	245.52	248.40	258.32	236.87	219.27	222.15	215.11	229.83	187.58	197.18	160.69	2583		
Total Infiltration (m³)		124.86	110.88	10.26	0.00	0.00	0.00	0.00	0.00	106.06	148.97	156.59	127.61	785		
Total Runoff (m³)		1018.18	1481.98	1415.98	1463.82	1342.29	1242.52	1258.85	1218.94	1389.16	1184.83	1245.48	1014.99	15277		