GEI Consultants

Hydrogeological Investigation

Support Draft Plan of Subdivision – Solmar Lands, Wildfield Village

Town of Caledon, Ontario

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Record of Revisions

Identification	Date	Description of Issued and/or Revision
First Submission	January 24, 2025	Hydrogeological Investigation
Revision 1	January 28, 2025	Hydrogeological Investigation
Final	January 29, 2025	Hydrogeological Investigation

Acronyms and Abbreviations

%	Percent (per 100 units)
<	Less than …
>	Greater than …
Δ	Change in …
µm	micrometer
ANSI	Area of Natural and Scientific Interest
APEC	Areas of Potential Environmental Concern
BESR	Brownfields Environmental Site Registry
bgs	Below Ground Surface
BH	Borehole
BH/MW	Borehole / Monitoring Well
cm	centimeters
CVC	Credit Valley Conservation
EASR	Environmental Activity and Sector Registry
EBA	Event Based Area
Elev.	Elevation
ERIS	EcoLog Environmental Risk Information Services Ltd.
ESA	Environmental Site Assessment
ET	Evapotranspiration/Evaporation
FOS	Factor of Safety
FSR	Functional Servicing Report
GEI	GEI Consultants Canada Ltd.
ha	hectares
hr	hours
HVA	Highly Vulnerable Aquifer
I	Infiltration
ICA	Issue Contributing Area
ID	Identification
IPZ	Intake Protection Zone
K	Hydraulic Conductivity
kg	kilogram
km	Kilometers
kPa	Kilopascal
L	Litres
LID	Low Impact Development
m	Ms
m^3	Cubic Meters
MECP	Ministry of Environment, Conservation and Parks
min	minute
mm	Millimeters

MMAH	Ministry of Municipal Affairs and Housing
MW	Monitoring Well
N values	“N” Values
NVCA	Nottawasaga Valley Conservation Authority
O.Reg.	Ontario Regulation
OWES	Ontario Wetland Evaluation System
P	Precipitation
PHC	Petroleum Hydrocarbon
PTTW	Permit to Take Water
PWQO	Provincial Water Quality Objective
R	Runoff
ROI/ROIs	Radius/Radii of Influence
RQD	Rock Quality Designation
RSC	Record of Site Condition
s	Seconds
S	Storage
SCS	Site Condition Standards
SGRA	Significant Groundwater Recharge Area
SPT	Standard Penetration Test
SS	Split Spoon
TRCA	Toronto and Region Conservation Authority
TSS	Total Suspended Solids
VOC	Volatile Organic Compound
WHPA	Wellhead Protection Area
WTRS	Water Taking and Reporting System

It is noted that all elevations in this report are metric/geodetic and expressed in m. All measurements are also in metric and expressed in mm, m or km.

Executive Summary

GEI was retained by Global Properties Inc. (the "client") to complete a hydrogeological investigation and report for the proposed subdivision to be located within the Wildfield Village Secondary Plan (WVSP) Area, generally bounded by Centreville Creek Road, Healey Road, and the Gore Road, in the Town of Caledon, Ontario. The investigation aimed to determine subsurface and groundwater conditions and provide preliminary recommendations on permitting requirements, construction dewatering, and precipitation run-off and infiltration conditions in order to aid discussion of future development planning.

The Global Properties Inc. lands comprise five (5) parcels consisting mostly of farmland with some residential dwellings, barns, and other structures, and is approximately 170 ha in size. Four (4) of the properties are connected/adjacent to each other in the northern part of the WVSP lands. The fifth smaller property (26 ha) is slightly separated to the south of the larger group of four properties. It is understood that the fifth smaller separate southern parcel (26 ha) is not part of the current submission but has been included in this report to aid with ongoing/future design and for completeness.

E.S.1. Site Description

- Location: The site is generally bounded by Centreville Creek Road, Healey Road, and the Gore Road, in the Town of Caledon, Ontario.
- The topography of the site was observed to be approximately 247 m asl to 227 m asl and slope from the northwestern border to the southeastern border of the site towards West Humber River.
- Geology: The overburden generally consist of clay and silt glacial till (Halton Till) overlying shale bedrock (Georgian Bay formation).

E.S.2. Groundwater Conditions

- Site Specific Current Monitoring Period Reported: December 2024 to present.
- Supplemented with GEI and SCS's Wildfield Village's Local Subwatershed Study GEI from May 2023 to April 2025.
- Groundwater Depths: 0.1 to 8.6 m below ground surface (mbgs), and elevations ranging from Elev. 247.7 to 224.3 masl.
- Shallowest Groundwater Level: 0.1 m above grade at BH/MWs 14S and BH/MW 17D on May 2024 and July August 2023.
- Highest Groundwater Elevation: 247.7 at BH/MW 3D/S on July 2023.
- Local Groundwater Flow: Generally. the groundwater flow on the site appears to have a trend towards the east, southeast towards the West Humber River. On the northwestern portion of the site the groundwater contour flow appears to head towards the southwest.
- Regional Groundwater Flow: Generally south, towards Lake Ontario.

- On-Going Monitoring Program: 12 months (December 2024 to November 2025), results to be reported separately upon completion of monitoring period.
- Preliminary Groundwater Quality Chemical Results
  - Regulatory Standards (unfiltered samples):
    - Region of Peel Sewer Use Bylaw Criteria: Met except for TSS, Manganese and TKN.
    - PWQO and Interim PWQO: Met except for Aluminum, Boron, Cobalt, Copper, Thallium, Uranium, Vanadium, Zinc, Zirconium, Silver, Cadmium, Iron and Lead .

E.S.3. Preliminary Construction Dewatering Conditions

- Hypothetical Construction Dewatering Plan
  - Excavation for northern and central portions of residential blocks including one (1) level of basement.
  - Excavation for SWM pond 3, 7 and 8.
  - Excavation for two (2) levels of underground parking within the urban corridor in the southern portion of the site. It is understood that the fifth smaller separate southern parcel (urban corridor) is not part of the current submission but has been included in this report to aid with ongoing/future design and for completeness.
  - Trenching for general site servicing and deeper site servicing.
- Predicted Water Taking Rates: As high as 1,120,801 L/day.
  - PTTW Application: Expected to be required.
- Recommended Dewatering Methods:
  - Shallow Excavations Finer Soils: Conventional sump pumping should suffice above the groundwater table.
  - Deeper Excavations: May require a well-point system.
  - Final Decision: At the discretion of the dewatering contractor based on expertise and site conditions.

E.S.4. Preliminary Water Balance

- Pre-Development Average Annual Infiltration: 118,492 m^3/year
- Pre-Development Average Annual Runoff: 262,675 m^3/year
- Post-Development (no mitigation) Average Annual Infiltration: 53,724 m^3/year
- Post-Development (no mitigation) Average Annual Runoff: 710,289 m^3/year

E.S.5. Disclaimer

This executive summary provides a high-level overview of the Hydrogeological Investigation's findings and recommendations. It does not encompass all the details and considerations covered in the full report. For comprehensive information and context, it is essential to read the entire report in full.

1. Introduction

GEI was retained by Global Properties Inc. (the "client") to complete a hydrogeological investigation and report for the proposed subdivision to be located within the Wildfield Village Secondary Plan (WVSP) Area, generally bounded by Centreville Creek Road, Healey Road, and The Gore Road, in the Town of Caledon, Ontario (hereinafter referred to as the "site").

For purposes of this report, The Gore Road and Centreville Cree Road are assumed to be oriented in a north/south direction and Healey Road is assumed to be oriented in an east/west direction.

The purpose of this hydrogeological investigation was to determine the subsurface and groundwater conditions at the site and provide a report with preliminary recommendations regarding permitting requirements, construction dewatering, and precipitation run-off and infiltration conditions.

1.1. Site & Project Description

The site is slated for the development of a new subdivision in the Caledon area. Currently, the site is irregular in shape and is occupied mostly of farmland with some residential dwellings, barns and other structures. The proposed Highway 413 corridor runs through the northern part of the site. The West Humber River runs adjacent to the north and east boundary of the site generally flowing to the south. Based on GEI and SCS's Local Subwatershed Study (Phase 1) first submission, three (3) headwater drainage features are located on site. The first headwater drainage feature is located within the northwestern corner entering the northern boundary of the site and exiting the west boundary towards Centreville Creek Road. The second headwater drainage feature is located on the northern boundary of the northeastern portion of the site. The third headwater drainage feature is located within the southeastern corner and exits the southeastern corner towards The Gore Road. It is noted that the third headwater drainage feature is located on the fifth parcel slightly separated to the south of the larger group of four properties and is not part of the current submission but has been included in this report to aid with ongoing/future design and for completeness.

Based on the site concept plan provided by the Client the site is approximately 170 ha in area, and is bound by vacant/agricultural properties to the south, Centreville Creek Road followed by vacant/agricultural land to the west, The Gore Road followed by vacant/agricultural properties to the east, and Healey Road followed by vacant/agricultural properties to the north, as shown in Figure 1, 2 and in closer detail in Figure 3.

According to the conceptual site plan provided to GEI, it is understood that most of the site will consist of low-rise residential dwellings and associated roadways. From the concept plan there appears to be three (3) SWM facilities are shown in the eastern and western sides of the site . The southern part of the site appears to be an urban corridor that is understood to consist of midrise residential buildings that could have two levels of underground parking or basements.

The Global Properties Inc. lands comprise five (5) parcels consisting mostly of farmland with some residential dwellings, barns, and other structures, and is approximately 170 ha in size. Four (4) of the

properties are connected/adjacent to each other in the northern part of the WVSP lands. The fifth smaller property (26 ha) is slightly separated to the south of the larger group of four properties. It is understood that the fifth smaller separate southern parcel (26 ha) is not part of the current submission but has been included in this report to aid with ongoing/future design and for completeness.

The Wildfield Local Subwatershed Study Phase 1 and 2 authored by GEI and SCS has been utilized in the writing of this report to review the baseline and subsurface conditions at the site and in the surrounding area. The site is currently a participating property of the Wildfield Village Local Subwatershed Study Phase 2 and 3 currently ongoing. Additionally, geotechnical, fluvial geomorphic, natural heritage, hydraulic and hydrologic investigations, conceptual design briefs were also a part of the concurrent scope of work. Relevant sections of the Wildfield Village Local Subwatershed Study Phase 1 and 2 have been summarized and included in this report and referenced within the text.

1.2. Scope of Work

The main objectives of the site specific 2025 hydrogeological investigation for draft plan were to:

a) Establish the local hydrogeological setting of the site.

b) Assess groundwater quality and compare the results to Peel Region Storm and Sanitary Sewer Use Bylaw criteria, PWQO metals and O. Reg. 153/04 applicable standards.

c) Carry out preliminary analysis for construction dewatering rates based on the subsurface conditions and assumed site works and discuss the regulatory requirements.

d) Complete a preliminary water balance (pre-construction and post-construction) and discussion regarding the feature based water balance: and

e) Prepare a hydrogeological investigation report.

To achieve the investigation objectives, GEI proposed and completed the following scope of work:

a) Conduct a background desktop review of pertinent geological and hydrogeological resources, MECP Water Well Records, previous reports, and proposed site plan drawings.

b) Visit the site and note existing site conditions, site setting, topography, drainage, water features, and potential water wells within 500 m of the site, if any.

c) As part of the concurrent geotechnical investigation, GEI advanced nineteen (19) boreholes across the site and installed sixteen (16) monitoring wells within selected boreholes. GEI has utilized thirty-nine (39) boreholes and thirty-four (34) wells advanced as part of the Wildfield Village Local Subwatershed Study. It is noted select wells were advanced as a part of the drilling program and Wildfield Village Local Subwatershed Study were nested wells which include a “deep” and a “shallow” well.

d) Measure groundwater levels in all monitoring wells and perform hydraulic conductivity testing in six (6) selected monitoring wells.

e) Collect and submit one (1) representative unfiltered groundwater sample for laboratory testing to compare against the Region of Peel Sewer Use Bylaw Criteria; subject to sufficient available monitoring well groundwater quantity.

f) Collect and submit two (2) representative unfiltered groundwater samples for laboratory testing to compare against PWQO standards for metals and TSS, subject to sufficient available monitoring well groundwater quantity.

g) Collect and submit two (2) representative filtered groundwater samples for laboratory testing to compare against the PWQO standards for metals and TSS; subject to sufficient available monitoring well groundwater quantity.

h) Assess six (6) selected soil samples for particle size distribution (as per Ontario LS standards in reference to ASTM D6913 and D7928).

i) Carry out a dewatering assessment for construction.

j) Complete a preliminary water balance (pre-construction) and feature based water balance.

k) Prepare a hydrogeological report.

1.3. Applicable Regulations

1.3.1. Source Water Protection

The site is within the jurisdictional boundary of the Toronto and Region Conservation Authority (TRCA) in the CTC Source Protection Region. The following documents should be used in determination of the regulatory requirements when it comes to maintaining hydrogeological function at this site:

- "Approved Source Protection Plan: CTC Source Protection Region", as amended, by the CTC Source Protection Committee.
    - As the proposed development at the site is assumed to include the construction of a building or buildings on a lot with a cumulative ground floor area equal to or greater than 500 m², and any other impervious surfaces, it will likely be considered a major development.
- Approved Assessment Report: Toronto and Region Source Protection Area, CTC Source Protection Committee, February 23, 2022.

Based on Source Water Protection and Natural Heritage Areas online mapping, the following is noted:

- Wellhead Protection Area (WHPA): The site is not located within a WHPA (Figure 4).
    - A WHPA is an area on the land around a municipal well, the size of which is determined by how quickly water travels underground to the well, measured in years, where drinking water may be vulnerable to threats (Peel Region, 2019)
- Intake Protection Zone (IPZ): The site is not located within an IPZ (Figure 5).
    - An IPZ is a vulnerable surface water area (Peel Region, 2019)
- Highly Vulnerable Aquifer (HVA): The north portion, central and southeastern portion of the WVSP area is partially located within an HVA is partially located within an HVA (Figure 6).
    - HVA's are determined through desktop studies and are mapped based on how shallow the water table is, depth to the aquifer and the coarseness of the material.

- The HVA is an aquifer that has the potential for increased risk of contamination due to its proximity to the ground surface or the presence of surrounding geological materials with high permeability.

- Significant Groundwater Recharge Area (SGRA): The site is not located within a SGRA (Figure 7)
  - Significant Groundwater Recharge Areas (SGRAs) are specific regions of the landscape that facilitate an above-average infiltration of water into the ground compared to the overall watershed. These areas are typically characterized by highly permeable soils, consisting of loosely packed coarse materials such as sand, gravel, or exposed fractured bedrock, which enable efficient infiltration of rainfall and snowmelt.
- The site is not located within the Oak Ridges Moraine nor Niagara Escarpment planning areas.
- The site is not located and is not within 500 m of an Area of Natural and Scientific Interest (ANSI). It is noted that Gooseville Moraine, which is a Candidate Earth Science ANSI due to it's geological landform and has been identified as having earth science values and is the one of the youngest moraines in the Bolton area. Gooseville Moraine is approximately 615 m to the north of the site.
- The site is approximately located 70 m southwest of the main channel of the West Humber River from the northeast corner of the site and approximately 30 km from the nearest shore of Lake Ontario.
- Based on GEI and SCS's Wildfield Village Local Subwatershed Study Phase One, seven (7) wetlands are located currently on site. and one (1) wetland on site is considered to be potentially provincially significant wetland. All seven (7) wetlands are located in the northern portion of the site.

1.3.2. Water Taking - Temporary

The volume of water entering the excavation during construction will be based on both groundwater infiltration and precipitation events. Based on O. Reg. 63/16, the following dewatering limits and requirements are as follows:

- Construction dewatering less than 50,000 L/day: The takings of both groundwater and stormwater does not require a hydrogeological report, does not require registration on the EASR, and does not require a PTTW from the MECP.
- Construction dewatering greater than 50,000 L/day and less than 400,000 L/day: The taking of groundwater and/or stormwater requires a hydrogeological report and registration on the EASR but does not require a PTTW from the MECP.
- Construction dewatering greater than 400,000 L/day: The taking of groundwater and/or stormwater requires a hydrogeological report and requires a PTTW from the MECP.

2. Background Review & Site Setting

The site is approximately 170 ha in area and is irregular in shape. The site is located southwest of the intersection of The Gore Road and Healey Road in Caledon, Ontario. The study area extends 500 m from the site boundaries. The site is bound by vacant/agricultural properties to the south, Centreville Creek Road followed by vacant/agricultural land to the west, The Gore Road followed by vacant/agricultural property to the east, and Healey Road followed by vacant/agricultural properties to the north

2.1. Relevant Previous Investigation

2.1.1. GEI and SCS Consulting Group Ltd. (November 2024) Wildfield Village Secondary Plan Caledon Local Subwatershed Study Phase 1

In 2024, GEI and SCS Consulting Group Ltd was retained to investigate the site as well as other surrounding sites owned by the Wildfield Village Owners Group in a Subwatershed Study. The Subwatershed Study was broken down into Phases. The purpose of the Phase 1 report was to support their privately initiated Secondary Plan and Official Plan Amendment to the Town of Caledon's Official Plan (OP). One of the disciplines studied in the report was Hydrogeology and is outlined and summarized below.

- Both the regional geologic mapping and the boreholes advanced across the WVSP area are consistent. The mapping indicates the site is located in a Till Plain to the south of the Oak Ridges Moraine. The WVSP area is dominated by uniformly encountered Halton Till. Locally, a cohesionless glacial till, likely the Newmarket Till unit, was encountered. The till units are underlain by shale bedrock of the Georgian Bay Formation. The geologic conditions are considered to be consistent across the WVSP area.
- The overburden till unit is composed of low permeability, silt dominated, soils that limit infiltration and groundwater migration. The till units were found to be consistent across the area with no specific areas of high infiltration (higher permeability) or groundwater migration observed.
- Based on the geologic conditions, the hydrogeologic conditions in the area are also considered to be consistent across the WVSP area and include limited infiltration and groundwater migration. The WVSP area has limited occurrence of surface water features that occur as incised channels within active agricultural fields. Groundwater flow, albeit limited, is expected to be dominated by flow in the upper weathered till units and interflow. Hydraulic gradients are expected to follow topography, with groundwater flow towards the southeast and the West Humber River for the majority of the WVSP area. Groundwater and surface water flows in a limited area in the northwest of the WVSP area and are expected to be westerly, towards the West Tributary of the West Humber River. Local upward gradients are expected in the overburden in the vicinity of the surface water features.
- Infiltration rates are expected to be consistent across the WVSP area and in the range from about 91 mm/year (agricultural land) to 78 mm/year (treed areas), based on both the TRCA models and the Thornthwaite and Mather methodology used specifically for the WVSP area. The low infiltration is typical of large glacial till plains.

- Surface water features generally form “parallel” or “dendritic” drainage patterns and also indicate consistent geology over the WVSP area. Flows are expected to be predominantly surface water fed, with high variability flow (and typically higher peak flows) controlled by precipitation events due to high runoff, limited natural storm water attenuation, and limited base flow contributions. Consistent with geology, no evidence of point source, or significant zones of groundwater discharge were encountered. Baseflow of surface water systems are likely based on accumulation of relatively low volume inputs through low hydraulic conductivity soils over the length of the surface water channels.

Based on the findings of the report it was concluded by GEI and SCS Consulting Group Ltd. that the Phase 2 report will review the proposed land use plan relative to the existing hydrogeological conditions identified in the Phase 1 report and conduct an impact assessment and address potential impacts from development and provide recommendations on impacts such.

2.1.2. GEI and SCS Consulting Group Ltd. (TBD) Wildfield Village Secondary Plan Caledon Local Subwatershed Study Phase 2

It is noted that at the time of writing of this report the WVSP LSS study is currently on going, but will cover the terms of reference for the hydrogeological impact assessment which are as follows:

- Identify potential impacts of the proposed land use and climate change to local groundwater resources and groundwater-dependent supported features based on implementation of the land use plan. This is to include assessment of the impact on local groundwater flow patterns, infiltration and recharge, discharge patterns, and the effects on existing well users and the natural environment, including a reduction in infiltration, impacts to natural flow system(s), and changes to groundwater and surface water quality.
- Undertake a preliminary assessment of dewatering requirements during the installation of services based on the conceptual servicing plan prepared for the WVSP area. Should dewatering be required, assess the potential impacts on the natural flow regime and potential impacts to nearby water supply wells and natural features.
- Utilizing the selected groundwater model(s), estimate the post-development overall water balance for the WVSP area to determine the future annual infiltration and runoff rates due to the proposed development.
- Discuss the impact of reduced infiltration and increased runoff volumes on the natural environment within the WVSP area. Assess potential impacts to existing wellhead protection zones (if any) that may result during the construction and post-construction periods and increases to the aquifer vulnerability.

2.2. Review of MECP Water Well Records

MECP water well records within 500 m of the site area were obtained from the MECP’s online interactive well records map to assess the general nature of the groundwater resource in the near vicinity of the site, and historical/current uses of wells in the area, as shown in Figure 8 and summarized in Appendix A.

Fifty-three (53) water well records were identified on-site and within 500 m of the site. A summary of these well records is provided below.

Table 2-1. Summary of MECP Water Well Records

Well Use	Number of Records	Year(s) Installed	Depth of Water Encountered	Well Screen / Open Hole (Media & Depth)
Domestic and/or Livestock	33	1947 to 1985	6.1 to 48.8 m	Overburden: 28.3 to 46.6 m Bedrock: 45.7 to 46.6 m
Other, Not Used, and/or Not Listed	20	1960 to 2021	2.4 to 45.7 m	Overburden: 6.7 to 18.9 m

The stratigraphic descriptions within the MECP monitoring well records are often inaccurate due to the methodology in which they are determined (observations of cuttings without depositional context and possibly some mixture between layers, plus no consistency between descriptions of soils between drillers). While this may be the case, an overall sense of the regional stratigraphy can be determined by looking at commonalities between most stratigraphic descriptions and where the wells were terminated in an aquifer. The well records typically indicate silty sand or sandy silt (potentially glacial till in some locations), then clay, then sand and gravel, then shale. Bedrock was encountered in several wells at depths ranging from 11.6 to 61.3 m below existing grade. The noted domestic water supply wells were installed in sand or sand and gravel units typically screened between 28.3 to 46.6 m below existing grade. It is noted one (1) well was screened in the bedrock from 45.7 to 46.6 m below existing grade. It is expected that any existing private water supply wells (used for domestic or livestock purposes) on and/or within 500 m of the site may still be in use. Based on the well records with available well screen information the deeper sand and gravel units would most likely be part of the Oak Ridges Aquifer Complex (ORAC). A larger portion of groundwater recharge for the ORAC would most likely not come from surface water as approximately 7.6 to 57.6 m of clay and silt glacial till (Halton Till) is overlying the aquifer reducing local infiltration and recharge.

As dewatering is expected to be temporary and near the ground surface, it is anticipated that any water supply wells within 500 m of the site will not be affected by the temporary dewatering near the ground surface.

2.3. Review of MECP Permits to Take Water

Records of PTTW were obtained within 500 m of the site area from the Access Environment and MECP's online interactive permits to take water map to assess the general nature of the groundwater resources in the vicinity of the site, and the scale of historical/current groundwater takings required in the area. It should be noted that while these records indicate approved daily water taking volumes, it does not provide

details on target depths for the water takings nor does it provide the actual volumes extracted, which could be less.

No active water taking record was found on-site, no active water taking records were found surrounding the site within 500 m of the site. The recorded locations of the PTTWs are presented in Figure 7.

2.4. Site Physiographic and Geological Setting

From a regional perspective the site is located primarily within the physiographic region known as the South Slope per Chapman and Putnam (1984). The South Slope is noted to be present at the southernmost flank of the Oak Ridges Moraine, and glacial till are typically encountered (soil types are mostly clay to loam). Runoff tends to be higher, and infiltration tends to be lower in the South Slope as the terrain is not hummocky like the Oak Ridges Moraine (TRCA, 2008) and the finer-grained soils restrict infiltration. The physiographic landform mapping shows that the northern and central part of the site are within the South Slope consisting of Till Plains (Drumlinized).

Ontario Geological Survey surficial geological mapping indicates the site, and surrounding area is surfaced predominantly by either glaciolacustrine deposits comprising of clay to silt-textured till. Modern alluvial deposits of clay, silt, sand or gravel may exist along the West Humber River east of The Gore Road.

The bedrock at the site area corresponds to the Georgian Bay Formation, consisting of shale and limestone. Bedrock topography mapping (O.L. White. 1973) shows bedrock sloping from near an elevation of 240 m in the northwestern corner of the site, down to near 192 to 205 m along the West Humber River to the east of the site.

2.5. Visual Inspection of the Site

A visual site inspection was carried out on December 5 to 6 and 9 to 12, 2024, by GEI staff to assess site drainage, topography, the presence of surface water features, ground cover, and any existing buildings.

At the time of the site inspection the temperature was approximately 0 C and overcast. The topography of the site was observed to be approximately 247 m asl to 227 m asl and slope from the northwestern border to the southeastern border of the site towards West Humber River.

The site is currently mostly farmland with some residential dwellings, barns and other structures. During the site inspection, mostly agricultural fields were observed throughout the site. Based on GEI and SCS's Local Subwatershed Study (Phase 1) first submission, three (3) headwater drainage features are located on site. The first headwater drainage feature is located within the northwestern corner entering the northern boundary of the site and exiting the west boundary towards Centreville Creek Road. The second headwater drainage feature is located on the northern boundary of the northeastern portion of the site. The third headwater drainage feature is located within the southeastern corner and exits the southeastern corner towards The Gore Road. The site is approximately located 70 m southwest of the main channel of the West Humber River from the northeast corner of the site and approximately 30 km from the nearest shore of Lake Ontario (further than 500 m southeast of the site). Based on GEI and SCS's Local Subwatershed Study Phase One seven (7) wetlands are located currently on site and that is a provincially significant wetland. All seven (7) wetlands are located in the northern portion of the site.

Considering the site's topography, surface runoff is anticipated to drain predominantly towards the headwater drainage features and wetlands on site or towards the east/southeast towards the West Humber River to the east of the site.

There were no signs of recent ponding water on the site nor areas with phreatophytic vegetation, such as cattails and bull rushes, which could indicate either groundwater at the surface or low permeability soils. No other surface water or any groundwater discharge features (seeps) were observed on or near the property.

3. Procedures and Methodology

3.1. Borehole Drilling & Monitoring Well Installation

As referenced in Section 2.2 – Relevant Concurrent Investigations, a drilling program associated with the geotechnical investigation at the site was carried out December 5 to 6 and 9 to 12, 2024.

- Nineteen (19) boreholes were advanced across the site to provide sufficient coverage for investigation of the soil properties across the site.
    - Sixteen (16) boreholes were instrumented with monitoring wells.
    - Eighteen (18) boreholes drilled within the overburden to a depth of 5.0 to 12.6 m below current grade or until auger refusal.

    Thirty-nine (39) boreholes drilled within the overburden to a depth of 3.0 to 8.1 m below current grade or until auger refusal, one (1) borehole was terminated within the bedrock at 7.7 m below current grade, were previously advanced by GEI Consultants in May 2023 and July 2024.
    - Thirty-four (34) boreholes were instrumented with monitoring wells.
    - Select boreholes were instrumented with nested wells including a “deep” and “shallow well”.
- Nine (9) boreholes were previously advanced by Pinchin, to a depth of 6.5 to 6.7 m below current grade or until auger refusal in July 2023.
    - Four (4) boreholes were instrumented with monitoring wells.

The borehole locations were laid out in the field by GEI staff prior to commencement of drilling operations. The locations of underground utilities were coordinated with locating companies. Ground surface elevations of the boreholes and coordinates (referencing NAD 83 geodetic datum) were surveyed by GEI with a Topcon Hiper SR GPS Survey unit. The elevations are provided on the borehole logs in Appendix B. Borehole and monitoring well locations are shown on Figure 3.

Drilling and sampling of the boreholes were completed using track mounted drilling equipment operated by a specialty drilling subcontractor retained and supervised by GEI. The boreholes were advanced to predetermined depths using solid stem augers and sampling was conducted using a 51 mm O.D. SS sampler. SPT N values were recorded for the sampled intervals as the number of blows required to drive an SS sampler 305 mm into the soil using a 63.5 kg drop hammer falling 750 mm, in accordance with ASTM D1586. Soil sampling was conducted at 0.75 m intervals for the upper 3.0 m and at 1.5 m intervals thereafter.

As previously mentioned, a total of forty-six (46) monitoring wells were installed by GEI and four (4) utilized from Pinchin on site to facilitate long-term groundwater monitoring, sampling, and in-situ testing. The monitoring well consisted of 50 mm diameter PVC pipe and protective casing. The monitoring wells were installed with 1.5 m or 3.0 m long screens where sufficient overburden was available. Boreholes without

wells were backfilled in accordance with O. Reg. 903. Monitoring well construction is shown on the borehole logs in Appendix B and summarized below.

Table 3-1. Summary of Monitoring Well Installation Details

Borehole / Monitoring Well ID	Well Screen Depth (m / masl)	Soil Unit Screened
GEI and SCS's LSS November 2024		
BH/MW 1D	3.4 to 5.2 / 238.9 to 237.1	Clay & Silt Glacial Till
BH/MW 1S	1.2 to 3.4 / 241.1 to 238.9	Clay & Silt Glacial Till
BH/MW 3D	3.5 to 5.0 / 244.3 to 242.8	Clay & Silt Glacial Till
BH/MW 3S	1.5 to 3.0 / 246.4 to 244.9	Clay & Silt Glacial Till
BH/MW 4D	3.5 to 5.0 / 242.8 to 241.3	Clay & Silt Glacial Till; Silty Sand Till
BH/MW 4S	1.5 to 3.0 / 244.9 to 243.4	Clayey Silt Glacial Till
BH/MW 5	6.4 to 7.6 / 235.3 to 234.1	Silty Sand Glacial Till
BH/MW 7	4.6 to 6.1 / 239.0 to 237.5	Clay & Silt Glacial Till
BH/MW 11D	4.6 to 6.1 / 236.2 to 234.7	Clay & Silt Glacial Till
BH/MW 11S	1.5 to 4.0 / 239.2 to 236.7	Clay & Silt Glacial Till
BH/MW 12D	3.4 to 4.6 / 243.4 to 242.2	Clay & Silt Glacial Till
BH/MW 12S	1.2 to 3.0 / 245.6 to 243.8	Clay & Silt Glacial Till; Silt
BH/MW13D	3.7 to 4.6 / 236.4 to 235.5	Clay & Silt Glacial Till
BH/MW 13S	1.5 to 3.0 / 238.6 to 237.1	Clay & Silt Glacial Till
BH/MW 14D	3.7 to 4.6 / 231.0 to 230.0	Clay & Silt Glacial Till
BH/MW 14S	1.5 to 3.0 / 233.3 to 231.8	Clay & Silt Glacial Till
BH/MW16	4.6 to 6.1 / 238.1 to 236.6	Clay & Silt Glacial Till
BH/MW 17D	3.0 to 4.6 / 241.7 to 240.1	Clay & Silt Glacial Till
BH/MW 17S	1.5 to 3.0 / 243.1 to 241.6	Clay & Silt Glacial Till
BH/MW 18D	5.2 to 6.7 / 235.3 to 233.8	Clay & Silt Glacial Till

Borehole / Monitoring Well ID	Well Screen Depth (m / masl)	Soil Unit Screened
BH/MW 18S	1.5 to 3.0 / 239.0 to 237.5	Clay & Silt Glacial Till
BH/MW 19	4.6 to 6.1 / 234.7 to 233.2	Clay & Silt Glacial Till
BH/MW 22D	3.0 to 4.6 / 230.5 to 228.9	Clay & Silt Glacial Till
BH/MW 22S	1.5 to 3.0 / 232.0 to 230.5	Clay & Silt Glacial Till
BH/MW 23	2.3 to 3.8 / 236.3 to 234.8	Clay & Silt Glacial Till
BH/MW 24	6.1 to 7.6 / 229.8 to 228.3	Silt and Sand Glacial Till
BH/MW 26D	4.6 to 6.1 / 223.5 to 222.0	Silt Glacial Till
BH/MW 26S	1.5 to 3.0 / 226.6 to 225.1	Clay & Silt Glacial Till
BH/MW 101	3.0 to 6.1 / 237.2 to 234.1	Clay & Silt Glacial Till
BH/MW 102	3.0 to 6.1 / 236.4 to 233.3	Clay & Silt Glacial Till
BH 1 (Pinchin 2023)	3.1 to 6.1 / 240.1 to 237.1	Silty Clay
BH 3 (Pinchin 2023)	3.1 to 6.1 /239.6 to 236.6	Silty Clay
BH 4 (Pinchin 2023)	3.1 to 6.1 / 240.3 to 237.3	Silty Clay
BH 8 (Pinchin 2023)	3.1 to 6.1 / 234.7 to 231.7	Silty Clay
GEI Support Draft Plan of Subdivision – Solmar Lands, Wildfield Village 2025		
BH/MW 201	3.1 to 6.1 / 236.6 to 233.6	Clayey Silt Glacial Till
BH/MW 202	3.1 to 6.1 / 236.2 to 233.2	Clayey Silt Glacial Till
BH/MW 203	3.1 to 6.1 / 243.2 to 240.2	Clayey Silt Glacial Till
BH/MW 204	3.1 to 6.1 / 239.9 to 236.9	Clayey Silt Glacial Till
BH/MW 205	3.1 to 6.1 / 235.9 to 232.9	Clayey Silt Glacial Till
BH/MW 206	3.1 to 6.1 / 237.5 to 234.5	Clayey Silt Glacial Till
BH/MW 207D	7.6 to 9.1 / 225.7 to 224.2	Silt
BH/MW 207S	1.5 to 4.6 / 231.9 to 228.8	Clayey Silt Glacial Till

Borehole / Monitoring Well ID	Well Screen Depth (m / masl)	Soil Unit Screened
BH/MW 208	6.1 to 9.1 / 226.6 to 223.6	Clayey Silt Glacial Till
BH/MW 209	7.6 to 9.1 / 226.2 to 224.7	Silt
BH/MW 211	3.1 to 6.1 / 239.7 to 236.7	Clayey Silt Glacial Till
BH/MW 212	3.1 to 6.1 / 236.7 to 233.7	Clayey Silt Glacial Till
BH/MW 214	3.1 to 6.1 / 236.7 to 233.7	Clayey Silt Glacial Till
BH/MW 215	4.6 to 7.6 / 225.4 to 222.4	Clayey Silt Glacial Till
BH/MW 216	9.1 to 12.2 / 226.5 to 223.4	Silt
BH/MW 218	9.1 to 12.2 / 221.2 to 218.1	Silt / Silt Glacial Till

The GEI field staff examined, and classified characteristics of the soils encountered in the boreholes, including the presence of fill materials, groundwater observations during and upon completion of the drilling, recorded observations of borehole advancement, and processed the recovered samples. All recovered soil samples were logged in the field, carefully packaged, and transported to the laboratory for more detailed examination and classification.

In the laboratory, the samples were classified as to their visual and textural characteristics. All samples were submitted for moisture content determination. Six (6) samples of the underlying strata were submitted for particle size distribution and are provided in Appendix C. Seventeen (17) samples of the underlying strata were submitted previously from GEI and SCS's Local Subwatershed Study and are provided in Appendix C.

3.2. Hydraulic Conductivity Testing

Rising head hydraulic conductivity tests were conducted to estimate the hydraulic conductivity (K) of the soils at the depths of the well screens. These tests were carried out in monitoring wells at the site with an adequate water volume available (>0.5 m column of water) on December 16 and 17, 2024, after drilling, development, and stabilization of groundwater levels. The hydraulic conductivity tests from GEI and SCS's LSS which were conducted between May 16 to 18, 2023 and have been included in this report where applicable.

In a rising head test, water is manually purged rapidly from the monitoring well using LDPE tubing and a foot valve to create a near-instantaneous displacement of water within the well. The water level is then measured as it returns to an equilibrium.

The static water level was measured prior to the start of testing, and the initial change in water level was monitored both manually and by using an electronic level logger. The level loggers were left in the monitoring wells to measure recovery of the groundwater to equilibrium, with regular manual

measurements recorded for corroboration of the level logger data. Specialty software (AQTESOLV Pro V4.50.002 by HydroSOLVE Inc.) was then used to analyze the data. The semi-log plots from this analysis for drawdown versus time for the tests are provided in Appendix D.

3.3. Groundwater Sampling

To establish baseline conditions and assess the most suitable discharge options for pumped groundwater during potential dewatering activities, groundwater samples were collected from two (2) monitoring wells across the site on December 17, 2024 and groundwater samples from for GEI and SCS's Local Subwatershed Study Phase 1 on May 18, 2023 and August 22, 2024 were utilized:

- One (1) unfiltered groundwater sample for the Region of Peel Sewer Use Bylaw Criteria.
- Two (2) unfiltered groundwater samples for PWQO for metals and TSS.
- Two (2) filtered groundwater samples for PWQO for metals and TSS.
- Three (3) unfiltered groundwater samples for PWQO for metals previously sampled for GEI and SCS's Local Subwatershed Study.
- Two (2) filtered groundwater samples for PWQO for metals previously sampled for GEI and SCS's Local Subwatershed Study.
- Two (2) unfiltered groundwater samples for the Region of Peel Storm and Sanitary Sewer Use By-Law previously sampled for GEI and SCS's Local Subwatershed Study.
- Three (3) unfiltered groundwater samples were compared to Reg. 153/04 site condition standards previously sampled for GEI and SCS's Local Subwatershed Study.

The purpose of sampling for the municipal sewer use bylaw criteria is to aid in the planning for and application of a future municipal sewer use agreement, should groundwater be discharged to the local municipal sewer system(s).

The purpose of sampling for PWQO metals and TSS are for the evaluation of the groundwater to discharge into the natural environment and/or into sewer systems in which municipal discharge water quality standards do not currently exist.

Although PWQO and interim PWQO are not legally binding standards, they serve as the foundation for establishing acceptable wastewater loading limits on a site-specific basis (the natural environment and/or to sewer systems in which municipal discharge water quality standards do not currently exist). The MECP has acknowledged that applying PWQOs can pose challenges, especially in regard to the limits of PHCs and VOCs. These challenges include instances where PWQOs may fall below the laboratory limits of detection, or PWQOs may be more stringent than background concentrations, even in water bodies with apparently thriving aquatic ecosystems.

Should the quality of groundwater found on site exceed the PWQO and/or O. Reg. 153/04 SCS, additional treatment measures from the dewatering contractor may be required before discharging to the natural environment is advisable and/or approved, and as such discharge to local sewers may be a more efficient option for groundwater discharge during dewatering operations.

Prior to collection of the samples, a minimum of three (3) standing well volumes of groundwater were purged from each well. The samples were collected via a "low-flow" peristaltic pump (Geotech Geopump Series I, to reduce sediment collected during sampling) and placed into sterile laboratory-supplied vials and/or bottles already pre-charged with analytical test group specific preservatives, as required. New single-use nitrile gloves were used during sample handling. The field-filtered samples were processed through a sterile 45 µm filter prior to collection in the required vials/bottles.

The samples were submitted to CALA-accredited Eurofins for analysis. The results of the groundwater chemistry are presented in the laboratory Certificates of Analysis provided in Appendix E.

3.4. Infiltration Testing

In accordance with the "Low Impact Development Stormwater Management Planning and Design Guide," (Dated 2010, by CVC and TRCA), GEI conducted infiltration testing in GEI and SCS's Phase One LSS using a Guelph Permeameter to determine the saturated hydraulic conductivity in the vertical direction.

Measurement of the field-saturated hydraulic conductivity (Kfs) was carried out using a Guelph Permeameter apparatus (Model 2800K1) on May 19 and 26, 2023, at five (5) locations. The Guelph Permeameter testing was conducted in 60 mm diameter hand-augured boreholes completed to depths of 0.30 to 0.50 m below existing grade ensuring saturated soils were not encountered. Results of the Guelph Permeameter testing are provided in Appendix F and are discussed in Section 4.6.

The GEI field staff examined and classified characteristics of the soils encountered in the hand-augured boreholes, including the presence of fill materials, and made groundwater observations during and upon completion of the boreholes. All recovered soil samples were logged in the field, carefully packaged and transported to the laboratory for more detailed examination and classification. In the laboratory, the samples were classified as to their visual and textural characteristics and geotechnical laboratory testing for grain size was carried out on five (5) representative samples with the results provided in Appendix C.

GEI understands that LID measures will be designed and constructed on site, however the location and design details are not currently finalized. GEI can further refine the infiltration rates by conducting Guelph Permeameter tests in the exact footprints and elevations of LID measures, as needed.

4. Subsurface Conditions

4.1. Borehole Stratigraphy

The detailed soil profiles encountered in the boreholes are indicated on the attached borehole logs in Appendix B, and the geotechnical laboratory results are included in Appendix C. The borehole locations are shown on Figure 3 and the subsurface profiles (conceptual geological cross section) interpreted from those logs are included as Figure 10 and 11.

It should be noted that the conditions indicated on the borehole logs are for specific locations only and can vary between and beyond the locations. Additionally, the soil boundaries indicated on the borehole logs are inferred from non-continuous sampling and observations during drilling. These boundaries are intended to reflect approximate transition zones and should not be interpreted as exact planes of geological change.

In addition, the descriptions provided in the borehole logs are inferred from a variety of factors, including visual observations of the soil samples retrieved, laboratory testing, measurements prior to and after drilling, and the drilling process itself (speed of drilling, shaking/grinding of the augers, etc.). The passage of time also may result in changes in conditions interpreted to exist at locations where sampling was conducted.

The soil units from the GEI borehole logs are described below.

The conditions in the logs by Others are similar to the GEI boreholes and are not described below, but the logs are appended for completeness. It should be noted that for the conditions indicated on the borehole logs completed by Others, GEI accepts no responsibility for the accuracy of the logs.

4.1.1. Topsoil and Organics

A surficial topsoil layer was encountered at the ground surface of all the borehole locations, ranging in thickness from 75 to 760 mm. The topsoil found in Borehole 12-D and 12-S was found to be mixed with peat. Topsoil thickness may vary between boreholes and in other areas of the site, especially considering the agricultural land use.

4.1.2. Weathered/Disturbed Soil

Underneath the topsoil, the soil consisted of weathered/disturbed clayey silt that extended to 0.3 to 3.0 m depth (Elev. 228.4 to 247.3), typically about 0.8 to 1.5 m depth. Some sand and trace gravel were noted, along with trace to some organics the SS samples. This soil appears to be disturbed/weathered from the farming activities over the history of the site and is no longer in it's native state. The soil was moist to wet with moisture contents of 3 to 27%. The N values in this layer ranged between 4 and 68 indicating a firm to hard consistency, typically being 4 to 8 (firm) near the surface and becoming stiff to hard with depth.

4.1.3. Upper Silt

Underneath the weathered/disturbed clayey silt in Borehole 12D, 208 and 209 an upper silt layer was present to 1.5 to 2.3 m depth (Elev. 230.4 to 245.2). Trace clay was present in the samples and organics were noted in Borehole 12-D. The soil was dry to moist with moisture contents of 14 to 47%. N values in the soil were 6 to 56 indicating firm/compact to very dense soil.

4.1.4. Clay and Silt Glacial Till

Below the topsoil and weathered/disturbed layer, locally the upper silt, a major glacial till deposit was found in all boreholes. For the most part the glacial till extended to the 3.0 to 12.6 m depth of the boreholes (Elev. 217.3 to 244.8), being penetrated/interrupted locally in Boreholes 20, 24, 26, 207-D, 209, 215, 216 and 218 by deeper basal layers described below. The glacial till matrix typically consisted of clay and silt, with trace to some sand and trace gravel. The till matrix varied to silt or silty sand at some locations. Cobbles and boulders should be expected due to augers grinding during borehole augering. The glacial till was moist with moisture contents ranging between 7 and 25%, and the colour was typically brown, turning grey with depth. The N values in this deposit ranged between 6 and more than 100 indicating a firm to hard consistency, typically stiff to hard (compact to very dense where cohesionless). Thirteen (13) grain size analysis tests for this cohesive deposit were submitted to the lab for analysis, and two (2) samples were submitted for the cohesionless glacial till. The results are in Appendix C.

4.1.5. Lower Silt

Beneath the glacial till in Boreholes 26-D, 207-D, 209, 215 and 218 and the clayey silty sand in Boreholes 216, a lower silt unit was present to the 6.6 to 12.6 m depth of the boreholes (Elev. 217.3 to 224.2), locally penetrated at 10.7 m depth in Borehole 218 (Elev. 219.6). Trace to some clay and trace sand were present in the samples. One (1) sample of the material was submitted for grain size analysis and the results are provided in Figure C2 in Appendix C. The soil was moist with moisture contents of 5 to 21%. N values in the soil were 67 to more than 100 indicating very dense conditions.

4.1.6. Clayey Silty Sand

A discontinuous layer of clayey silty sand was encountered beneath the clay and silt glacial till in BH216 and extended from 9.1 m to 12.2 m depth (Elev. 226.5 to 223.4). Trace gravel was observed in the samples. One (1) sample of the material was submitted for grain size analysis and the results are provided in Figure C3 in Appendix C. The soil was very moist with moisture contents ranging between 10 and 11%. The material consistency was hard with N values greater than 100.

4.1.7. Sand

A local sand layer was at the base of Borehole 24 from 6.4 to 6.6 m depth (Elev. 232.9 to 232.7). The soil layer contained trace gravel. The material was wet with a moisture content of 14%. The N value was 19 and the soil was compact.

4.1.8. *Inferred Bedrock*

Inferred bedrock was encountered below the glacial till in BH 24 at a depth of 7.6 m below grade (Elev. 228.3). The bedrock extended beyond the depth of the investigation and was described as highly weathered grey shale. The N values were all greater than 50 blows. Based on the recovered split spoon sample, it is inferred that the bedrock is of the Georgian Bay Formation.

4.2. Groundwater Conditions

Unstabilized groundwater level measurements were taken upon the completion of drilling of each borehole, as shown on the borehole logs in Appendix B. These measurements were taken to provide a rough estimate of the possible excavation and temporary groundwater control constructability considerations that may arise. Additional groundwater level measurements taken during the remainder of the field investigation are considered more representative of static groundwater conditions as the wells had been developed and had time to recover and stabilize following initial construction.

The current groundwater observations are noted on the borehole logs in Appendix B, and a summary of groundwater measurements recorded to date are provided below.

Table 4-1. Summary of Unstabilized and Stabilized Groundwater Encountered

Borehole/ Monitoring Well ID	Unstabilized Groundwater Level[1] (m /masl)	Highest Ground Water Level	Stabilized Groundwater Level (m / masl)																
			2023								2024								
			May 15 / 23	Jun. 6 / 23	Jul. 11 / 23	Aug. 8 / 23	Sept. 14 / 23	Oct. 19 / 23	Nov. 29 / 23	Dec. 20 / 23	Jan. 29 /24	Feb. 27 / 24	Mar. 3 / 24	May 3 / 24	Aug. 20 / 24	Sept. 27 / 24	Oct. 30 / 24	Nov. 21 / 24	Dec. 16 / 24
GEI and SCS's LSS November 2024																			
BH/MW 1D	4.5 / 237.8	0.3 / 242.1	0.5 / 241.9	0.7 / 241.8	0.5 / 242.0	0.5 / 241.9	1.3 / 241.1	1.9 / 240.5	2.3 / 240.2	2.1 / 240.34	0.3 / 242.1	0.5 / 241.9	0.4 / 242.0	0.4 / 242.0	-	1.8 / 240.6	2.4 / 240.1	2.5 / 239.9	2.5 / 239.9
BH/MW 1S	Dry	0.3 / 242.1	2.4 / 240.0	1.5 / 240.1	0.6 / 241.8	0.5 / 241.9	1.3 / 241.1	1.9 / 240.5	2.3 / 240.1	2.4 / 240.0	0.8 / 241.6	0.5 / 241.9	0.4 / 242.0	0.3 / 242.1	-	2.0 / 240.4	2.3 / 240.0	2.6 / 239.8	2.8 / 239.6
BH/MW 3D	Dry	0.2 / 247.7	0.4 / 247.5	0.4 / 247.5	0.2 / 247.7	0.3 / 247.6	0.9 / 247.0	1.4 / 246.5	1.4 / 246.5	0.9 / 247.0	0.4 / 247.5	0.3 / 247.6	0.3 / 247.6	0.3 / 247.6	0.8 / 247.1	1.2 / 246.7	1.6 / 246.3	1.8 / 246.1	1.2 / 246.7
BH/MW 3S	Dry	0.2 / 247.7	2.1 / 245.8	1.0 / 246.2	0.2 / 247.7	0.3 / 247.6	0.9 / 247.0	1.5 / 246.4	1.4 / 246.5	0.9 / 247.0	0.4 / 247.5	0.3 / 247.6	0.4 / 247.5	0.2 / 247.7	0.9 / 247.0	1.4 / 246.6	1.6 / 246.3	1.7 / 246.2	1.2 / 246.7
BH/MW 4D	Dry	0.5 / 245.9	0.5 / 245.8	0.9 / 245.5	0.7 / 245.7	0.9 / 245.5	2.0 / 244.4	2.7 / 243.6	3.3 / 243.1	3.7 / 242.6	1.0 / 245.4	0.7 / 245.6	0.6 / 245.7	0.5 / 245.9	2.5 / 243.8	3.2 / 243.2	3.8 / 242.5	4.3 / 242.0	Dry
BH/MW 4S	Dry	0.5 / 246.0	0.6 / 245.8	0.9 / 245.5	0.7 / 245.8	0.9 / 245.6	1.7 / 244.8	2.2 / 244.3	2.6 / 243.8	2.8 / 243.6	1.7 / 244.8	0.7 / 245.7	0.7 / 245.8	0.5 / 246.0	3.2 / 243.3	2.6 / 243.8	Dry	Dry	Dry
BH/MW 5	Dry	2.8 / 239.0	2.8 / 239.0	3.7 / 238.1	3.3 / 238.4	4.8 / 237.0	5.6 / 236.2	6.3 / 235.4	7.1 / 234.6	Dry	5.7 / 236.1	4.4 / 237.4	4.0 / 237.8	3.0 / 238.7	5.7 / 236.0	6.5 / 235.3	7.1 / 234.7	Dry	Dry
BH/MW 7	Dry	1.8 / 241.9	5.7 / 238.0	4.8 / 239.0	2.4 / 241.3	1.8 / 241.9	2.6 / 241.2	3.5 / 240.2	4.4 / 239.3	4.7 / 239.0	4.7 / 239.0	4.3 / 239.4	3.5 / 240.2	2.5 / 241.2	2.6 / 241.1	3.2 / 240.6	3.8 / 239.9	4.3 / 239.4	4.7 / 239.1
BH/MW 11D	Dry	0.8 / 240.1	5.8 / 235.0	5.1 / 235.8	3.4 / 237.4	2.0 / 238.9	1.2 / 239.6	1.2 / 239.7	1.3 / 239.5	1.4 / 239.5	1.0 / 239.9	0.8 / 240.1	0.7 / 240.1	0.6 / 240.2	-	1.1 / 239.8	1.3 / 239.5	1.5 / 239.4	1.6 / 239.2
BH/MW 11S	Dry	0.4 / 240.4	2.9 / 237.9	2.5 / 238.3	0.4 / 240.4	0.5 / 240.3	0.8 / 240.0	1.1 / 239.7	1.1 / 239.7	1.1 / 239.7	0.5 / 240.3	0.8 / 240.0	0.7 / 240.1	0.6 / 240.2	-	1.3/ 239.5	1.6 / 239.2	1.0 / 240.0	1.0 / 239.8
BH/MW 12D	Dry	0.3 / 246.5	3.9 / 242.9	1.6 / 245.2	0.5 / 246.3	0.5 / 246.4	0.7 / 246.2	0.8 / 246.1	0.8 / 246.1	0.8 / 246.0	0.3 / 246.5	0.4 / 246.5	0.5 / 246.4	0.4 / 246.5	0.9 / 246.0	0.98 / 245.86	1.05 / 245.79	1.04 / 245.8	0.9 / 245.9

Borehole/ Monitoring Well ID	Unstabilized Groundwater Level[1] (m /masl)	Highest Ground Water Level	Stabilized Groundwater Level (m / masl)																
			2023								2024								
			May 15 / 23	Jun. 6 / 23	Jul. 11 / 23	Aug. 8 / 23	Sept. 14 / 23	Oct. 19 / 23	Nov. 29 / 23	Dec. 20 / 23	Jan. 29 /24	Feb. 27 / 24	Mar. 3 / 24	May 3 / 24	Aug. 20 / 24	Sept. 27 / 24	Oct. 30 / 24	Nov. 21 / 24	Dec. 16 / 24
BH/MW 12S	Dry	0.4 / 246.6	0.5 / 246.5	0.6 / 246.3	0.5 / 246.4	0.5 / 246.4	0.7 / 246.2	0.8 / 246.1	0.8 / 246.1	0.8 / 246.2	0.4 / 246.6	0.5 / 246.4	0.5 / 246.4	0.4 / 246.5	0.8 / 246.1	1.0 / 246.0	1.1 / 245.9	0.9 / 246.0	1.0 / 246.0
BH/MW13 D	Dry	0.7 / 239.5	4.4 / 235.8	3.6 / 236.6	0.7 / 239.5	0.7 / 239.5	1.6 / 238.6	2.36 / 237.8	3.29 / 236.9	3.52 / 236.7	2.4 / 237.8	2.3 / 237.9	1.7 / 238.5	1.0 / 239.2	1.5 / 238.7	2.5 / 237.7	3.2 / 237	3.5 / 236.7	3.6 / 236.6
BH/MW 13S	Dry	0.6 / 239.6	2.5 / 237.7	1.4 / 238.8	0.6 / 239.6	0.7 / 239.5	1.5 / 238.7	1.6 / 238.6	2.1 / 238.1	2.3 / 237.9	2.5 / 237.7	2.5 / 237.7	2.3 / 237.9	1.7 / 238.5	1.5 / 238.7	1.7 / 238.5	2.0 / 238.1	2.2 / 238.0	2.4 / 237.8
BH/MW 14D	Dry	0.3 / 234.6	3.9 / 230.9	2.6 / 232.2	0.5 / 234.3	0.6 / 234.2	2.2 / 232.6	3.4 / 231.4	4.0 / 230.8	2.9 / 231.9	0.3 / 234.6	0.4 / 234.4	0.4 / 234.4	0.3 / 234.5	1.5 / 233.3	3.4 / 231.4	3.8 / 231.0	4.0 / 230.8	3.1 / 231.7
BH/MW 14S	Dry	0.1 / 234.7	2.7 / 232.2	2.2 / 232.6	1.5 / 233.3	0.5 / 234.3	1.4 / 233.5	1.7 / 233.2	2.0 / 232.9	2.0 / 232.8	1.3 / 233.5	0.2/ 234.6	0.2 / 234.6	0.1 / 234.7	1.3 / 233.5	1.7 / 233.2	1.8 / 233.0	2.0 / 232.8	2.0 / 232.8
BH/MW16	Dry	0.9 / 241.9	4.6 / 238.2	1.5 / 241.2	0.9 / 241.8	0.9 / 241.9	1.3 / 241.5	1.7 / 241.0	2.3 / 240.5	2.4 / 240.4	1.7 / 241.1	1.5 / 241.3	1.3 / 241.5	1.2 / 241.6	1.3 / 241.5	1.7 / 241.1	2.0 / 240.8	2.3 / 240.5	2.3 / 240.5
BH/MW 17D	Dry	0.1 / 244.7	3.2 / 241.5	1.2 / 243.6	0.1 / 244.7	0.1 / 244.6	0.9 / 243.9	1.5 / 243.3	2.0 / 242.7	2.1 / 242.6	1.2 / 243.5	0.6 / 244.2	0.5 / 244.2	0.3 / 244.5	0.9 / 243.9	1.5 / 243.2	1.9 / 242.8	2.2 / 242.5	2.2 / 242.5
BH/MW 17S	Dry	0.2 / 244.5	2.8 / 242.0	1.8 / 242.9	0.6 / 244.1	0.6 / 244.1	0.8 / 243.9	1.4 / 243.3	1.7 / 243	1.7 / 243	1.2 / 243.5	0.5 / 244.2	0.4 / 244.4	0.2 / 244.5	0.8 / 243.9	1.4 / 243.3	1.7 / 243.0	1.7 / 243.0	1.6 / 243.1
BH/MW 18D	Dry	0.8 / 239.7	1.6 / 238.9	0.9 / 239.6	0.8 / 239.7	0.8 / 239.7	1.2 / 239.4	1.6 / 239.0	2.0 / 238.5	2.3 / 238.2	2.4 / 238.1	2.2 / 238.3	1.9 / 238.6	1.6 / 239.0	1.3 / 239.2	1.6 / 238.9	1.9 / 238.6	2.1 / 238.4	2.4 / 238.1
BH/MW 18S	Dry	1.1 / 238.2	2.8 / 237.7	2.1 / 238.4	1.4 / 239.1	1.1 /239.4	1.1 / 239.4	1.3 / 239.2	1.6 / 238.9	1.8 / 238.7	2.1 / 238.4	2.2 / 238.4	2.0 / 238.5	1.3 / 239.2	1.3 / 239.3	0.8 / 238.5	1.1 / 238.2	1.3 / 238.0	1.5 / 237.8
BH/MW 19	Dry	0.3 / 239.0	0.3 / 239.0	0.6 / 238.7	0.5 / 238.8	0.4 / 239.0	0.4 / 238.9	0.5 / 238.8	0.9 / 238.4	1.1 / 238.2	0.8 / 238.5	0.7 / 238.6	0.7 / 238.7	0.6 / 238.7	0.7 / 238.7	0.8 / 238.5	1.1 / 238.2	1.3 / 238.0	1.5 / 237.8
BH/MW 22D	Dry	0.4 / 233.2	0.5 / 233.1	0.6 / 233.0	0.5 / 233.2	0.4 / 233.2	0.9 / 232.8	-	1.5 / 232.2	1.6 / 232.0	0.7 / 232.9	0.5 / 233.1	0.5 / 233.1	0.4 / 233.2	0.8 / 232.9	1.1 / 232.6	1.3 / 232.3	1.5 / 232.1	1.8 / 231.9
BH/MW 22S	Dry	0.2 / 233.3	Dry	2.4 / 231.2	1.7 / 231.9	0.6 / 233	1.1 / 232.5	-	1.4 / 232.2	1.7 / 231.9	0.5 / 233.1	0.3 / 233.3	0.4 / 233.2	0.2 / 233.3	0.9 / 232.8	1.3 / 232.3	1.5 / 232.1	1.5 / 232.1	1.5 / 232.1
BH/MW 23	Dry	0.4 / 238.3	3.8 / 234.9	3.0 / 235.6	2.0 / 236.7	0.9 / 237.8	1.1 / 237.6	1.5 / 237.1	2.0 / 236.7	2.2 / 236.5	1.2 / 237.5	0.6 / 238.1	0.4 / 238.3	0.4 / 238.4	1.1 / 237.7	1.2 / 237.5	1.6 / 237.1	1.8 / 236.9	1.9 / 236.8

Borehole/ Monitoring Well ID	Unstabilized Groundwater Level[1] (m /masl)	Highest Ground Water Level	Stabilized Groundwater Level (m / masl)																
			2023								2024								
			May 15 / 23	Jun. 6 / 23	Jul. 11 / 23	Aug. 8 / 23	Sept. 14 / 23	Oct. 19 / 23	Nov. 29 / 23	Dec. 20 / 23	Jan. 29 /24	Feb. 27 / 24	Mar. 3 / 24	May 3 / 24	Aug. 20 / 24	Sept. 27 / 24	Oct. 30 / 24	Nov. 21 / 24	Dec. 16 / 24
BH/MW 24	2.4 / 233.5	1.2 / 234.7	1.2 / 234.7	1.5 / 234.4	1.9 / 234.0	1.5 / 234.4	1.7 / 234.2	1.9 / 234.0	2.3 / 233.7	2.1 / 233.8	1.5 / 234.4	1.4 / 234.5	1.3 / 234.7	1.2 / 234.7	1.6 / 234.4	2.0 / 234.0	2.3 / 233.6	2.5 / 233.4	2.8 / 233.1
BH/MW 26D	Dry	0.5 / 227.7	0.7 / 227.5	1.1 / 227.0	1.4 / 226.8	0.9 / 227.2	1.8 / 226.4	2.6 / 225.6	3.1 / 225.1	1.7 / 226.5	1.1 / 227.1	0.7 / 227.5	0.6 / 227.6	0.5 / 227.7	1.9 / 226.3	2.7 / 225.5	3.4 / 224.8	3.8 / 224.4	3.9 / 224.3
BH/MW 26S	Dry	0.3 / 227.9	2.8 / 225.4	2.4 / 225.9	1.9 / 226.3	1.5 / 226.7	1.0 / 227.2	1.1 / 227.1	1.3 / 226.9	1.4 / 226.8	0.5 / 227.7	0.4 / 227.8	0.3 / 227.9	0.3 / 227.9	0.7 / 227.5	1.2 / 227.0	1.5 / 226.7	1.6 / 226.6	1.6 / 226.6
BH/MW 101	Dry	1.7 / 238.4	***Well Not Installed Yet***												1.7 / 238.4	2.4 / 237.8	3.1 / 237.1	3.3 / 236.8	3.8 / 236.3
BH/MW 102	Dry	4.1 / 235.3	***Well Not Installed Yet***												4.8 / 234.6	4.1 / 235.3	4.2 / 235.2	4.3 / 235.1	4.7 / 234.7
BH 1 (Pinchin 2023)	-	1.2 / 242.0	***Well Not Measured***												1.2 / 242.0	1.5 / 241.8	1.5 / 241.7	1.7 / 241.5	1.7 / 241.6
BH 3 (Pinchin 2023)	-	0.5 / 242.2	***Well Not Measured***												0.5 / 242.2	0.7 / 242.0	1.0 / 241.7	0.9 / 241.8	0.8 / 241.9
BH 4 (Pinchin 2023)	-	1.6 / 241.8	***Well Not Measured***												1.6 / 241.8	1.8 / 241.6	1.9 / 241.5	2.1 / 241.3	2.1 / 241.3
BH 8 (Pinchin 2023)	-	1.5 / 236.3	***Well Not Measured***												1.5 / 236.3	1.5 / 236.2	1.5 / 236.3	1.6 / 236.2	1.9 / 235.9
GEI Support Draft Plan of Subdivision – Solmar Lands, Wildfield Village 2025																			
BH/MW 201	Dry	5.6 / 234.2	***Well Not Installed Yet***																5.6 / 234.2
BH/MW 202	Dry	3.6 / 235.7	***Well Not Installed Yet***																3.6 / 235.7
BH/MW 203	Dry	5.9 / 240.4	***Well Not Installed Yet***																5.9 / 240.4

Borehole/ Monitoring Well ID	Unstabilized Groundwater Level[1] (m /masl)	Highest Ground Water Level	Stabilized Groundwater Level (m / masl)															
			2023								2024							
			May 15 / 23	Jun. 6 / 23	Jul. 11 / 23	Aug. 8 / 23	Sept. 14 / 23	Oct. 19 / 23	Nov. 29 / 23	Dec. 20 / 23	Jan. 29 /24	Feb. 27 / 24	Mar. 3 / 24	May 3 / 24	Aug. 20 / 24	Sept. 27 / 24	Oct. 30 / 24	Nov. 21 / 24	Dec. 16 / 24
BH/MW 204	Dry	Dry	***Well Not Installed Yet***															Dry
BH/MW 205	Dry	Dry	***Well Not Installed***															Dry
BH/MW 206	Dry	6.0 / 234.6	***Well Not Installed Yet***															6.0 / 234.6
BH/MW 207D	Dry	8.6 / 224.7	***Well Not Installed Yet***															8.6 / 224.7
BH/MW 207S	Dry	Dry	***Well Not Installed Yet***															Dry
BH/MW 208	Dry	8.3 / 224.4	***Well Not Installed Yet***															8.3 / 224.4
BH/MW 209	Dry	5.4 / 228.4	***Well Not Installed Yet***															5.4 / 228.4
BH/MW 211	Dry	Dry	***Well Not Installed Yet***															Dry
BH/MW 212	Dry	5.7 / 234.1	***Well Not Installed Yet***															5.7 / 234.1
BH/MW 214	Dry	Dry	***Well Not Installed Yet***															Dry
BH/MW 215	Dry	6.4 / 223.6	***Well Not Installed Yet***															6.4 / 223.6
BH/MW 216	Dry	3.0 / 232.6	***Well Not Installed Yet***															3.0 / 232.6
BH/MW 218	Dry	3.3 / 227.1	***Well Not Installed Yet***															3.3 / 227.1

Notes:

1. Measured immediately after monitoring well is installed for preliminary results and comparison to first stabilized groundwater measurement in the following 1-2 weeks after well installation.

GEI has been retained to complete a groundwater level monitoring program at the site for twelve (12) months (from December 2024 to November 2025). It is noted for GEI and SCS's Wildfield Village's Local Subwatershed Study GEI has been retained to complete a groundwater level monitoring program at the site for twelve (24) months (from May 2023 to April 2025) concurrently. The results will be provided under a separate cover once the monitoring is completed. However, for preliminary planning purposes the highest and lowest groundwater levels measured to date are summarized below.

Table 4-2. Summary of Extreme Groundwater Levels.

Shallowest Groundwater Level (m)	**Highest Groundwater Elevation (masl)**
0.1 (May 2024 - BH/MW 14S and July/August 2023 – BH/MW 17D)	247.7 (July 2023 - BH/MW 3D/S)
Deepest Groundwater Level (m)	**Lowest Groundwater Elevation (masl)**
8.6 (December 2024 – BH/MW 207D)	224.3 (December 2024 – BH/MW 26D)

Stabilized groundwater levels have been measured within the monitoring wells from May 2023 to date, at depths ranging from 0.1 to 8.6 m below ground surface (mbgs), and elevations ranging from Elev. 247.7 to 224.3 masl. It is noted that due to the site's varying surface topography the location of the shallowest or deepest groundwater levels measured do not necessarily coincide with the highest or lowest groundwater elevations measured, respectively.

Groundwater levels, especially near the surface, are expected to show seasonal fluctuations and vary in response to prevailing climate conditions. Based on preliminary data, the local groundwater flow direction is expected to mimic the topography. It is anticipated that groundwater flow within the surficial Halton Till will be towards topographic lows. An approximate groundwater contour plan is provided as Figure 12. Based on this plan, local groundwater flow on the site appears to have a general trend towards the east, southeast towards the West Humber River. On the northwestern portion of the site the groundwater contour flow appears to head towards the southwest.

4.3. Hydraulic Conductivity

In-situ hydraulic conductivity tests were conducted in six (6) monitoring wells containing a sufficient water volume (greater than 0.5 m column of water in well) on December 6 and 7, 2024. Data from GEI and SCS's WVSP LSS from May 16 to 18 and August 16 to 17th, 2024 was also used and included below where applicable. The data from these tests were inputted into AQTESOLV Pro V4.50.002 (HydroSOLVE, Inc.) and by applying:

a. Hvorslev's solution (1979) where the well screen was fully saturated.
b. Dagan's solution (1978) where the screen was partially penetrating the groundwater table.

Hydraulic conductivity values were calculated from each test. The semi-log plots for the results are provided in Appendix D and are summarized in the table below. It should be noted that the hydraulic conductivity values obtained from the manual level measurements were very similar to the results obtained from the test where the logger data was analyzed.

Table 4-3. Summary of Hydraulic Conductivity Testing Results

ID	Well Screen Depth / Elevation (m)	Soil Unit Screened	Static Water Level[1] Depth / Elevation (m)	In-Situ Bulk Hydraulic Conductivity (K) (m/s)
GEI and SCS's LSS November 2024				
BH/MW 5	6.4 to 7.6 / 235.3 to 234.1	Silty Sand Glacial Till	3.0 / 238.7	$4.3x10^{-7}$
BH/MW 16	4.6 to 6.1 / 238.1 to 236.6	Clay & Silt Glacial Till	1.2 / 241.6	$2.2x10^{-7}$
BH/MW 18	5.2 to 6.7 / 235.3 to 233.8	Clay & Silt Glacial Till	1.6 / 239.0	$7.4x10^{-8}$
BH/MW 19	4.6 to 6.1 / 234.7 to 233.2	Clay & Silt Glacial Till	0.6 / 238.7	$4.0x10^{-8}$
BH/MW 26	4.6 to 6.1 / 223.5 to 222.0	Silt Glacial Till	0.5 / 227.7	$4.7x10^{-7}$
BH/MW 101	3.0 to 6.1 / 237.2 to 234.1	Clay & Silt Glacial Till	1.7 / 238.4	$8.2x10^{-9}$
BH/MW 4 (Pinchin)	3.1 to 6.1 / 240.3 to 237.3	Silty Clay	1.6 / 241.8	$4.8x10^{-7}$
BH/MW 8 (Pinchin)	3.1 to 6.1 / 234.7 to 231.7	Silty Clay	1.5 / 236.3	$2.5x10^{-9}$
GEI Support Draft Plan of Subdivision – Solmar Lands, Wildfield Village 2025				
BH/MW 201	3.1 to 6.1 / 236.6 to 233.6	Clayey Silt Glacial Till	5.6 / 234.2	$3.7x10^{-8}$
BH/MW 202	3.1 to 6.1 / 236.2 to 233.2	Clayey Silt Glacial Till	3.6 / 235.7	$2.5x10^{-9}$
BH/MW 208	6.1 to 9.1 / 226.6 to 223.6	Clayey Silt Glacial Till	8.3 / 224.4	$3.6x10^{-9}$
BH/MW 209	7.6 to 9.1 / 226.2 to 224.7	Silt	5.4 / 228.4	$2.3x10^{-6}$
BH/MW 212	3.1 to 6.1 / 236.7 to 233.7	Clayey Silt Glacial Till	5.7 / 234.1	$1.7x10^{-7}$
BH/MW 216	9.1 to 12.2 / 226.5 to 223.4	Silt	3.0 / 232.6	$6.5x10^{-6}$

Notes:
1. Variation in the static water levels measured 1-2 weeks after well installation, compared to those measured before hydraulic conductivity testing, can be expected due to the effects of well purging prior to and during the testing.

According to Freeze and Cherry (1979), the typical range in hydraulic conductivity for the soils encountered are as follows:

- Sand: 10^{-2} to 10^{-6} m/s
- Silty Sand: 10^{-3} to 10^{-7} m/s
- Silt: 10^{-5} to 10^{-9} m/s
- Glacial Till: 10^{-6} to 10^{-12} m/s
- Clay: 10^{-9} to 10^{-12} m/s

From the hydraulic conductivity test results the wells screened within or partially within the various glacial till units encountered on site were the order of 10^{-7} to 10^{-9} m/s and fell within the middle to greater of range of the expected values for glacial till (10^{-6} to 10^{-12} m/s) by Freeze and Cherry. In BH/MW 209 the well was fully screened in silt and the hydraulic conductivity was on the order of 10^{-6} m/s. The hydraulic conductivity is on the faster end of the range from Freeze and Cherry for silt (10^{-5} to 10^{-9} m/s).

As such, the hydraulic conductivity test results measured on site, at the discrete locations of the monitoring wells are considered to be representative of the overall horizontal hydraulic conductivity of the wide variety of soils encountered on site, the maximum and minimum hydraulic conductivities calculated for the overburden on site are $2.3x10^{-6}$ m/s to $8.2x10^{-9}$ m/s, respectively. The values presented above are appropriate conservative values to be used for the preliminary construction dewatering calculations in Section 5.

It its noted that soil samples collected during borehole drilling were collected at discrete depths such that unidentified lenses or layers between these samples and within the depth of the monitoring wells' screens may exists causing any deviations from the typical ranges in hydraulic conductivities as expected from Freeze and Cherry (1979).

4.4. Hydrostratigraphy

The soil stratigraphy across the site varies and units appear to be discontinuous, it is generally expected that all overburden soils on site are permeable to allow groundwater flow to some degree, with the primary water-bearing unit expected to generate groundwater inflow during construction being the clayey silt glacial till (Halton Till) soils (described in Sections 4.1.4 and 4.1.8) when they are fully or partially saturated.

Halton Till varies in composition but is known to generally consist of sandy silt to clayey silt till interbedded with silt, clay, sand and gravel (Kassenaar and Wexler, 2006). Figure B126 from Kassenaar and Wexler (2006) estimates the thickness of Halton Till could be on the order of 5 to 10 m thick or greater at the site. This forms the Halton Aquitard hydrostratigraphic unit.

Additionally, Section 2.3.1.3 of Peel Region's Scoped SWS: Part A (Wood, 2022), included a hydrostratigraphic interpretation of the Halton Till, further breaking it down into four (4) distinct units, including the:

- Upper Fractured Till Unit at the top, which was described as massive and generally weathered with vertical fracturing that extended up to 5 mbgs;
- Middle Till Complex that consisted of massive till layers with interbeds of staggered silt to sand and gravel with components exhibiting varying degrees of weathering;
- Underlain by Glaciolacustrine Deposits of layers of fine-grained glaciolacustrine clayey silts and silty clays of varying thicknesses; and,
- Over Lower Till Complex with similar characteristics to the Middle Till Complex, but not as variable.

Of particular importance at the site is the Upper Fractured Till Unit which can be a relatively active groundwater flow zone as it can exhibit a significantly higher relative conductivity, approximately 2 to 3 orders of magnitude higher than the underlying till materials (albeit still considered to be relatively low conductivity). The flow in this unit is considered to be primarily lateral towards surrounding depressional features (wetlands, streams, etc.). Predominant water movement can be laterally through this unit or overland, depending on the groundwater level and the relative locations of depressional features.

Additionally, where stream reaches have incised far enough into or through the till, ephemeral discharge locations (seeps) may be observed. If the stream reaches have incised entirely through the till into the underlying Oak Ridges Moraine Deposits, more permanent groundwater discharge may be observed.

4.5. Groundwater Chemistry

To assess the suitability for discharge of pumped groundwater to the land surface or to the local sewer options during construction dewatering activities, two (2) wells were sampled BH/MW 202 and BH/MW 209 on December 17, 2024. Data from GEI and SCS's Wildfield LSS was also used and included below where applicable.

For assessment purposes, the analytical results were compared to the Region of Peele's Sewer Use Bylaw Criteria, PWQO, and O. Reg. 153/04, as amended.

The results of the groundwater chemistry are presented in the laboratory Certificates of Analysis provided in Appendix E. A summary of the results is presented in the table below for samples relative to the sewer use bylaw criteria, PWQO and Interim PWQO.

Table 4-4. Summary of Groundwater Quality with Identified Exceedances

Sample ID	Exceedances				
	Region of Peel		Interim PWQO	PWQO	Reg 153/04 (T1 SCS)
	Storm Sewer	Sanitary Sewer			
GEI and SCS's LSS November 2024					
BH/MW5 (Unfiltered)	TSS and Manganese	No exceedances	Uranium	Cobalt	No exceedances
BH/MW5 (Filtered)	Parameters not analyzed or assessed		Uranium	Cobalt	Parameters not analyzed or assessed
BH/MW18D (Unfiltered)	Parameters not analyzed or assessed		Boron and Uranium	Silver and Cobalt	No exceedances
BH/MW26D (Unfiltered)	Manganese	No exceedances	No exceedances	Cobalt	No exceedances
BH/MW26D (Filtered)	Parameters not analyzed or assessed		No exceedances	Cobalt	Parameters not analyzed or assessed
GEI Support Draft Plan of Subdivision – Solmar Lands, Wildfield Village 2025					
BH/MW 202 (Unfiltered)	Parameters not analyzed or assessed		Aluminum, Boron, Cobalt, Copper, Thallium, Uranium, Vanadium, Zinc, Zirconium	Silver, Cadmium, Iron, Lead	Parameters not analyzed or assessed

Sample ID	Exceedances				
	Region of Peel		Interim PWQO	PWQO	Reg 153/04 (T1 SCS)
	Storm Sewer	Sanitary Sewer			
BH/MW 202 (Filtered)	Parameters not analyzed or assessed		Boron, Cobalt, Thallium, Uranium, Zinc, Zirconium	Silver, Cadmium	Parameters not analyzed or assessed
BH/MW 209 (Unfiltered)	TSS, Manganese and TKN	No exceedances	Aluminum, Boron, Cobalt, Copper	Iron	Parameters not analyzed or assessed
BH/MW 209 (Filtered)	Parameters not analyzed or assessed		Boron	Iron	Parameters not analyzed or assessed

Two (2) unfiltered groundwater samples were evaluated from both GEI and SCS's Wildfield Local Subwatershed Study and GEI's Support Draft Plan of Subdivision Solmar Lands against the Region of Peel Storm and Sanitary Sewer Use Bylaw Criteria in BH/MW 109 and BH/MW 5. All parameters met the criteria, except for TSS and Manganese for the storm sewer. Notably, field-filtered samples from the same wells demonstrated a reduction in TSS compared to the unfiltered samples, which correlated with a general decrease in metal concentrations. However, field filtration alone was insufficient to bring all parameters within compliance.

Three (3) unfiltered groundwater samples from GEI and SCS's Wildfield Local Subwatershed Study were assessed against the PWQO and interim PWQO. All parameters met the objectives, except for several metals, including boron, cobalt, silver and uranium. Two (2) filtered groundwater samples from GEI and SCS's Wildfield Local Subwatershed Study were assessed against the PWQO and interim PWQO. All parameters met the objectives, except for cobalt and uranium. Based on the analytical data field filtration reduced the boron, cobalt, silver and uranium.

Two (2) unfiltered groundwater samples submitted for GEI's Support Draft Plan of Subdivision Solmar Lands were assessed against the PWQO and interim PWQO. All parameters met the objectives, except for several metals, including Aluminum, Boron, Cobalt, Copper, Thallium, Uranium, Vanadium, Zinc, Zirconium, Silver, Cadmium, Iron and Lead. Two (2) filtered groundwater samples were assessed against the PWQO and interim PWQO. All parameters met the objectives, except for boron, cobalt, thallium, uranium, zinc, zirconium, silver, cadmium, boron and iron. Based on the analytical data field filtration reduced the metals.

Two (2) unfiltered groundwater samples from GEI and SCS's Wildfield Local Subwatershed Study were assessed against the O.Reg 153/04 Table 1 SCS. All parameters met the standard.

If pumped groundwater will be released to the ground surface and/or local sewer systems, it must be suitably treated to remove the parameter exceedances prior to discharge (treatment methods to be determined by the dewatering contractor or civil engineer).

It is expected that during construction dewatering, the pumped water is to be first discharged to a sedimentation tank and/or a silt/sediment bag, at a minimum, before being discharged to the surface or a local sewer.

4.6. Infiltration

The infiltration testing was conducted during GEI and SCS's Wildfield Local Subwatershed Study and is outlined below. The infiltration testing according to the requirements laid out in the "Low Impact Development Stormwater Management Planning and Design Guide," (Dated 2010, by CVC and TRCA). The method used on site is summarized below:

GEI conducted infiltration testing using a Guelph Permeameter to determine the saturated hydraulic conductivity in the vertical direction. An infiltration test was conducted in select hand-augured boreholes on site. Guelph Permeameter testing was carried out at depths of 0.30 to 0.50 mbgs.

The testing did not occur during a precipitation event nor within 24 hours of a significant rainfall event, and the temperature was above freezing.

The saturated hydraulic conductivity was converted to infiltration rate using the approximate relationships provided within Table 7.1 of Appendix C of "Low Impact Development Stormwater Management Planning and Design Guide," (Dated 2010, by CVC and TRCA) and applying the appropriate factor of safety based on Table 7.2 in Appendix C of the CVC design guide.

The hand-augured boreholes encountered clay and silt glacial till throughout the depth of the augering. No seepage or groundwater was encountered in the hand-augured boreholes. Based on the borehole findings from the drilling investigation completed at the site, the clay and silt till typically extends to 3 m or deeper below grade. The hand auger and test locations are shown on Figures 3A and 3B in Appendix F. The hand augured-borehole findings are summarized in the tables below:

Table 4-5. Summary of Guelph Permeameter Tests

ID	GPS Coordinates (UTM Zone 17T)	Depth / Elevation Below Grade (m)	Stratigraphy in Hand Auger
GP 1	N: 4854095 E: 600617	0.30 m	Silt & clay glacial till, some sand, trace gravel. Brown, moist
GP 2	N: 4853459 E: 600157	0.45 m	Silt & clay glacial till, trace sand. Brown, moist
GP 3	N: 4852986 E: 600144	0.40 m	Silty clay glacial till, trace sand. Brown, moist
GP 4	N: 4853611 E: 601086	0.50 m	Silt & clay glacial till, sandy, trace gravel. Brown, moist
GP 5	N: 4853226 E: 601460	0.5 m	Silt & clay glacial till, some sand, trace gravel. Brown, wet

Measurement of the field-saturated hydraulic conductivity (Kfs) was carried out in five (5) hand-augured boreholes using a Guelph Permeameter apparatus (Model 2800K1) on May 19 and 26, 2023.

The field-saturated hydraulic conductivity of the soil was calculated using the one-head method which is calculated as follows:

$$K_{fs} = \frac{C_1 Q_1}{2H_1^2 + \pi a^2 C_1 + 2\pi \frac{H_1}{a^*}}$$

Where: C_1 = shape factor
Q = flow rate (cm^3/s)
H_1 = water column height (cm)
a = well radius (cm)
α* = alpha factor (0.01 to 0.36 cm^{-1})

Hydraulic conductivity and infiltration rate are two different concepts and conversion from one parameter to another must account for the hydraulic gradient and consequently cannot be done through unit conversion. In accordance with the CVC guidelines, the infiltration rate was determined as per the relationship with the field-saturated hydraulic conductivity provided within the document, *"Ministry of Municipal Affairs and Housing (MMAH) Supplementary Guidelines SG-6, Percolation Time and Soil Descriptions*, September 14, 2012", which is summarized below.

Table 4-6. Relationship between Hydraulic Conductivity, Percolation Time and Infiltration Rate

Hydraulic Conductivity, K_{fs} (cm/s)	Percolation Time, T (min/cm)	Infiltration Rate, I (mm/hr)
0.1	2	300
0.01	4	150
0.001	8	75
0.0001	12	50
0.00001	20	30
0.000001	50	12

Infiltration rate is the inverse of percolation time. The approximate relationship (as provided in Figure C1 of the CVC guideline) in which the infiltration rate can be directly calculated from saturated hydraulic conductivity is as follows:

$$K_{fs} = 6 * 10^{-11}(I)^{3.7363}$$

A factor of safety is then applied to the calculated infiltration rate to account for soil variability, gradual accumulation of fine soil sediments during the lifespan of the facility, and compaction during construction. A higher factor of safety is applied if a soil with a lower infiltration rate is encountered within 1.5 m of the base of the infiltration measure.

The results of the infiltration tests are included in Appendix F and are summarized below.

Table 4-7. Summary of Guelph Permeameter Tests Results

GP Test Location	Depth (m)	Soil at Test Elevation	Field-Saturated Hydraulic Conductivity (cm/sec)	Infiltration Rate (mm/hr)	Factor of Safety
GP 1	0.30	Silt & Clay Till	6.7×10^{-6}	22.4	2.5
GP 2	0.45	Silt & Clay Till	3.1×10^{-6}	18.3	2.5
GP 3	0.40	Silty Clay Till	Steady-state rate of fall not achieved		
GP 4	0.50	Silt & Clay Till	6.7×10^{-6}	22.4	2.5
GP 5	0.50	Silt & Clay Till	Steady-state rate of fall not achieved		

Appendix C of *"Low Impact Development Stormwater Management and Planning Design Guide"* (Version 1.0, 2010, by CVC and TRCA) suggests safety factors to be applied to infiltration rates. The recommended factor of safety for the clay and silt glacial till is 2.5 as the nearby boreholes show the cohesive glacial till extends an additional 1.5 m below the infiltration test elevation.

The Guelph Permeameter test at GP 5 encountered saturated soil conditions and a steady-state rate of fall was not achieved. The results showed water was entering the apparatus, possibly indicating the test was occurring below the groundwater table. Steady-state rate of fall was not achieved at GP 3 and GP 5, possibly due to the low permeability of the soil or a higher groundwater table.

Where measured, the factored infiltration rate of the clay and silt glacial till (Halton Till) was 7.3 to 10.4 mm/hr. It is noted infiltration cannot occur below the groundwater table. It is noted that in general glacial till can limit infiltration. Reliance on LIDs for drainage in glacial till can present challenges or risks and is not advisable. The use of LIDs in glacial till can enhance infiltration but should not be relied upon. It is typical for infiltration elevations to be kept at least 1 m above the seasonally high groundwater level, when designed for LIDs or similar measures. Additional in-situ testing should be completed at the specific location and elevation of any proposed LID measures prior to detailed design.

5. Site Dewatering

5.1. Preliminary Construction Dewatering

No plans have yet been provided for any basements, foundation levels, stormwater management ponds, levels of underground parking and servicing. In the following section hypothetical dewatering scenarios for excavation and trenching consisting of basements, foundation levels, stormwater management ponds, levels of underground parking and servicing are presented for discussion purposes only.

This section of the report presents hydrogeological assumptions, assessments and recommendations regarding the hypothetical excavations and trenching for basements, foundation levels, stormwater management ponds, levels of underground parking and servicing:

- Excavation for typical site servicing at the site.
    - Zone 1 - excavation section 100 m long, 6 m wide, and 5 m deep.
- Excavation for largest residential block including one (1) level of basement.
    - Zone 2 - excavation section 248 m long, 52 m wide, and 3 m deep (measurements of largest residential block).
- Excavation for largest urban block including two (2) levels of underground parking. It is noted that the fifth smaller separate southern parcel (urban corridor) is not part of the current submission but has been included in this report to aid with ongoing/future design and for completeness.
    - Zone 3 - excavation section 281 m long, 89 m wide, and 7 m deep
- Excavation for SWM pond 3.
    - Zone 6 - excavation section 177 m long, 128 m wide, and 6 m deep.
- Excavation for SWM pond 7.
    - Zone 5 - excavation section 372 m long, 192 m wide, and 6 m deep.
- Excavation for SWM pond 8.
    - Zone 4 - excavation section 198 m long, 182 m wide, and 6 m deep.

The recommendations are based on our understanding of the project and the results of the field investigation. The interpretation and recommendations are intended for the use of the design consultant and Client and shall not be relied upon by any other parties including the construction contractor or used for any purposes other than development of the project design.

Comments on construction methodology and equipment, where presented, are provided only to highlight those aspects that could affect the design of the project. Contractors must make their own assessment of the factual information presented in previous sections of the report, and the implications on equipment selection, construction methodology, and scheduling.

It should be noted that these calculations have been prepared using hypothetical scenarios for discussion and preliminary planning purposes. Should the designs become available, updated drawings will need to be provided and GEI will need to update the calculations to confirm that any recommendations presented here remain valid.

5.1.1. Construction Description & Dewatering Assumptions

As the long-term groundwater monitoring program is still in progress (as discussed in Section 4.3), the current highest groundwater level measured to date have been assumed to be encountered during any removal and replacement of fill materials beneath installations of site servicing and/or beneath future building(s) or SWM ponds.

The dewatering assessment in the following sections assumes open-cut excavations or permeable shoring. A mitigated "worst-case-scenario" approach has been applied to these preliminary dewatering calculations. This approach assesses the reasonable potential impact and suggests methods to consider during construction dewatering.

It is GEI's understanding that future work may take place within one or multiple of the following zones.

Table 5-1. Construction Dewatering Zones

Dewatering Zone		Purpose
1	Typical Site Servicing 100 m x 6 m	Assumed excavation for typical site servicing.
2	Largest Residential Block 248 m x 52 m	Assumed excavation for one (1) level of basements and foundations.
3	Largest Urban Block 281 m x 89 m	Assumed excavation for two (2) levels of underground parking and foundations.
4	SWM Facility 3 177 m x 128 m	Assumed excavation for stormwater management pond 3.
5	SWM Facility 7 372 m x 192 m	Assumed excavation for stormwater management pond 7.
6	SWM Facility 8 159 m x 174 m	Assumed excavation for stormwater management pond 8.

GEI's understanding of the proposed work, the excavation, dewatering, and site condition assumptions are summarized below, and explanations are provided in the tables below.

Table 5-2. Summary of Assumed Excavation Geometry

Dewatering Zone		Hypothetical Excavation Dimension				Target Groundwater Depth / Elev.[4] (m)
		Length (m)	Width (m)	Assume Ground Surface[3] (Elev.)	Depth / Elev. (m)	
1	Typical Site Servicing	100[2]	6[2]	244.7	5.0 / 239.7	5.5 / 239.2
2	Largest Residential Block	248[2]	52[2]	244.7	3.0 / 241.7	3.5 / 241.2

Dewatering Zone		Hypothetical Excavation Dimension				Target Groundwater Depth / Elev.[4] (m)
		Length (m)	Width (m)	Assume Ground Surface[3] (Elev.)	Depth / Elev. (m)	
3	Largest Urban Block	281[2]	89[2]	229	7.0 / 222	7.5 / 221.5
4	SWM Facility 3	177[1]	128[1]	242.1	6.0 / 236.1	6.5 / 235.6
5	SWM Facility 7	372[2]	192[2]	232.8	6.0 / 226.8	6.5 / 226.3
6	SWM Facility 8	159[2]	174[2]	237.5	6.0 / 231.5	6.5 / 231

Notes:
1. Assumed based on similar construction scenarios.
2. Assumed per conceptual site plan.
3. Assumed ground surface from borehole logs.
4. For functionality and stability during construction groundwater would ideally be at 0.5 m or below this level.

Table 5-3. Summary of Assumed Groundwater Conditions

Dewatering Zone		Assume Ground Surface (Elev.)[1]	Local Groundwater Depth / Elev[2]. (m)	Target Groundwater Depth / Elev.[3] (m)	Assumed Aquifer Bottom Depth / Elev.[4] (m)	Construction Dewatering Expected?
1	Typical Site Servicing	244.7	0.1 / 244.6	5.5 / 239.2	6.5 / 238.2	Yes
2	Largest Residential Block	244.7	0.1 / 244.6	3.5 / 241.2	4.5 / 240.2	Yes
3	Largest Urban Block	229	3.3 / 227.1	7.5 / 221.5	8.5 / 220.5	Yes
4	SWM Facility 3	242.1	0.8 / 239.7	6.5 / 235.6	7.5 / 234.6	Yes
5	SWM Facility 7	232.8	5.5 / 228.4	6.5 / 226.3	7.5 / 225.3	Yes
6	SWM Facility 8	237.5	0.3 / 234.5	6.5 / 231	7.5 / 230	Yes

Notes:
1. Assumed ground surface from borehole logs.
2. Table 5-1. Summary of Unstabilized and Stabilized Groundwater Encountered
3. For functionality and stability during construction groundwater would ideally be at 0.5 m or below this level.
4. Assumed 1.0 m below target groundwater depth (as per Table 5-2. Summary of Assumed Excavation Geometry).

Based on the conditions above, the following points/assumptions were noted:

- A bulk hydraulic conductivity of the materials on site were assumed to be 5.0×10^{-7} m/s for the clay and silt glacial till and 6.5×10^{-6} m/s for the silt based on the hydraulic conductivity test results measured on site (as presented in Section 4.4) as a part of the hypothetical scenario approach.
- The depth of groundwater across the site to be encountered during construction was taken from the Table 5-2. Summary of Unstabilized and Stabilized Groundwater Encountered.

As a part of the hypothetical scenario approach, excavations across the site are planned to extend approximately 3.0 to 7.0 m below the prevailing groundwater table. Therefore, where dewatering is necessary, groundwater drawdowns ranging from 1.1 to 5.6 m are assumed during construction.

5.1.2. Radius/Radii of Influence

The Radius of Influence (ROI) for the construction dewatering is based on the empirical Sichardt Equation. This equation is used to predict the distance at which the drawdown resulting from pumping becomes negligible. This equation is simplistic and is based on steady state conditions, as well as homogeneous hydrogeological conditions (i.e., uniform infinite aquifer). As such, steady state dewatering may not be achieved during the relatively short-term construction dewatering work, plus homogeneous hydrogeological conditions are not typically encountered outside of a laboratory, so the ROI presented here may be an overestimation of the actual ROI encountered. The Sichardt equation is described as follows and the results are summarized in the table below (and presented in Appendix G):

$$R_0 = C(H - h)\sqrt{K}$$

Where:

R_0 = Radius of Influence (m)
C = Sichardt's Constant (3000 $s^{0.5}/m^{0.5}$)
H = Static Saturated Head (m)
h = Dynamic Saturated Head (m)
K = Hydraulic Conductivity (m/s)

Based on the Sichardt equation, the hydraulic conductivity of 5.0×10^{-7} m/s for the clay and silt glacial till and 6.5×10^{-6} m/s for the silt and the total groundwater drawdowns required at this site, the ROIs can be assumed to be 4.5 to 42.8 m from the centre of the excavations for radial flow. Calculation details are provided in Appendix G, and zone-specific ROIs are summarized below.

Table 5-4. Summary of Dewatering Drawdown Conditions for Radius/Radii of Influence

Dewatering Zone		Static Saturated Head Above Aquifer Bottom	Hydraulic Conductivity	Radius of Influence
		H (m)	K (m/s)	R_0 (m)
1	Typical Site Servicing	6.4	5.0×10^{-7}	11.5
2	Largest Residential Block	4.4	5.0×10^{-7}	7.2
3	Largest Urban Block	6.6	6.5×10^{-6}	42.8
4	SWM Facility 3	5.1	5.0×10^{-7}	8.7
5	SWM Facility 7	3.1	5.0×10^{-7}	4.5
6	SWM Facility 8	4.5	5.0×10^{-7}	7.5

The ROI calculation is a conservative methodology and is calculated based on the assumption of active (steady state) pumping during the construction dewatering. It should be noted that a higher volume of water will be pumped during the first stage of the construction period or when a rain event occurs. It is uncertain whether dewatering efforts would reach steady state prior to the completion of construction of each dewatered segment.

5.1.3. Temporary Dewatering Flow Rates

The Dupuit-Forcheimer method for radial flow from an unconfined aquifer for a fully penetrating excavation was used to calculate steady-state flow rate estimates for non-linear excavations (Dewatering Zone 2, 3, 4, 5 and 6) and is expressed as follows:

$$Q = \frac{\pi K(H^2 - h^2)}{In\,{}^{R_0}/_{r_s}}$$

Where:

Q = Rate of pumping (m^3/s)
K = Hydraulic conductivity (m/s)
H = Head beyond the influence of pumping (static groundwater elevation) (m)
h = Head above base of aquifer at the excavation (m)
R_0 = Radius of Influence (m)*
r_s = Equivalent well radius (m, radius of a circle with an area equal to the excavation footprint)

*Where the radius of influence is less than equivalent well radius, the value of R_0 is assumed to be the sum of the radius of influence as calculated by the Sichardt equation and equivalent well radius.

A combination of groundwater flux and Dupuit-Forcheimer equation was used to calculate steady-state flow rates for linear excavations (Dewatering Zones 1) from both sides of a trench and at both ends of the trench through an unconfined aquifer resting on a horizontal impervious surface. This equation was used to obtain a flow rate estimate while dewatering is expressed as follows for an unconfined aquifer:

$$Q = 2\left(\frac{xK(H^2 - h^2)}{2R_O}\right) + \left(\frac{\pi K(H^2 - h^2)}{\ln {}^{R_O}/_{0.5a}}\right)$$

Where:

Q = Rate of pumping (m^3/s)
K = Hydraulic conductivity (m/s)
H = Head beyond the influence of pumping (static groundwater elevation) (m)
h = Head above base of aquifer at the excavation (m)
R_0 = Radius or zone of influence (m)*
a = Width of excavation (m)
x = Length of excavation (m)

*Where the radius of influence is less than the half width of excavation, the value of R0 is assumed to be the sum of the radius of influence as calculated by the Sichardt equation and the width of excavation.

It is expected that the initial dewatering rates will be higher in order to remove groundwater from within the overburden formation. The dewatering rates are expected to decrease once the target water levels

are achieved in the excavation footprints as groundwater will have been removed locally from storage resulting in lower seepage rates into the excavations.

Please note that the anticipated dewatering rate may increase if larger excavations are undertaken beyond the assumptions detailed in the preceding section. The calculated dewatering rates below are based on the current assumptions; however, larger excavations would likely elevate the overall dewatering requirements beyond these calculations.

Based on the assumptions provided in this report, the results of the dewatering rate estimates are summarized below, and calculation details are provided in Appendix G.

Table 5-5. Summary of Construction Dewatering Flow Rate Calculations

Dewatering Zone		Construction Dewatering Flow Rate		
		As Calculated	Including FOS[1]	Including FOS and Rainfall Event[2,3]
		L/day		
1	Typical Site Servicing	33,809	67,618	73,618
2	Largest Residential Block	11,336	22,672	151,632
3	Largest Urban Block	435,355	870,711	1,120,801
4	SWM Facility 3	73,824	147,648	374,208
5	SWM Facility 7	91,115	182,230	896,470
6	SWM Facility 8	81,777	163,554	523,914

Notes:

1. A Factor of Safety (FOS) of 2.0 is included to account for seasonal fluctuations in the groundwater table, initial removal of groundwater from storage and variation in hydrogeological properties beyond those encountered during this study.
2. A 10 mm rainfall event was included in the water-taking calculation.
3. It is noted that under specific conditions, if the water taking is 100% storm water registration on the EASR may not be required, however if water taking consists of any mixture of storm water and groundwater typical registry or permitting is likely required.

5.1.4. Long-Term Dewatering

The Town of Caledon engineering standards do not specify a minimum clearance between basement slabs and the seasonal high groundwater table. Based on the groundwater monitoring data provided in Section 4.2, seasonal high groundwater levels typically range from 0.1 to 5.9 m below existing grade Elev 247.7 to 227.7 m above sea level. Unless more than 3 m of grade raise is undertaken at the site, most basements in the proposed development would extend below the seasonal high groundwater level, and in most cases below the prevailing groundwater table throughout the year. Similarly, subsurface infrastructure (e.g., watermains, sewers) have the potential to form preferential flow paths due to disturbance of soils along their length, potentially leading to groundwater drainage and lowering of the overburden water table.

Where basement levels and any perimeter subdrains are kept above the seasonal high groundwater level (with a typical clearance of at least 0.5 to 1.0 m to account for long-term yearly variations) or where basement levels are fully waterproofed (i.e. no drains) and designed to resist hydrostatic pressures, no long-term dewatering would be anticipated. Installation of sewers and watermains with trench plugs or clay collars can also limit long-term dewatering and groundwater drainage.

A preliminary assessment is completed below for potential long-term dewatering rates, should basement levels be constructed below the groundwater table without waterproofing of structures that extend below the water table. The following additional assumptions are made for the purposes of providing an assessment:

- For most of the residential development areas, low density development is anticipated (e.g., single-detached dwelling units, townhouses). The typical lot size shown in the concept plan provided to GEI is 26.0 m wide by 21.5 m long were assumed for a typical detached residential dwelling.
- For larger buildings in the urban corridor, with potentially one or two underground levels, based on the concept plan provided to GEI it is assumed these urban corridor blocks could be 89 m wide and 281 m long, and basement areas could cover 70% of each block.
- Rainfall events are not included for long-term dewatering because there is no open excavation.

The estimates were carried out using the methodology previously discussed above. It is reiterated that the dewatering estimates are for the support of draft plan only, and additional detailed analysis must be carried out to support future work within the site.

5.1.5. Permit Recommendations

The volume of water entering the excavation during construction will be based on both groundwater infiltration and precipitation events. Based on O. Reg. 63/16, the following dewatering limits and requirements are as follows:

- Construction Dewatering less than 50,000 L/day: The taking of both groundwater and stormwater does not require a hydrogeological report, does not require registration on the Environmental Activity and Sector Registry (EASR), and does not require a Permit to Take Water (PTTW) from the MECP.
- Construction Dewatering greater than 50,000 L/day but with the groundwater portion being less than 400,000 L/day: The taking of groundwater and/or stormwater requires a hydrogeological report and registration on the EASR but does not require a PTTW from the MECP.
- Construction Dewatering involving the taking of groundwater exceeding 400,000 L/day: requires a hydrogeological report and requires a PTTW from the MECP.

Based on the above, it is expected that a PTTW from the MECP will be required during construction. Dewatering activities where the radius / zone of influence overlap must be considered together for the total water taking rates. A Category 3 PTTW would be necessary where dewatering of work areas with overlapping zones of influence require a combined taking of groundwater in excess of 400,000 L/day on any given day.

Dewatering more than 50,000 L/day shall not take place until the proposed water taking is registered with the MECP.

For long-term dewatering, a PTTW is required where the water taking rates exceed 50,000 L/day. As each neighbourhood area residential unit / lot is expected to be a freehold property, the water taking rates can

be assessed individually (i.e., on a lot-by-lot basis). Based on the estimates PTTW is not anticipated for the neighbourhood area residential lots.

However, a PTTW would be required for the urban corridor development requiring long-term foundation drainage of two (2) levels of underground parking. It is anticipated from the estimates that a PTTW will be required. It is recommended the PTTW be avoided by constructing the subsurface portions (e.g. parking structures) as waterproofed structures and thereby avoiding reliance on drainage.

Pre-consultation with MECP can also be considered to confirm the long-term dewatering approach and requirements. Approval from the Town and possibly the Toronto and Region Conservation Authority (TRCA) could also be necessary for this long-term dewatering approach.

These regulatory requirements must be assessed further during future development stages, once detailed site plans are available and additional field investigation is completed.

It is the responsibility of the contractor to ensure dry conditions are maintained within the excavations at all times. Based on the calculated water taking rate, it is expected that sump pumping and/or well points will be required to achieve the recommended drawdowns during earthworks. However, the dewatering contractor is responsible for selecting the dewatering method based on their preferred means and methods after reviewing the information provided in this report. Additional pumping capacity may be required to maintain dry conditions within the excavation during and following significant precipitation events.

The maximum flow calculation is intended to provide a conservative estimate to account for unforeseeable conditions that may arise during construction. It should be noted that the dewatering estimates provided in this report are based on assumptions and details available at the time of this report. If changes to the design are implemented (e.g., increase to planned excavation depths, widening of excavations, increased length of trenching etc.), the dewatering estimates must be revised to include and reflect future changes and to ensure that any conclusions or recommendations made by GEI remain valid.

5.1.6. Remedial Dewatering Activities

The dewatering contractor will be responsible for finalizing and implementing the discharge plan, including information such as the exact discharge location, erosion control methods, method of conveyance, treatment systems, temperature of the discharged groundwater, etc. It is the contractor's responsibility to implement a treatment system to ensure that discharged groundwater meets the applicable standards. This may be done by examining the hydrogeologic conditions in a test pit (and/or a full-range pumping test by the dewatering subcontractor).

Treatment and disposal of the dewatering discharge should follow best management practices, including sediment and erosion control measures, removal of suspended solids by a decanting tank and/or filter bag, as well as water quality and quantity control monitoring programs, as mentioned earlier. The contractor should be aware that the purpose of the dewatering system is to maintain stable excavation slopes and dry working conditions during excavation.

The extent and details of the dewatering scheme (trench or well dimensions, spacing, pump levels, screen size and wick gradation, etc.) are left solely to the contractor's discretion to achieve the performance objectives for maintaining stable slopes and dry working conditions and will be based on their own interpretation and analysis of site conditions, equipment, experience, and efficiency. The contractor should also appreciate that additional dewatering means and modifications may be required as variations in site conditions are encountered. The recommended groundwater taking, and discharge plans are provided in Appendices G and H, respectively.

5.1.7. Impact Assessment for Groundwater Dewatering

The impact assessment for taking groundwater during construction is provided in the Groundwater Taking Plan in Appendix H and includes a review of settlement, impacts to nearby groundwater users or to surface water / environmental features.

6. Preliminary Water Balance

6.1. Water Balance Components

A water balance is an accounting of the water resources within a given area. The water balance equates the precipitation (P) over a given area to the summation of the change in groundwater storage (S), evapotranspiration/evaporation (ET), surface water runoff (R) and infiltration (I) using the following equation:

$$\mathrm{P} = S + I + ET + R$$

The components of the water balance vary in space and time and depend on climatic conditions as well as the soil and land cover conditions (i.e., rainfall intensity, land slope, soil hydraulic conductivity and vegetation). For example, runoff occurs at a higher percentage during periods of snowmelt when the ground is frozen or during intense rainfall events.

Precise measurement of the water balance components is difficult, and as such, approximations and simplifications are made to characterize the water balance of a property. Field observations of the drainage conditions, land cover and soil types, groundwater levels and local climatic records are important inputs to the water balance calculations.

- Precipitation (P): For the purposes of approximating the annual precipitation at this site, the monthly rainfall between 1981 and 2010 was used based on Environment Canada historical weather data for the “Woodbridge Ontario” weather station (Climate ID 6159575, Latitude 43.78 N, Longitude 79.6 W, Elevation 164 m), which is located about 11.9 km southeast of the site.
- Storage (S): Although there are groundwater storage gains and losses on a short-term basis, the net change in groundwater storage on a long-term basis is assumed to be zero.
- Evapotranspiration/Evaporation (PET): The evapotranspiration and evaporation components vary based on the characteristics of the land surface cover (i.e., type of vegetation, soil moisture conditions, perviousness of surfaces, etc.). Potential evapotranspiration refers to the water loss from a vegetated surface to the atmosphere under conditions of an unlimited water supply. Evaporation occurs from a hard surface (such as flat rooftops, asphalt, gravel parking areas, etc.).
- Water Surplus (R + I): The difference between the mean precipitation and evapotranspiration is referred to as the water surplus. The water surplus is divided into two parts: surface or overland runoff (R) and the infiltration into the surficial soil (I). The infiltration is comprised of two end member components: one component that moves vertically downward to underlying aquifers (referred to as percolation, deep infiltration or net recharge) and a second component that moves laterally through the near surface soil profile or shallow soils as interflow that re-emerges locally to surface (i.e., as runoff) at some short distance and time following precipitation.

6.2. Water Balance Approach and Methodology

The analytical approach to calculate the water balance involves monthly soil-moisture balance calculations to determine the pre-development infiltration volumes. The detailed water balance calculation is provided in Appendix J, which is summarized in this and subsequent sections of the report. The following assumptions were used as part of the soil-moisture balance calculations:

- A soil moisture balance approach assumes that soil does not release water as potential recharge while a soil moisture deficit exists.
- During wetter periods, any excess of precipitation over evapotranspiration first goes to restore soil moisture. Considering the nature of the current near surface soils and vegetation cover, a soil moisture storage capacity of 75 mm was assumed for pre-development scenarios, respectively.
- Once the soil moisture deficit is overcome, any further excess water can then pass through the soil as infiltration and either become interflow (indirect runoff) or recharge (deep infiltration).

Monthly potential evapotranspiration calculations accounting for latitude, climate and the actual evapotranspiration and water surplus components of the water balance based on the monthly precipitation and soil moisture conditions were calculated. The MECP SWM Planning and Design Manual (2003) methodology for calculating total infiltration based on topography, soil type and land cover was used, and a corresponding infiltration factor was calculated for pre-development conditions only. The water surplus was multiplied by the infiltration factor to determine both the pre-existing condition annual volumes for run-off and infiltration for the property.

The pre-development scenario was estimated from the site inspection and aerial images such that the site pre-development is considered to be 5% permeable and 95% impermeable. The water balance must be updated following final site configuration to reflect the actual plans.

The post-development land use permeable and impermeable percentages was provided by David Schaeffer Engineering Ltd. and is provide in Appendix J. It is noted that the total post-development area used for the water balance calculations was 138 ha provided by David Schaeffer Engineering Ltd.

It is noted that the infiltration and runoff values presented in Appendix J are estimates only. Single values are used for the water balance calculations, but it is important to understand that infiltration rates are dependent upon the hydraulic conductivity of the surficial soils which may vary over several orders of magnitude. As such, the margins of error for the calculated infiltration and runoff component values are potentially quite large. These margins of error are recognized, but for the purposes of this assessment, the numbers used in the water balance calculations are considered reasonable estimates based on the site-specific conditions and useful for comparison of pre- to post-development conditions.

6.3. Existing Conditions

Detailed water balance calculations are included in Appendix J. The pre-development and post-development calculations are summarized in this section are preliminary only and must be updated once site plans are finalized.

The table below summarizes the pre-construction and post-construction water balance as per the proposed site development plans.

Table 6-1. Summary of Pre-Development and Post-Development Water Balance Conditions

Condition	Total Area (ha)	Relative Permeable Areas	Relative Impermeable Areas	Average Annual Infiltration Volume (m^3/year)	Average Annual Runoff Volume (m^3/year)
Pre-/Existing Development Land Use	138.0	95%	5%	118,492	262,675
Post-Development Land Use		30%	70%	53,724	710,289
Pre-to-Post Change Without Mitigation		-	-	64,768 (-55%)	447,614 (+170%)

Based on the water balance infiltration will be decreased by 64,768 m^3/year (55%) and increase runoff by 447,614 m^3/year (170%) from pre to post development. It is assumed that any proposed development on site will decrease average infiltration and increase runoff without mitigation such as LID measures. The potential impacts of these changes and recommended mitigation measures are discussed below.

6.4. Recommended Mitigation Measures

The three broad categories which typically need to be mitigated and accounted for are:

- Reducing the volume and speed in which additional surface water runoff occurs;
- Increasing the amount of infiltration to match pre-development conditions; and
- Ensuring that the quality of existing surface water features and groundwater will not be adversely impacted.

6.4.1. Runoff Quantity

Urban development of an area affects the natural water balance. The most significant difference is the addition of impervious surfaces as a type of surface cover (e.g., roads, parking lots, driveways, rooftops). Impervious surfaces prevent infiltration of water into the underlying soils and the removal of the vegetation reduces the evapotranspiration component of the natural water balance. The evaporation component from impervious surfaces is relatively minor (estimated to be 15% of precipitation) compared to the evapotranspiration component that occurs with vegetation in this area (up to two thirds of precipitation). So, the net effect of the urbanization of the site is that most of the precipitation that falls onto impervious surfaces increases the surplus water resulting in more direct runoff from developed areas and reduced natural infiltration.

In conjunction with increased runoff, there is a reduction in infiltration to the shallow groundwater system. A reduction in infiltration can potentially lead to a lowering of the local water table and reduce the potential for this seasonal water table intersection and discharge.

Methods which do not necessarily increase infiltration rate, but decrease the volume and concentration of surface water runoff can be considered at this site include (but are not limited to):

- Increasing the topsoil thickness by about two times the normal thickness (up to 30 cm) to retain more water in storage; and
- Implementation of rainwater harvesting which intercepts, diverts and stores roof runoff (i.e., cisterns) for future use.

6.4.2. Mitigation Measures for Maintaining Infiltration

The increases in surface water runoff that will occur with urban development and mitigation of the potential impacts to the local water table due to reduction of infiltration may be minimized by using appropriate stormwater management and using LID measures to promote infiltration. These measures can be implemented on-site.

The basic premise for LID is to try to minimize changes to runoff and infiltration. As outlined in the MECP SWMP Design Manual (2003), Technical Guidelines for Stormwater Management Submissions published by the LSRCA (2022), and Low Impact Development Stormwater Management Planning and Design Guide published by the Credit Valley Conservation (CVC) and Toronto Region Conservation Authority (TRCA (2010), and industry standard for best practices in Southern Ontario, there are a suite of techniques that may be considered to promote infiltration and reduce runoff.

In order to maintain groundwater function at the site the following typical LID measures can be considered as part of typical site developments (can depend on land use):

- Collection of runoff from the building rooftops and redirection to grass areas and overland flow. If feasible, it is recommended that there be a minimum 5 m flow path over pervious areas to allow this mitigation method to be fully effective;
- Provision of gentle slopes in open areas or along grass swales in order to allow time for water infiltration;
- Construction of engineered infiltration measures such as soakaway pits, infiltration galleries or bioswales. Subsurface infiltration methods can only be considered in areas where there is sufficient soil permeability and depth to water table to accommodate the systems within the unsaturated zone (typically the infiltration elevation must be kept 1 m or more above the seasonal high groundwater level).
- Construction of grass channels or filter strips which allow infiltration, discharge at a lower rate and direct roof runoff to overland flow.

Implementation of LID measures will not only allow for infiltration of the surface water into the near-surface groundwater regime but will also allow for increase in natural filtration of surficial runoff, prevent sedimentation transport and potential erosion, and help reduce flooding by increasing the transit time for water on the site. These types of LID techniques promote natural infiltration by providing additional water volumes in the pervious areas. This is particularly effective in the summer months when natural infiltration would not generally occur because the additional water overcomes the natural soil moisture deficit.

At this time, no details or designs for LID measures have been provided. Should LID measures be implemented for the site, the details and designs should demonstrate through plans and sections (including all dimensions, materials used and including the seasonal high groundwater level) how this infiltration deficit will be mitigated.

As it is typically a requirement of maintaining the same levels of infiltration post construction, no appreciable change in the groundwater table elevation should occur over the long-term condition.

If LID infiltration measures will be designed and constructed on site, it is recommended to measure the in-situ infiltration rates by excavating test pits and conducting Guelph Permeameter tests in the exact footprints and elevations of the LID measures.

6.4.3. Groundwater Quality

Depending on land use, runoff from urban developments may contain a variety of dilute contaminants such as suspended solids, chloride from road salt, oil and grease, metals, pesticide residues, phosphorous, bacteria and viruses. For groundwater, generally except for the dissolved constituents such as nitrogen and salt, most contaminants are attenuated by filtration during groundwater flow through the soils.

LID measures or end treatments such as oil/grit separators or wet ponds also help to remove suspended solids and other contaminants in runoff prior to infiltration or conveying the flows off the site, especially when a treatment train approach is taken for stormwater management. Any stormwater management facilities must be designed such that the water quality is maintained or improved prior to discharging water from the site or infiltrating water into the ground.

Runoff from rooftops and landscaped areas are typically considered “clean” and can be collected and infiltrated where possible. Infiltration-based practices for runoff from paved areas may be restricted for the proposed commercial development or may require pre-treatment prior to any infiltration.

Provided only clean or pre-treated runoff will be infiltrated, the groundwater quality will not be degraded and will not impact nearby domestic wells or other nearby environmental features.

6.5. Feature Based Water Balance

Wetlands within the study area were evaluated using the Ontario Wetland Evaluation System. The results of this evaluation are detailed GEI’s Environmental Impact Study (EIS) January 2025 within Sections 4.1.2**,** 4.2.3.2, and 5.1.

No wetland is being retained within the site, however wetlands within 120 m and/or wetlands with 10% of more catchment area within the site will be subject to impact assessment within GEI’s EIS. Based GEI’s EIS a review of wetland locations relative to the site, Wetlands 24 and 25 are the only retained wetlands located within WVSP Study Area. Based on a review of the wetland catchment areas within GEI’s EIS, four (4) retained wetlands have greater than 10% of their catchment area within the study area: Wetlands 10/11, 31A, 31B, and 37. Therefore, a total of six (6) wetlands are subject to impact assessment. The wetlands to be assessed are detailed in Table 1, Appendix F within GEI’s EIS.

A Wetland Water Balance Risk Evaluation was completed for the wetlands within the Study Area as part of the Local Subwatershed Study. The Risk Evaluation was completed according to the TRCA 2017 guidelines, and the detailed results for the wetlands to be assessed are given in Table 13, Appendix E of GEI's EIS. Wetland 24 was found to have a high magnitude of hydrological change and a high ecological sensitivity, and therefore an overall high-risk result. Wetland 25 was found to have a low magnitude of hydrological change and a high ecological sensitivity, and therefore an overall low risk result.

Wetland 25 was classified as low risk, and since the catchment area of Wetland 25 lies completely outside of the development area, no FBWB is required for this wetland. Within the Phase 2 LSS, SCS concluded that implementation of the proposed land use plan, and associated servicing, grading and stormwater management will result in an overall increase of runoff volume to Wetlands 24, 31A, 31B, and 37. SCS has concluded that since these three wetlands will experience an increase in runoff, no water balance calculations are required for these wetlands. Wetland 10/11 was classified as medium risk, and therefore this wetland requires a feature based water balance assessment utilizing continuous simulation hydrologic modelling. SCS prepared the hydrologic modelling for this wetland and the detailed results are included in the Phase 2 LSS (2025), with the results summarized here. The wetland model was simulated using twenty-two (22) years of precipitation data, May 1986 to December 2007 from Buttonville Airport Weather Station. The total annual runoff volume for Wetland 10/11 was calculated to decrease by 98% under the proposed development conditions. Mitigation of potential impacts is therefore required with clean water augmentation to the wetland through the implementation of LID measures. The mitigation strategy will be discussed in the Phase 3 LSS. In accordance with the approved LSS Terms of Reference (2024) and based on the amount of field data obtained to date by the LSS work (1 to 2 years), the wetland continuous simulation hydrologic model has not been calibrated at this time. Per Town correspondence and TRCA SWM Criteria, Appendix E (Water Balance for Protection of Natural Features), calibration will be required at the Draft Plan of Subdivision stage once additional data has been obtained. Calibration will be completed following additional collection of field data in the spring of 2025.

Wetlands surrounding the site are primarily supported by surface water inputs, such as direct precipitation, runoff, and interflow through shallow soils. Proposed development may increase impervious surfaces, disrupt existing interflow patterns, and impact surface water quality. To mitigate these impacts, stormwater management facilities, erosion control and LID features will be implemented to attenuate peak flows, maintain water quality, and support groundwater recharge. Mitigation for runoff volume reduction to these features will be further discussed in the Phase 3 LSS. It is recognized that infiltration at the study lands may be challenging, based on the low infiltration rates and the high groundwater table measured as part of the Phase 1 LSS (2024).

7. Limitations

The recommendations and comments provided are necessarily on-going as new information of underground conditions becomes available. More specific information with respect to the conditions between samples, or the lateral and vertical extent of materials may become apparent during excavation operations. The interpretation of the borehole information must, therefore, be validated during excavation operations. Consequently, conditions not observed during this investigation may become apparent. Should this occur, GEI should be contacted to assess the situation and additional testing and reporting may be required.

GEI should be retained for a general review of the final design drawings and specifications to verify that this report has been properly interpreted and implemented. If not accorded the privilege of making this review, GEI will assume no responsibility for interpretation of the recommendations in the report.

The comments given in this report are intended only for the guidance of the design engineers. The number of boreholes required to determine the localized underground conditions between boreholes affecting construction costs, techniques, sequencing, equipment, scheduling, etc. could be greater than has been carried out for design purposes. Contractors bidding on or undertaking the works should, in this light, decide on their own investigations, as well as their own interpretations of the factual borehole results, so that they may draw their own conclusions as to how the subsurface conditions may affect them.

This report was authorized by and prepared by GEI for Global Properties Inc. (as provided in the signed Standard Professional Services Agreement). Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. GEI accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this project.

8. Closure

We trust that this information is satisfactory for your purposes. Should you have any questions or comments, please do not hesitate to contact our office.

Yours truly,

GEI Consultants Canada Ltd.

Prepared By:

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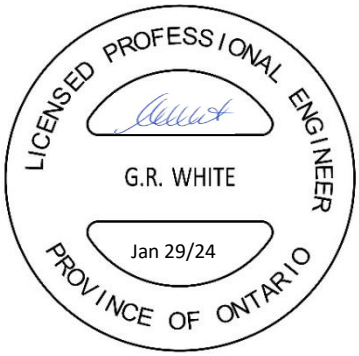
Hydrogeological Project Manager

Reviewed By:

Kim Pickett, M. Ed., C.E.T, LET, QP_{ESA}
Project GeoScientist

Reviewed Land Stability and Settlement in Appendix H only:



Geoff White, P.Eng.
Senior Geotechnical Engineer

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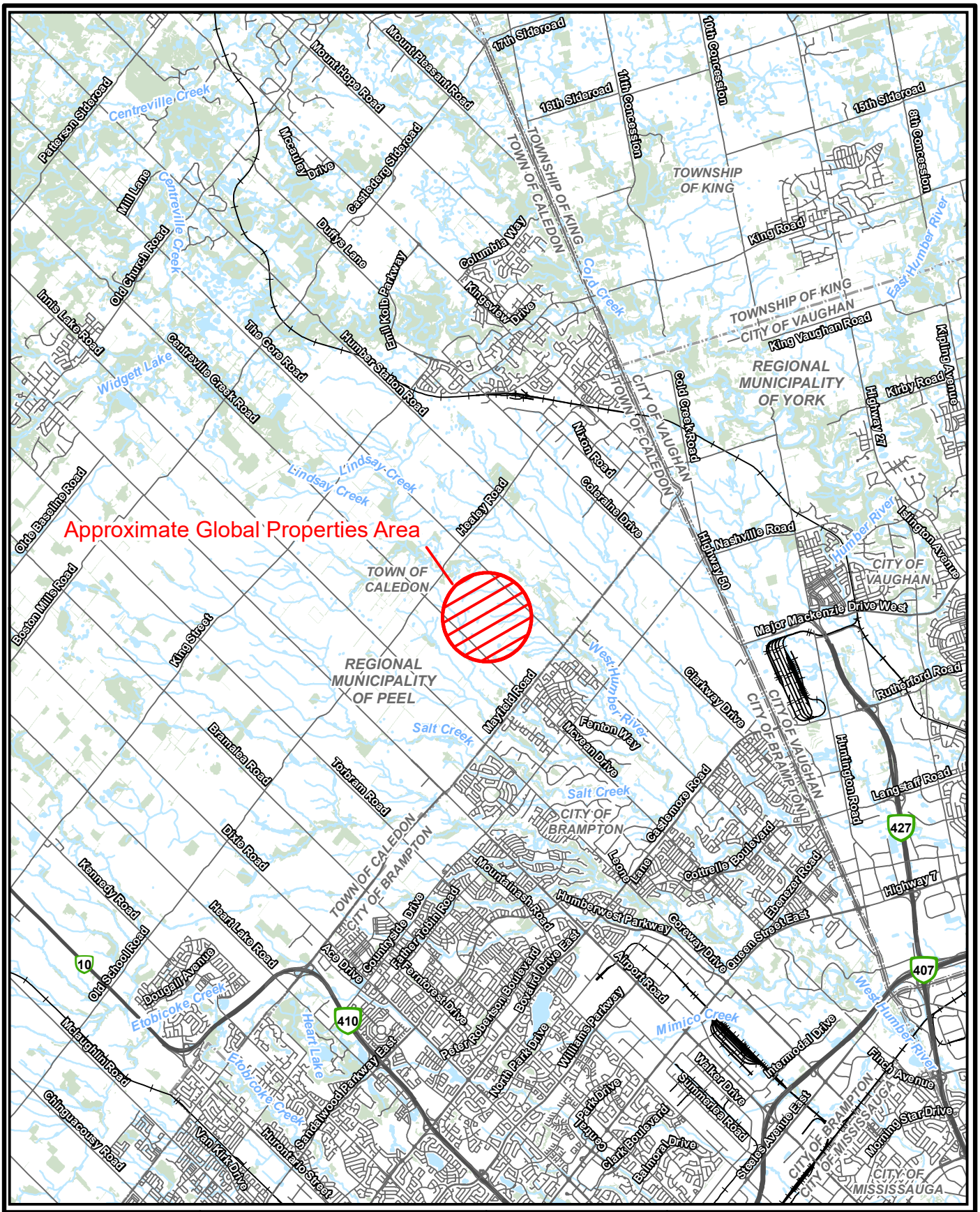
Figures



N

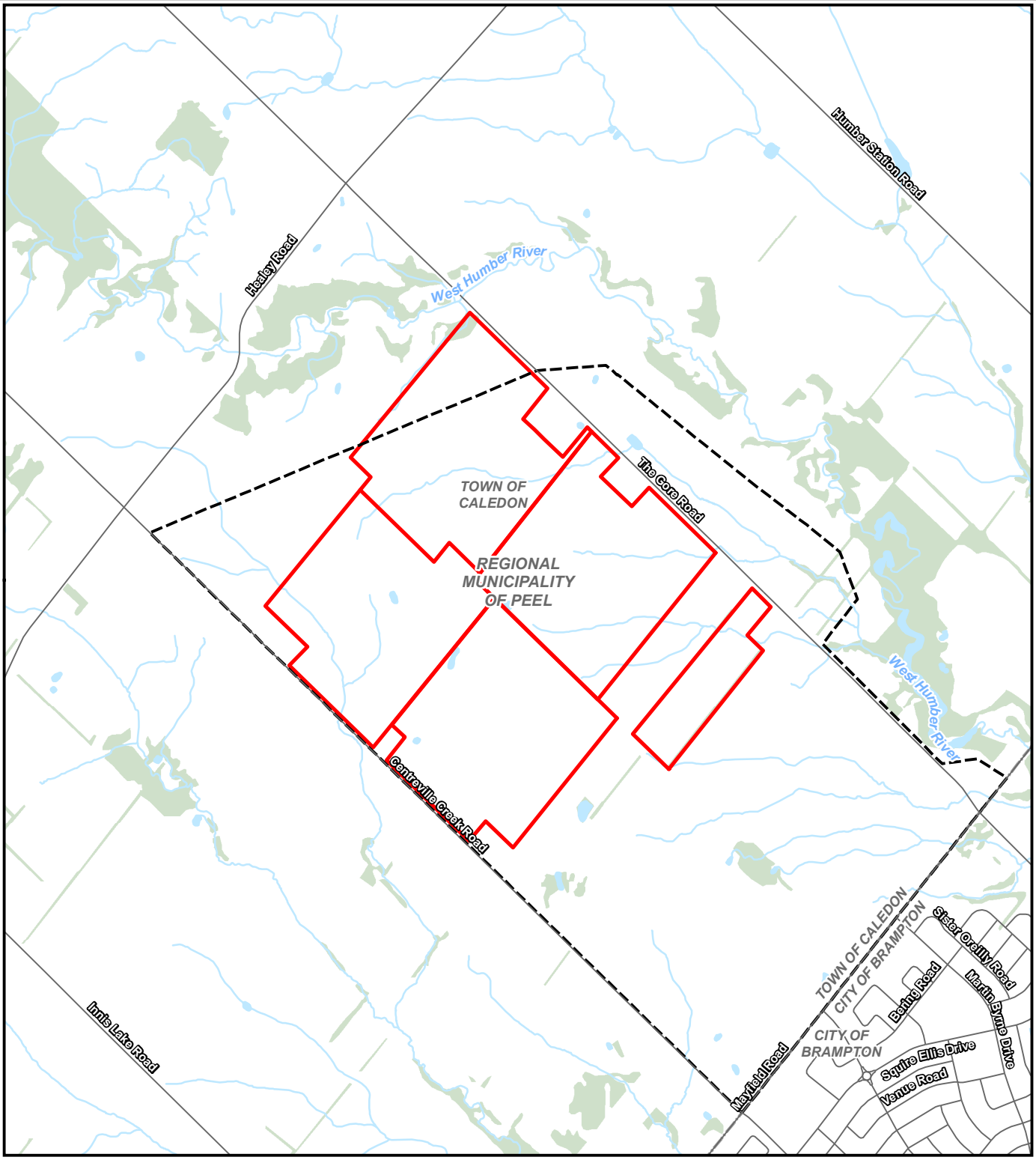
Hydrogeological Investigation
Wildfield Village – Solmar Lands
Caledon, ON

Global Properties Inc.

GEI Consultants

SOLMAR LANDS
SITE LOCATION PLAN

Project 2408195 | January 2025 | Fig. 1



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Legend

- Solmar Lands
- Wildfield Village Secondary Plan Area
- Road
- Watercourse
- Waterbody
- Wooded Area

N

0 200 400 m

1:20,000

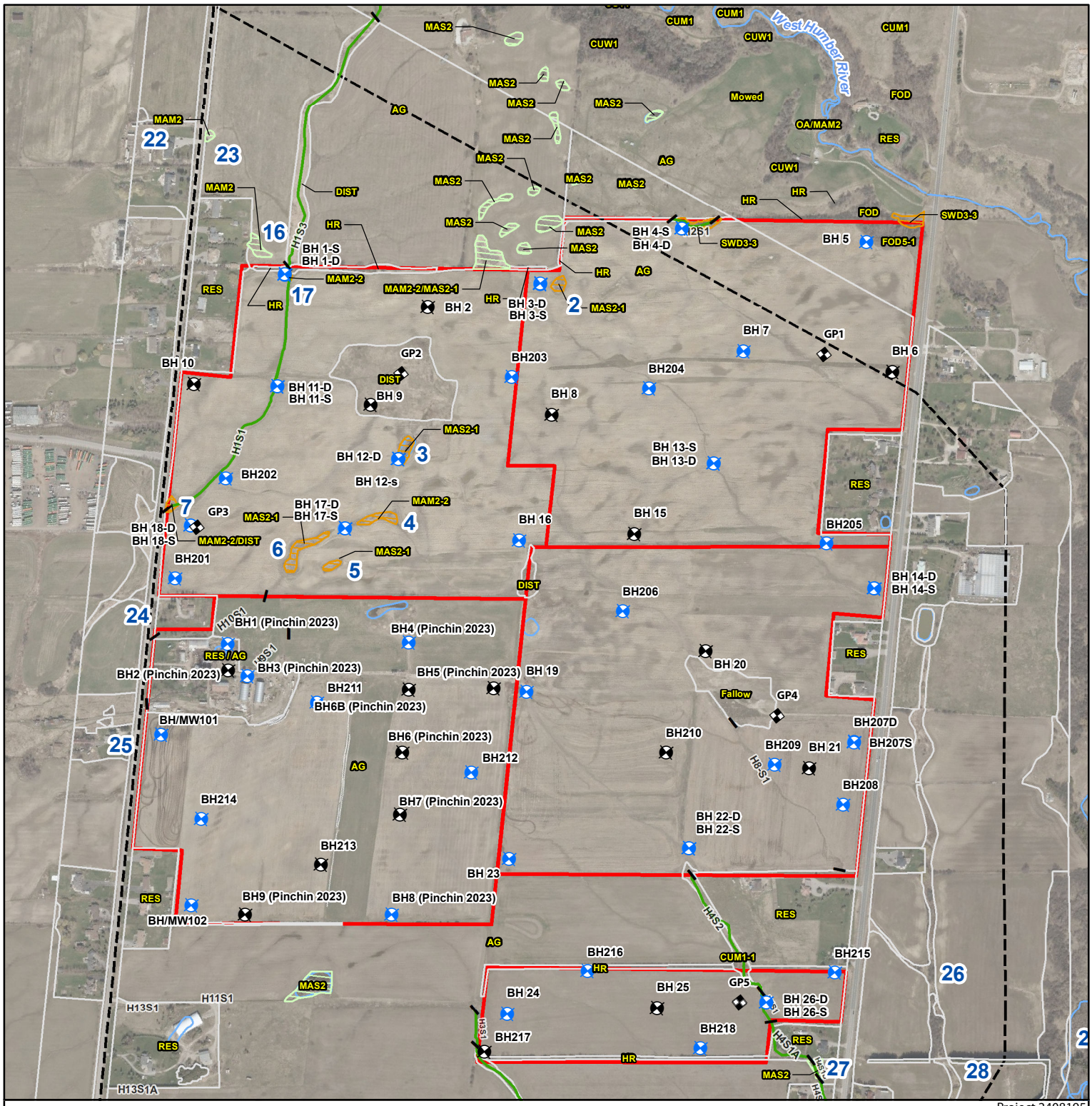
Hydrogeological Investigation
Wildfield Village – Solmar Lands
Caledon, ON

Global Properties Inc.

GEI Consultants

SOLMAR LANDS
SITE LOCATION PLAN

Project 2408195 | January 2025 | Fig. 2



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Legend

- Solmar Lands
- Wildfield Village Secondary Plan Area
- Ecological Land Classification *
- Waterbody
- Watercourse (TRCA)
- Borehole Location
- Borehole/Monitoring Well Location
- Guelph Permeameter

Headwater Drainage Feature Management Recommendations
- Mitigation
- Conservation
- Protection

Wetland Evaluation (GEI Consultants Ltd.)
- Other Wetland
- Unevaluated Wetland
- X Wetland ID

ELC LEGEND

AG, Agricultural
COM, Commercial
CUM1, Mineral Cultural Meadow
CUT1, Mineral Cultural Thicket
DIST, Disturbed
FOC2-2, Dry-Fresh White Cedar Coniferous Forest
HR, Hedgerow
MA, Marsh
MAM2, Mineral Meadow Marsh
MAM2-2, Reed Canary Grass Mineral Meadow Marsh
MAS2, Mineral Shallow Marsh
MAS2-1, Cattail Mineral Shallow Marsh
OA, Open Aquatic
RES, Residential
SWD3-3, Swamp Maple Mineral Deciduous Swamp

Hydrogeological Investigation
Global Properties Inc.
Wildfield Village - Solmar Lands

Figure 3A
Borehole Location Plan (Aerial)

0 100 m
1:10,000

GEI Consultants

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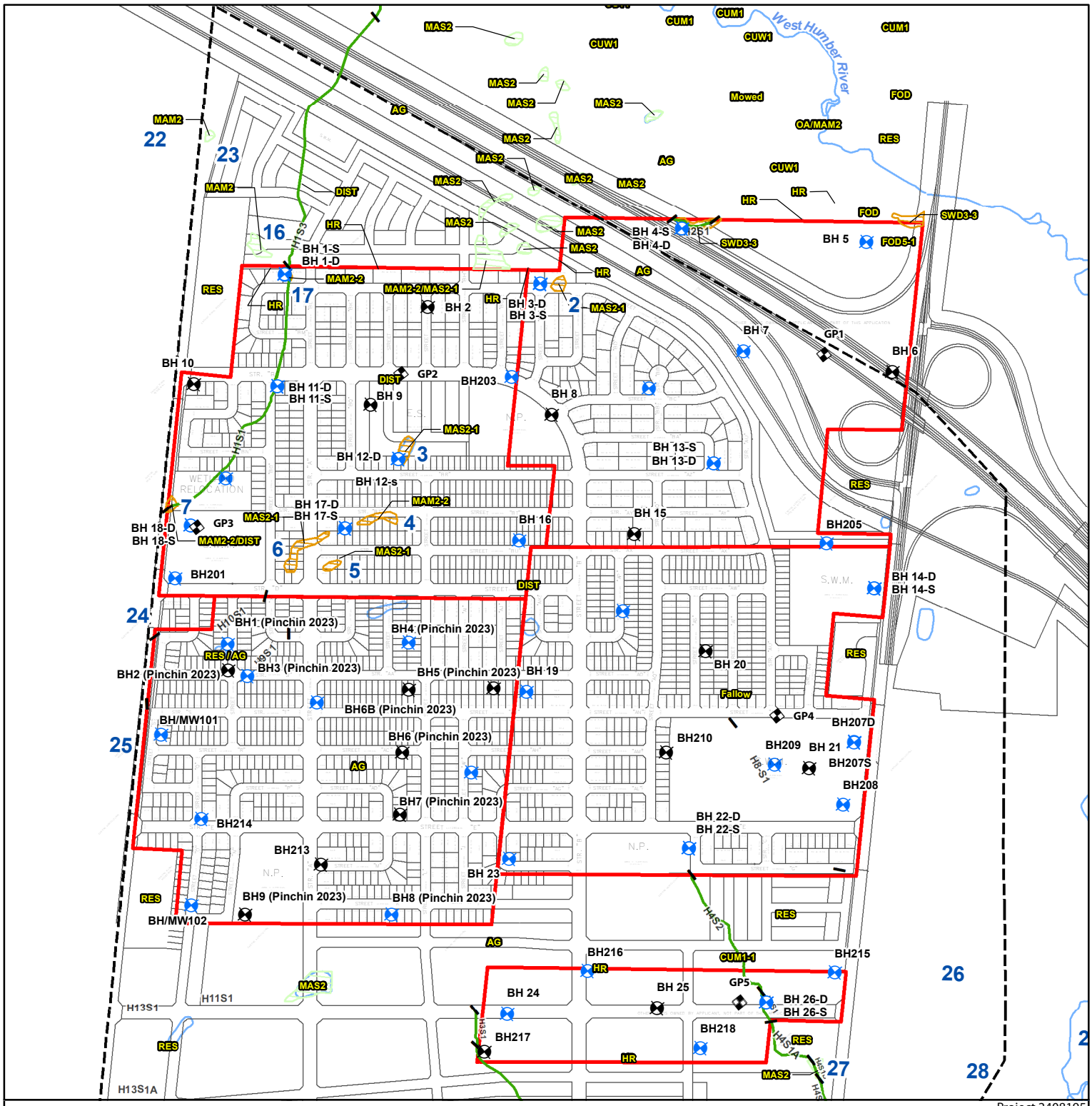

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Legend

- Solmar Lands
- Wildfield Village Secondary Plan Area
- Development Concept
- Waterbody
- Watercourse (TRCA)
- Borehole Location
- Borehole/Monitoring Well Location
- Guelph Permeameter

Headwater Drainage Feature Management Recommendations
- Mitigation
- Conservation
- Protection

Wetland Evaluation (GEI Consultants Ltd.)
- Other Wetland
- Unevaluated Wetland
- X Wetland ID

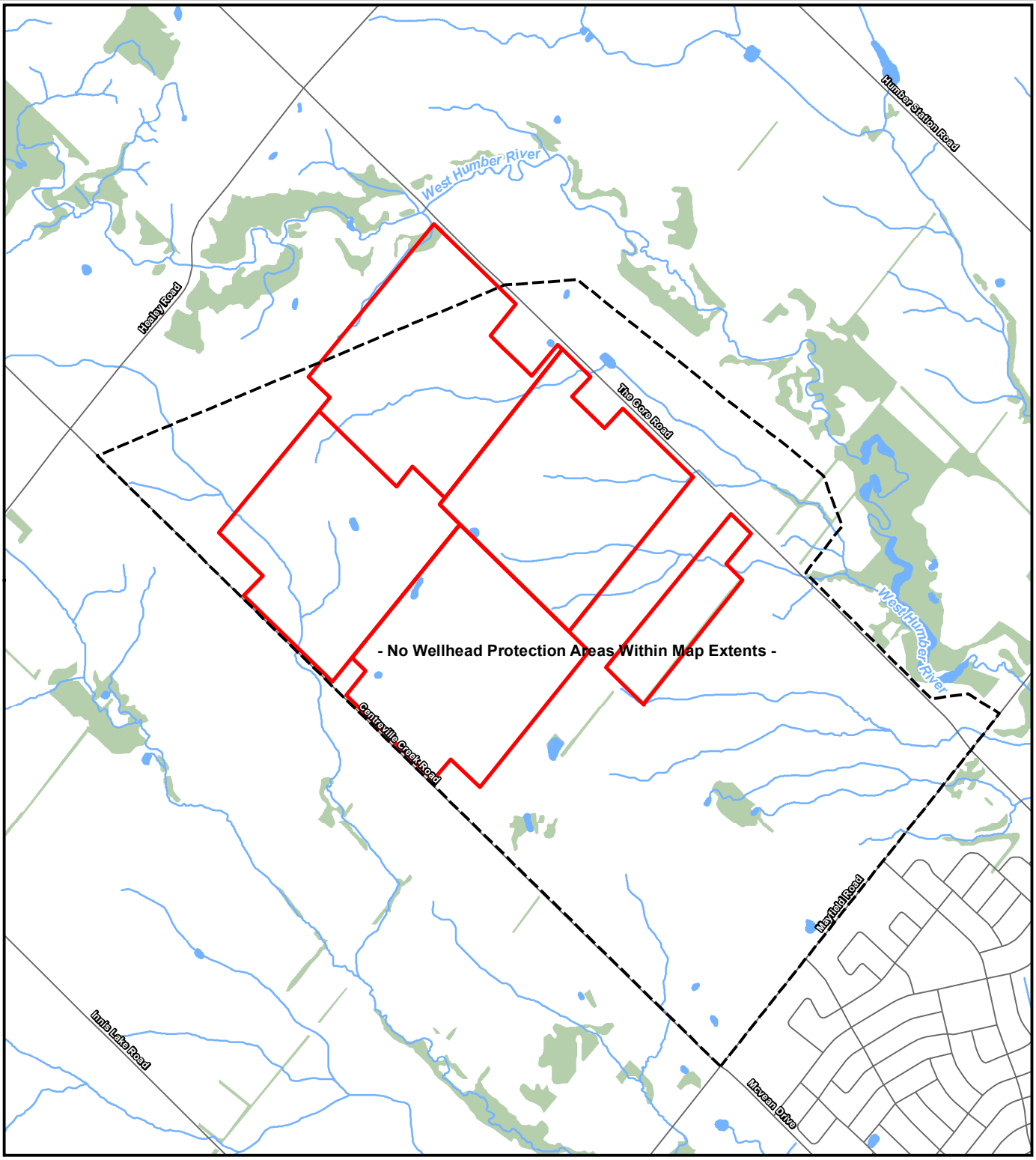
ELC LEGEND
AG, Agricultural
COM, Commercial
CUM1, Mineral Cultural Meadow
CUT1, Mineral Cultural Thicket
DIST, Disturbed
FOC2-2, Dry-Fresh White Cedar Coniferous Forest
HR, Hedgerow
MA, Marsh
MAM2, Mineral Meadow Marsh
MAM2-2, Reed Canary Grass Mineral Meadow Marsh
MAS2, Mineral Shallow Marsh
MAS2-1, Cattail Mineral Shallow Marsh
OA, Open Aquatic
RES, Residential
SWD3-3, Swamp Maple Mineral Deciduous Swamp

Hydrogeological Investigation
Global Properties Inc.
Wildfield Village - Solmar Lands

Figure 3B
Borehole Location Plan (Development Concept)

0 100 m
1:10,000

GEI Consultants



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Legend

- Solmar Lands
- Wildfield Village Secondary Plan Area
- Road
- Watercourse
- Waterbody
- Wooded Area

Wellhead Protection Areas (TRCA 2023)

Zone
- A
- B
- C
- C1
- D
- Q1/Q2

N

0 150 300 m

1:19,000

Hydrogeological Investigation
Wildfield Village – Solmar Lands
Caledon, ON

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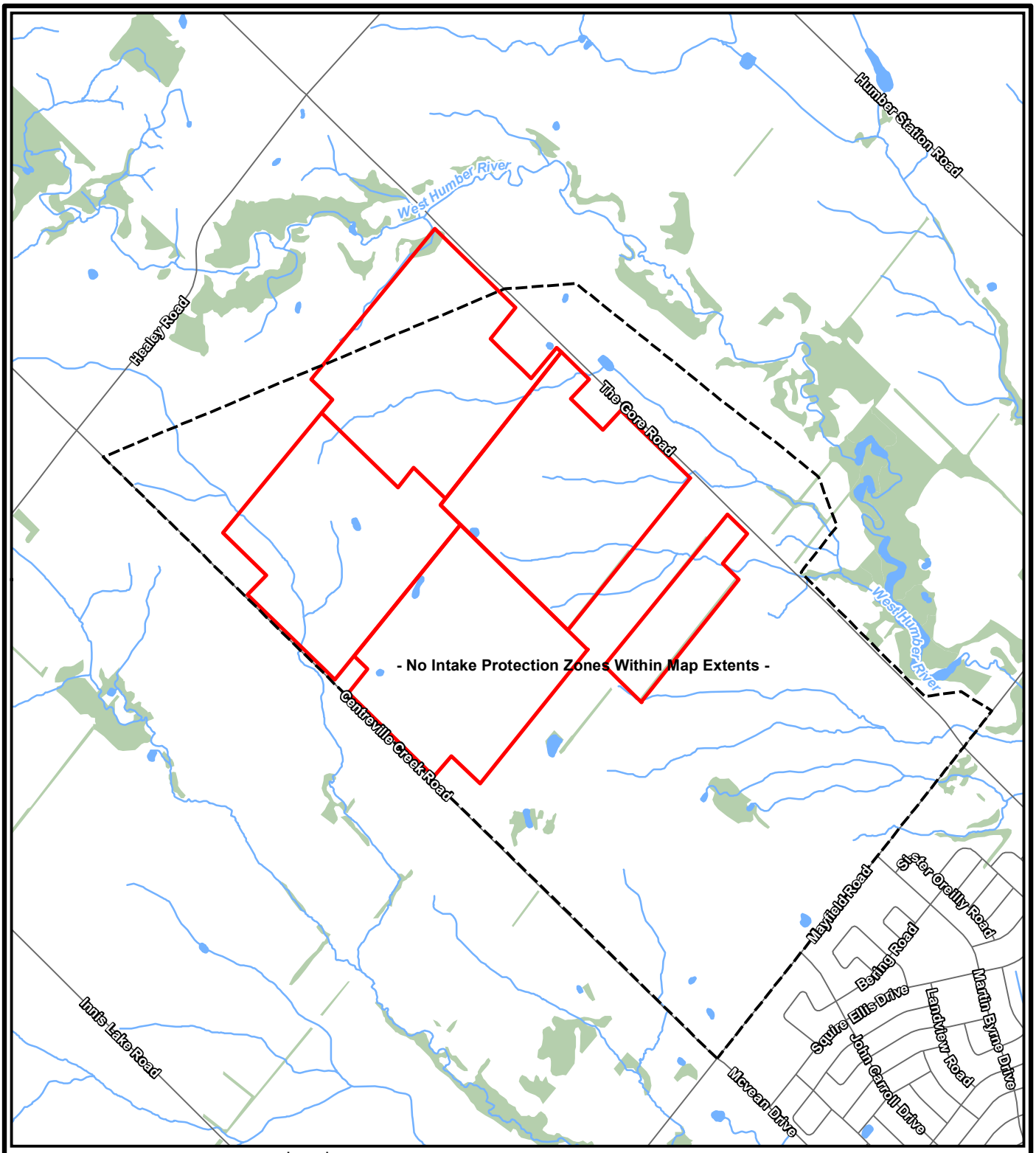
WELLHEAD PROTECTION AREAS

Project 2408195 | January 2025 | Fig. 4



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Legend

- Solmar Lands
- Wildfield Village Secondary Plan Area
- Road
- Watercourse
- Waterbody
- Wooded Area

Intake Protection Zone (TRCA 2023)

Zone
1
2
3

N

0 150 300 m

1:19,000

Hydrogeological Investigation
Wildfield Village – Solmar Lands
Caledon, ON

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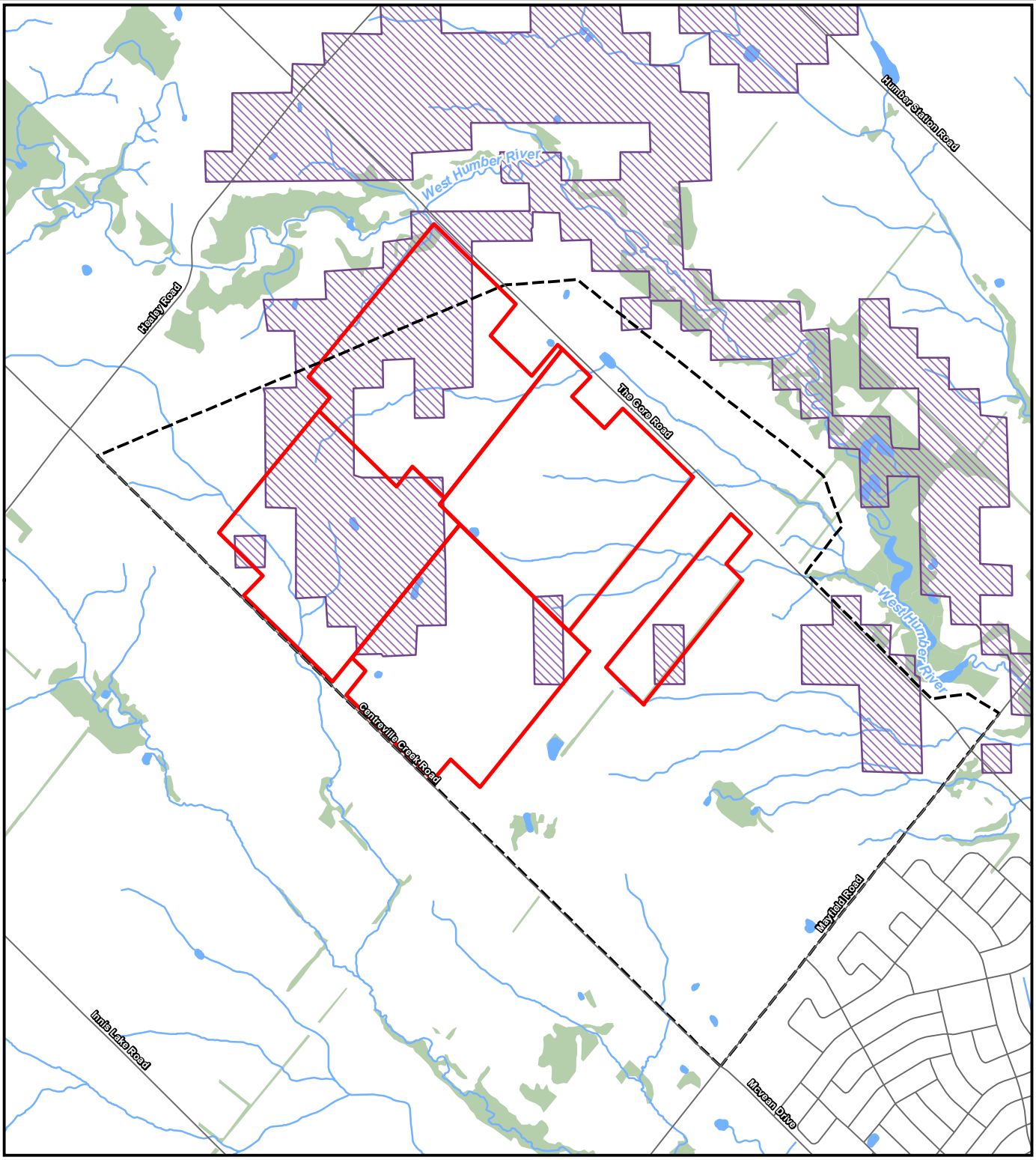
INTAKE PROTECTION ZONES

Project 2408195

January 2025

Fig. 5



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Legend

- Solmar Lands
- Wildfield Village Secondary Plan Area
- Road
- Watercourse
- Waterbody
- Wooded Area
- Highly Vulnerable Aquifer (TRCA 2023)

N

0 150 300 m

1:19,000

Hydrogeological Investigation
Wildfield Village – Solmar Lands
Caledon, ON

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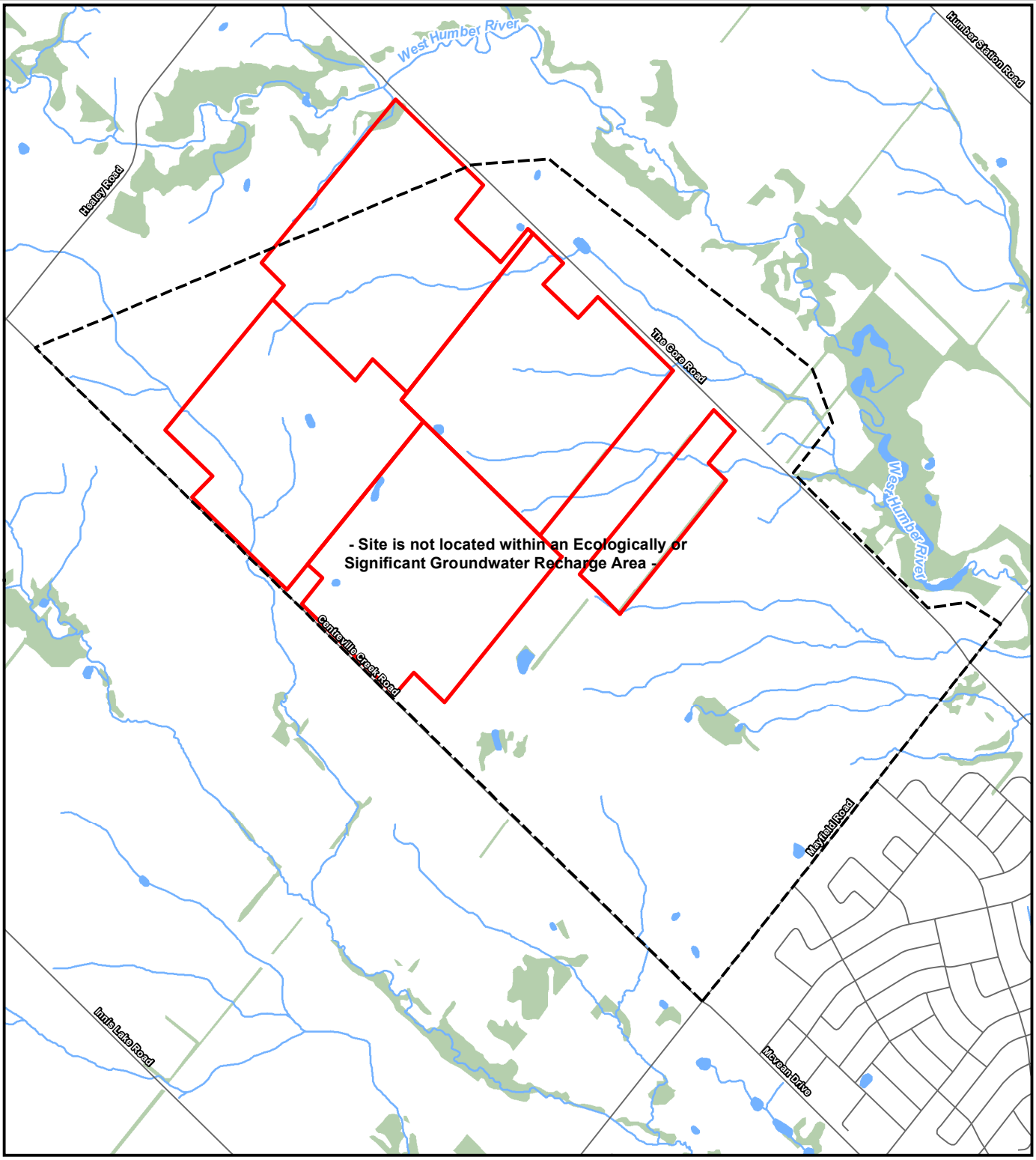
HIGHLY VULNERABLE AQUIFER

Project 2408195 | January 2025 | Fig. 6



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Legend

- Solmar Lands
- Wildfield Village Secondary Plan Area
- Road
- Watercourse
- Waterbody
- Wooded Area

Significant Groundwater Recharge Area (TRCA 2023)

Vulnerability Score

- 2-4
- 6

N

0 150 300 m

1:17,750

Hydrogeological Investigation
Wildfield Village – Solmar Lands
Caledon, ON

Global Properties Inc.

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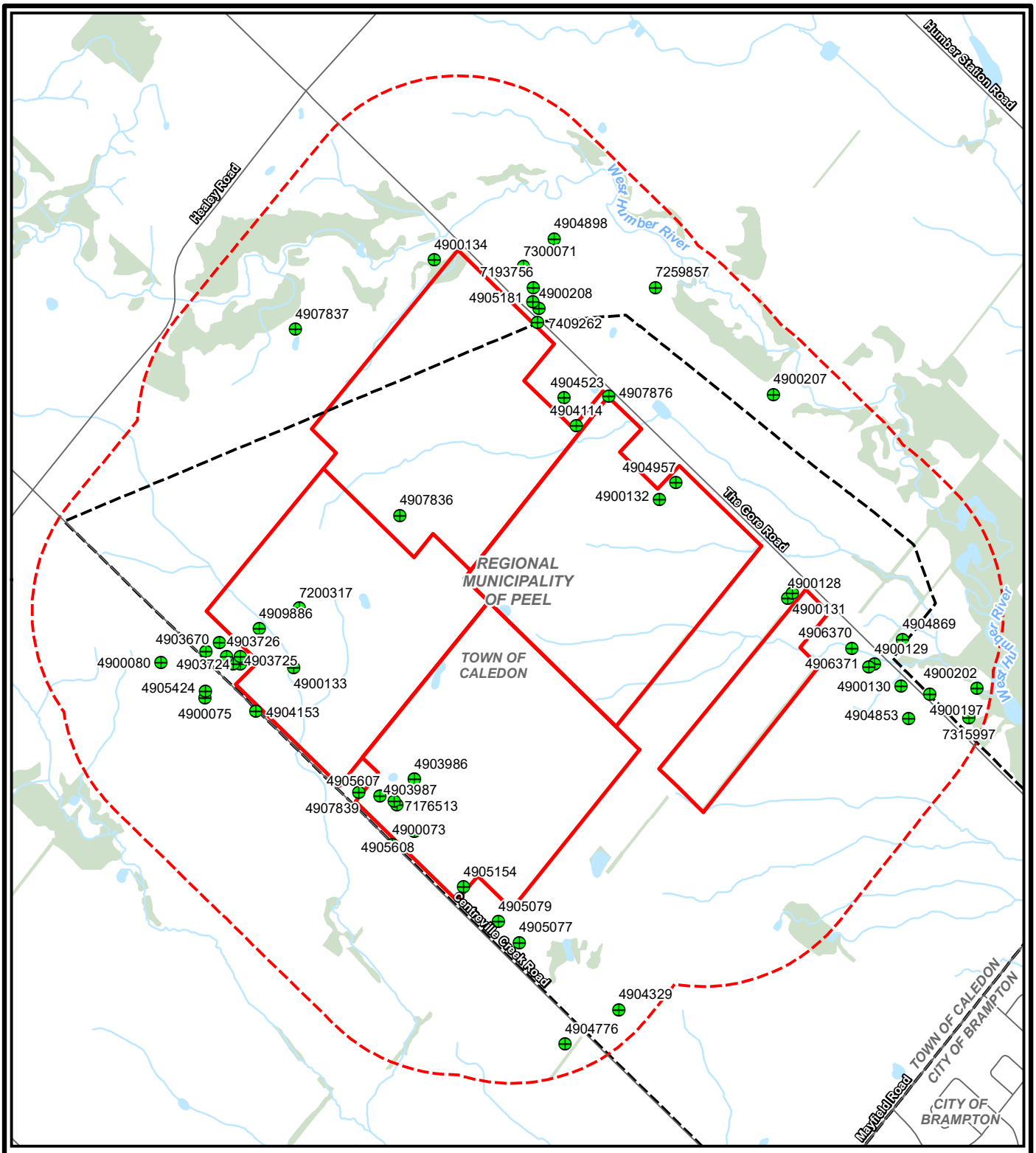
ECOLOGICALLY AND SIGNIFICANT GROUNDWATER RECHARGE AREA

Project 2408195 | January 2025 | Fig. 7



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Legend

- Solmar Lands
- Wildfield Village Secondary Plan Area
- Study Area (plus approx. 500 m)
- Road
- Watercourse
- Waterbody
- Wooded Area
- MECP Water Well Record

N

0 200 400 m

1:16,000

Hydrogeological Investigation
Wildfield Village – Solmar Lands
Caledon, ON

Global Properties Inc.

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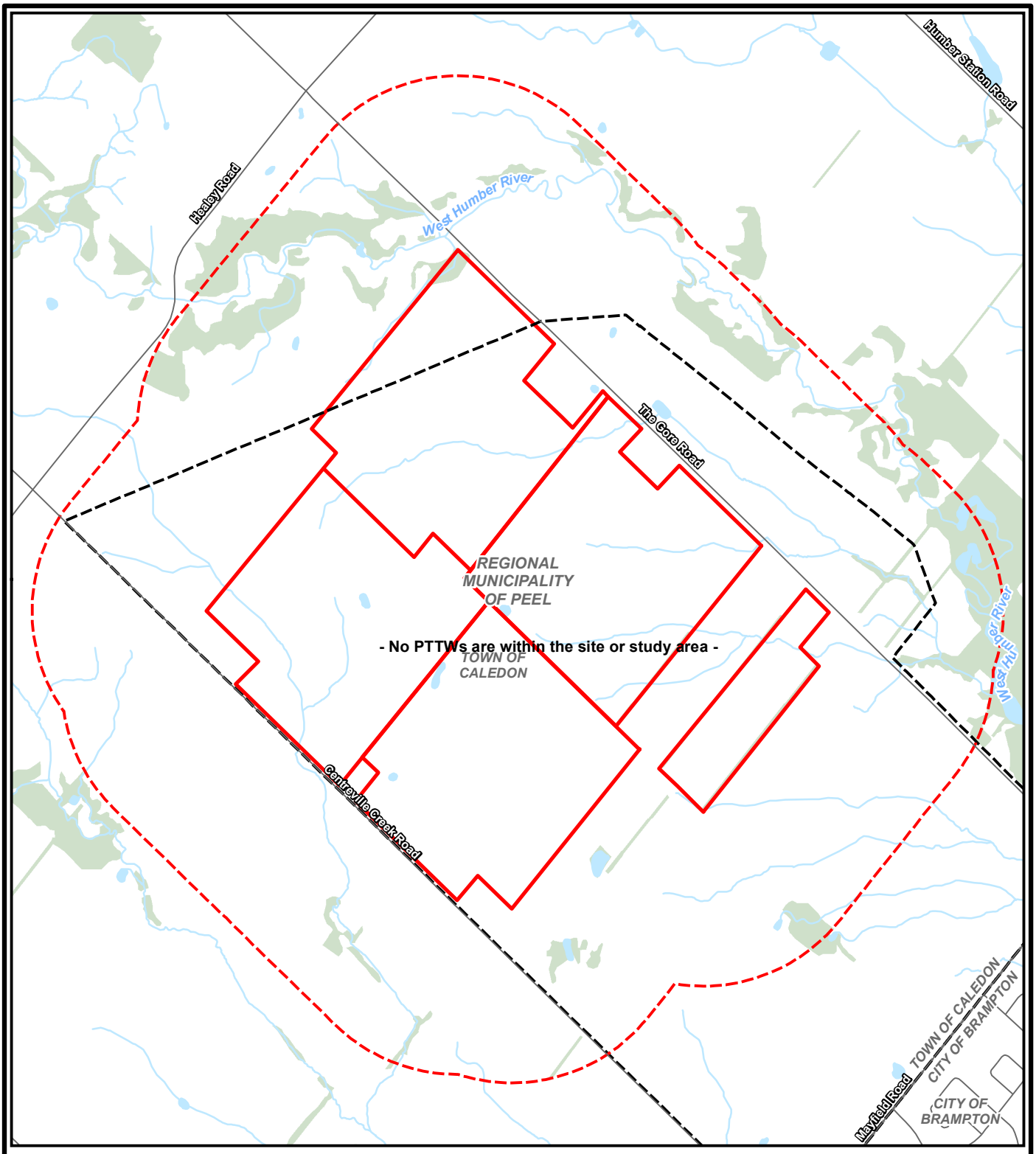
MECP WELL RECORD LOCATIONS

Project 2408195 | January 2025 | Fig. 8



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Legend

- Solmar Lands
- Wildfield Village Secondary Plan Area
- Study Area (plus approx. 500 m)
- Road
- Watercourse
- Waterbody
- Wooded Area
- MECP Permit to Take Water

N

0 200 400 m

1:16,000

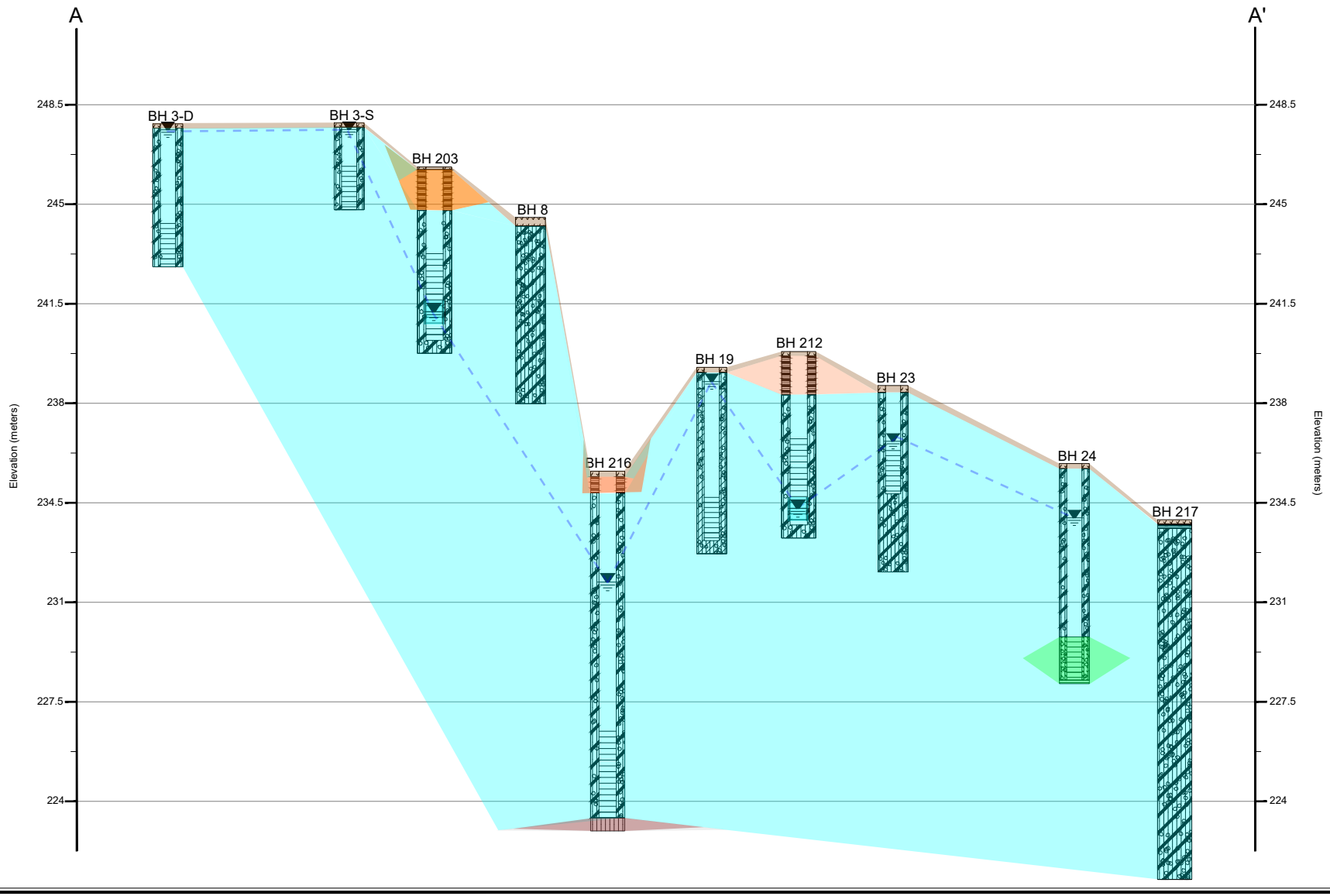
Hydrogeological Investigation
Wildfield Village – Solmar Lands
Caledon, ON

Global Properties Inc.

GEI Consultants

PTTW WELL RECORD LOCATIONS

Project 2408195 | January 2025 | Fig. 9



LEGEND:

- TOPSOIL
- CLAY AND SILT GLACIAL TILL
- CLAY AND SILT GLACIAL TILL
- SILT AND SAND GLACIAL TILL
- INFERRED SHALE BEDROCK
- WEATHERED DISTURBED SOIL
- SILT

NOTES:

Note: The stratigraphy shown is approximate only, is inferred between the borehole locations, and does not reflect an exact plan of geological change.

HORIZONTAL SCALE

N.T.S.

VERTICAL SCALE

0 1.75 3.5

METERS

WILDFIELD VILLAGE - SOLMAR LANDS HYDROGEOLOGICAL INVESTIGATION

GLOBAL PROPERTIES INC.

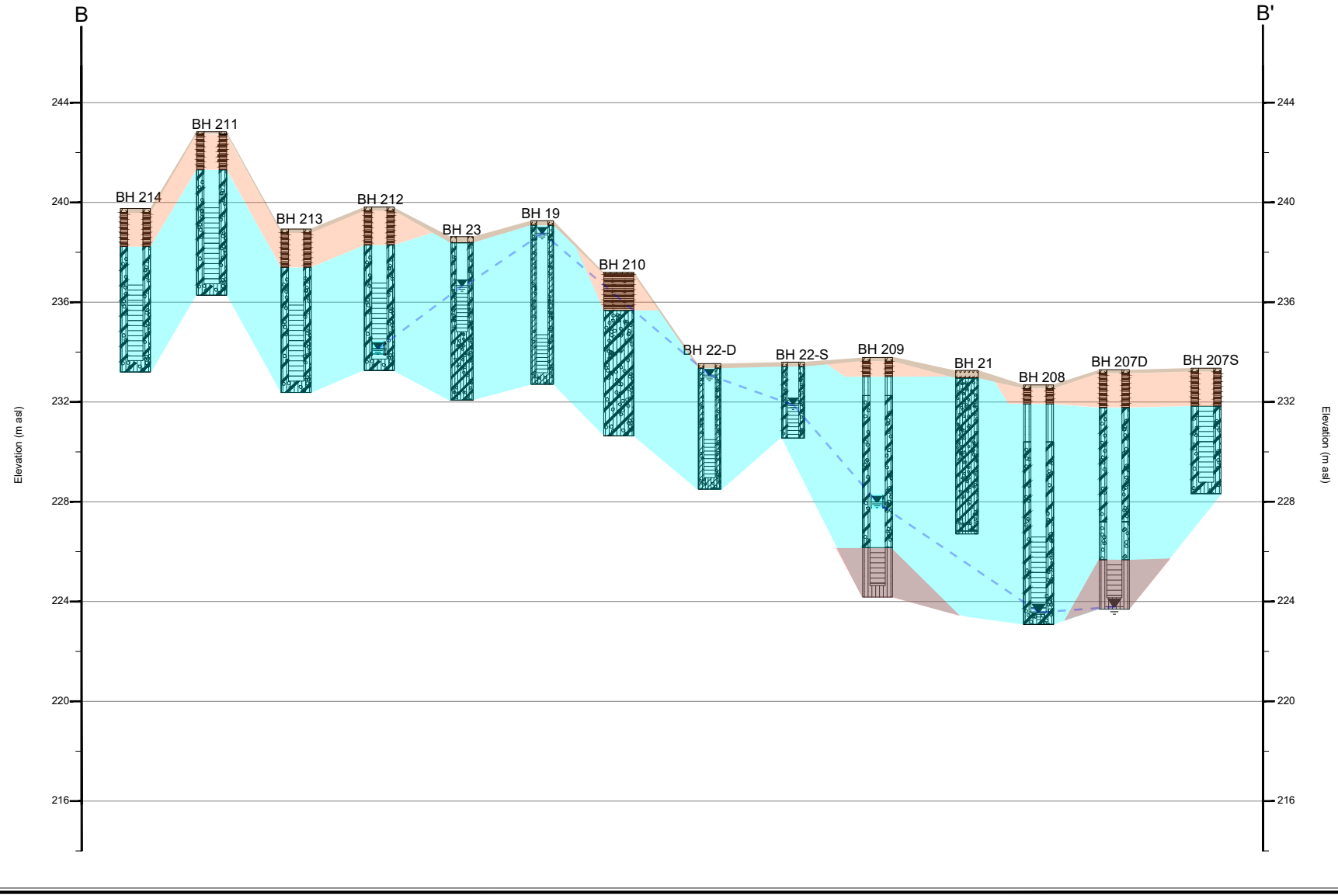
GEI Consultants

2408195

GEOLOGICAL CROSS SECTION A-A'

JAN. 2025

Fig.10



LEGEND:

- TOPSOIL
- CLAY AND SILT GLACIAL TILL
- CLAY AND SILT GLACIAL TILL
- SILT AND SAND GLACIAL TILL
- INFERRED SHALE BEDROCK
- WEATHERED/DISTURBED SOIL
- SILT

NOTES:

Note: The stratigraphy shown is approximate only, is inferred between the borehole locations, and does not reflect an exact plan of geological change.

HORIZONTAL SCALE

N.T.S.

VERTICAL SCALE

0 2 4 METERS

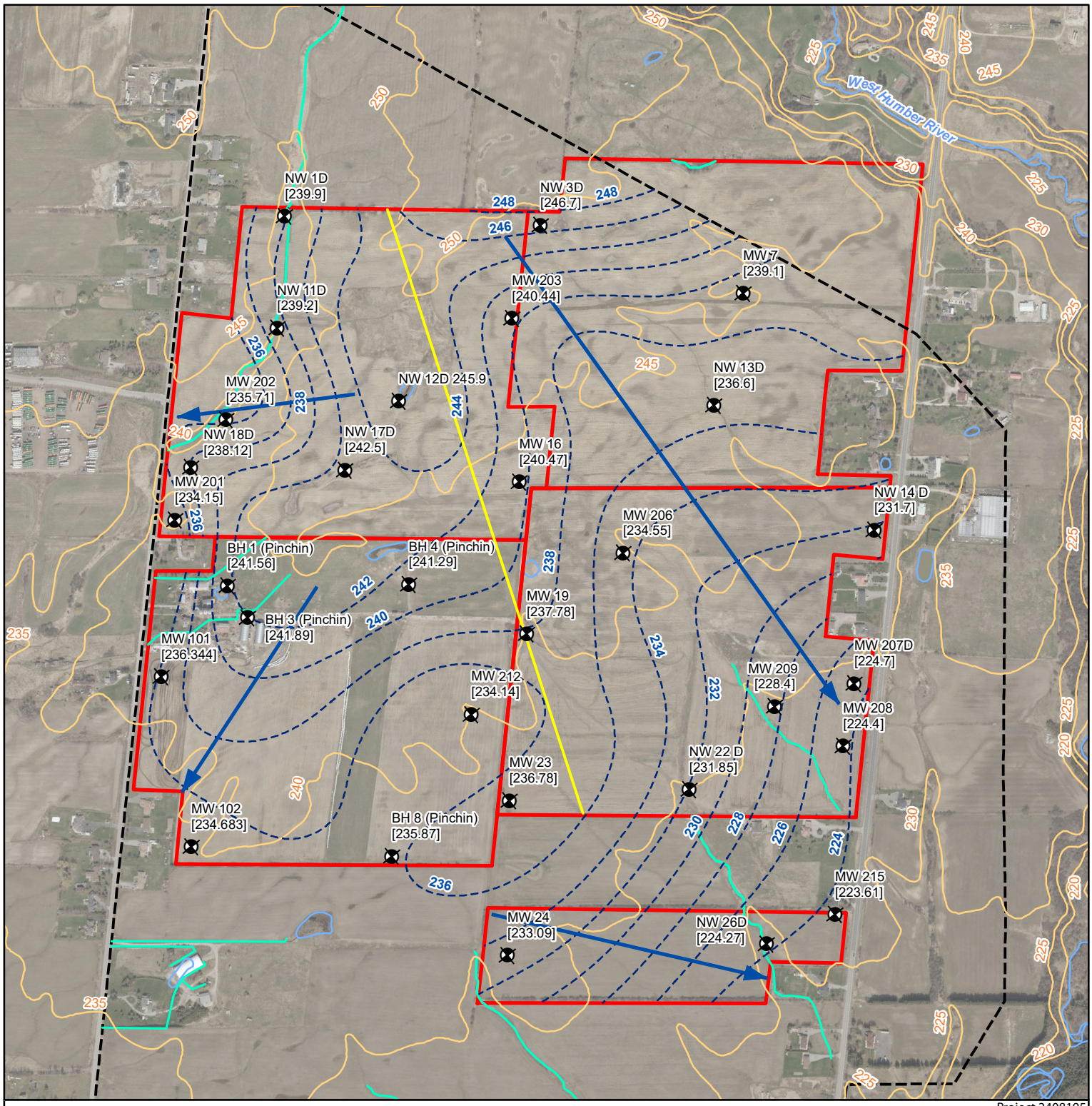
WILDFIELD VILLAGE - SOLMAR LANDS HYDROGEOLOGICAL INVESTIGATION

GLOBAL PROPERTIES INC.

GEI Consultants

GEOLOGICAL CROSS SECTION B-B'

2408195 **JAN. 2025** **Fig. 11**



NOTES:
1. Coordinate System: NAD 1983 UTM Zone 17N.
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2025; © Toronto Region Conservation Authority, 2021.
3. Orthoimagery © First Base Solutions, 2024. Imagery taken in 2022.

Legend

- Solmar Lands
- Wildfield Village Secondary Plan Area
- Waterbody
- Watercourse (TRCA)
- Confirmed Watercourse (GEI Consultants Inc.)
- Ground Surface Elevation (m asl)
- Groundwater Elevation Contours (m asl)
- [xx.xx] Groundwater Level (m asl). Measured December 16, 2024
- Interpreted Direction of Groundwater Flow
- Groundwater Flow Divide

Project 2408195

Hydrogeological Investigation
Global Properties Inc.
Wildfield Village - Solmar Lands

Figure 12
Groundwater Contour Map

0 100 m
1:10,000

GEI Consultants

Appendix A MECP Water Well Records

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
CALEDON TOWN (ALBION	17 600356 485280 8 W	2011/07 1663	30 4	UT	6///:	NU		7176513 (Z131472) A	
CALEDON TOWN (ALBION	17 601107 485428 2 W	2015/11 7230						7259857 (C32345) A194797 P	
CALEDON TOWN (ALBION CON 02 001	17 600847 485211 1 W	1975/10 1307	30	FR 0066	20/60/4 /1:0	DO		4904776 ()	BRWN LOAM 0012 GREY CLAY 0064 GRVL 0066
CALEDON TOWN (ALBION CON 02 003	17 600351 485268 4 W	1963/07 1307	30	FR 0070	30//2/:	DO		4900073 ()	BRWN LOAM 0015 GREY CLAY 0067 GRVL 0070 GREY SHLE 0071
CALEDON TOWN (ALBION CON 02 004	17 599815 485312 3 W	1978/09 3108		SA 0106	24/119/ 1/2:0			4905424 () A	LOAM 0001 BRWN CLAY 0021 GREY CLAY 0042 GREY CLAY GVLY HARD 0072 BLUE SHLE 0120
CALEDON TOWN (ALBION CON 02 004	17 599959 485306 6 W	1973/06 1307	30	FR 0072	30/70/1 /1:0	DO		4904153 ()	BRWN LOAM 0015 GREY CLAY 0070 GREY GRVL SHLE 0072
CALEDON TOWN (ALBION CON 02 004	17 599813 485310 6 W	1964/08 3512	7	FR 0100	20/100/ 1/:	NU		4900075 () A	LOAM 0001 YLLW CLAY 0009 BLUE CLAY 0057 BLUE SHLE 0110
CALEDON TOWN (ALBION CON 02 005	17 599687 485320 6 W	1964/07 3512	7 7	SA 0088	20/80/3 /0:30	ST DO		4900080 ()	LOAM 0001 YLLW CLAY 0005 BLUE CLAY 0060 BLUE SHLE 0091

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
CALEDON TOWN (ALBION CON 03 002	17 600715 4852403 W	1977/03 3814	30	FR 0080	50/82/3 /1:0	DO		4905077 ()	BRWN LOAM 0012 GREY CLAY 0080 GREY SAND WBRG 0085
CALEDON TOWN (ALBION CON 03 002	17 601001 4852211 W	1972/12 3561	7	FR 0077	40/40/5 /5:0	NU DO		4904329 ()	LOAM 0002 BRWN SAND CLAY 0035 BLUE CLAY STNS 0070 GRVL 0077
CALEDON TOWN (ALBION CON 03 002	17 600655 4852463 W	1977/03 3814	30	FR 0072	40//5/1: 0	DO		4905079 ()	BRWN LOAM 0012 GREY CLAY 0072 GREY CSND GRVL WBRG 0075
CALEDON TOWN (ALBION CON 03 002	17 601670 4853247 W	1985/07 4919	30 30	UK 0020 UK 0035	15/40// 0:30	DO		4906370 ()	BRWN LOAM HARD 0001 BRWN CLAY HARD 0020 GREY CLAY SAND PCKD 0045
CALEDON TOWN (ALBION CON 03 002	17 601719 4853194 W	1985/07 4919	30 30	UK 0020 UK 0035	15/38// 0:30	DO		4906371 ()	BRWN LOAM HARD 0001 BRWN CLAY HARD 0020 GREY CLAY SAND PCKD 0041
CALEDON TOWN (ALBION CON 03 002	17 601833 4853045 W	1975/06 3561	7	FR 0091	15/90/2 /2:0	DO		4904853 ()	LOAM 0002 BRWN CLAY 0010 BLUE CLAY 0090 GRVL 0091
CALEDON TOWN (ALBION CON 03 002	17 601811 4853138 W	1959/10 2627	18	FR 0038	24///:	DO		4900130 ()	BRWN CLAY 0023 GREY CLAY 0042
CALEDON TOWN (ALBION CON 03 002	17 601486 4853391 W	1957/08 1307	36	FR 0044	15//4/:	DO		4900128 ()	BRWN LOAM 0015 GREY CLAY STNS 0042 GREY MSND 0044

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
CALEDON TOWN (ALBION CON 03 002	17 601735 485320 3 W	1959/08 1307	30	FR 0047	22//1/:	DO		4900129 ()	BRWN LOAM 0013 GREY CLAY STNS 0045 GREY MSND 0047
CALEDON TOWN (ALBION CON 03 002	17 601499 485340 6 W	1964/11 1307	30	FR 0052	32//2/:	DO		4900131 ()	BRWN LOAM 0018 GREY CLAY 0050 GREY MSND 0052
CALEDON TOWN (ALBION CON 03 003	17 601165 485372 3 W	1976/09 1307	30	FR 0082	60/80/1 /1:0	DO		4904957 ()	BRWN LOAM 0013 GREY CLAY 0080 SAND 0082
CALEDON TOWN (ALBION CON 03 003	17 600555 485256 3 W	1977/06 3561		SA 0110 SA 0140	50/135/ 1/2:0	DO		4905154 ()	LOAM 0002 BRWN CLAY 0020 BLUE CLAY 0080 BLUE CLAY SAND 0085 GRVL SHLE 0140
CALEDON TOWN (ALBION CON 03 003	17 600315 485282 3 W	1979/10 3561	6		20/30/1 /1:30	DO		4905607 ()	LOAM 0001 BLUE CLAY 0075 BLUE SHLE 0095
CALEDON TOWN (ALBION CON 03 003	17 600365 485279 8 W	1972/11 3561	7	SA 0150	50/145/ 1/2:0	NU		4903987 () A	LOAM 0002 BLUE CLAY 0095 SHLE 0150
CALEDON TOWN (ALBION CON 03 003	17 600415 485287 3 W	1972/11 3561	7	FR 0090 FR 0100	35/80/5 /1:0	DO		4903986 ()	LOAM 0002 BRWN CLAY SAND 0030 BLUE CLAY 0090 SAND GRVL CLAY 0096 BLUE SHLE 0100
CALEDON TOWN (ALBION CON 03 003	17 600415 485272 3 W	1979/09 3561						4905608 () A	LOAM 0001 BLUE CLAY 0070 BLUE SHLE 0095

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
CALEDON TOWN (ALBION CON 03 003	17 600415 485287 3 W	1979/09 3561						4905609 () A	LOAM 0001 BLUE CLAY 0075 BLUE SHLE 0100
CALEDON TOWN (ALBION CON 03 003	17 600972 485397 2 W	1993/04 1508						4907876 (144920)	
CALEDON TOWN (ALBION CON 03 003	17 600254 485283 5 W	1993/02 1129						4907839 (144917)	
CALEDON TOWN (ALBION CON 03 003	17 601117 485367 4 W	1947/07 4823	6		10///:	ST DO		4900132 () A	CLAY STNS 0050 SHLE 0068
CALEDON TOWN (ALBION CON 03 004	17 599875 485322 3 W	1971/09 5459	30 6	FR 0090	40///:	DO		4903726 ()	LOAM 0002 BRWN CLAY 0014 BLUE CLAY 0058 GREY SHLE 0100
CALEDON TOWN (ALBION CON 03 004	17 599915 485322 3 W	1979/02 3814	30	FR 0063	25/25/2 /1:0	DO		4905531 ()	SAND GRVL 0063
CALEDON TOWN (ALBION CON 03 004	17 600879 485388 6 W	1973/06 3316	5 5	FR 0120	47/80/2 /2:0	ST DO		4904114 ()	BRWN CLAY 0010 GREY CLAY 0068 GREY CLAY 0110 BLUE SHLE STNS 0115 BLUE SHLE 0138
CALEDON TOWN (ALBION CON 03 004	17 600844 485396 7 W	1974/11 1307	30	FR 0068	45/66/1 /1:0	DO		4904523 ()	BRWN LOAM 0012 GREY CLAY 0066 GREY FSND 0068

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
CALEDON TOWN (ALBION CON 03 004	17 599895 485320 3 W	1971/09 5459	30	FR 0095	45///:	DO		4903725 ()	LOAM 0001 BRWN CLAY 0015 BLUE CLAY 0060 GREY SHLE BLDR 0085 GREY SHLE 0100
CALEDON TOWN (ALBION CON 03 004	17 599915 485320 3 W	1971/09 5459	30 6	FR 0095	45///:	DO		4903724 ()	LOAM 0001 BRWN CLAY 0015 BLUE CLAY 0055 GREY SHLE BLDR 0080 GREY SHLE 0098
CALEDON TOWN (ALBION CON 03 004	17 599855 485326 3 W	1971/05 5206	7	FR 0056	18/75/1 /6:0	DO		4903670 ()	BRWN CLAY 0012 BLUE CLAY 0055 SILT MSND GRVL 0056 BLUE SHLE 0081
CALEDON TOWN (ALBION CON 03 004	17 600372 485362 9 L	1994/02 1129						4907836 (144915)	
CALEDON TOWN (ALBION CON 03 004	17 599815 485323 9 W	2014/06 7147	35.4	FR 0008				7224480 (Z180572) A	
CALEDON TOWN (ALBION CON 03 004	17 600083 485336 3 W	2013/01 4645					0006 56	7200317 (Z159707) A	
CALEDON TOWN (ALBION CON 03 004	17 600068 485319 3 W	1962/05 1308	30	FR 0061	43///:	DO		4900133 ()	BRWN CLAY 0018 BLUE CLAY 0045 BLUE CLAY MSND 0060 BLDR GRVL 0064
CALEDON TOWN (ALBION CON 03 004	17 600768 485418 2 W	2021/11 7742						7409262 (Z354455) A312487 P	

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
CALEDON TOWN (ALBION CON 03 005	17 600073 4854164 W	1993/02 1129						4907837 (144914)	
CALEDON TOWN (ALBION CON 03 005	17 600472 4854363 W	1961/07 4823	5	FR 0100	-5/40/2/:	DO	0099 4	4900134 ()	LOAM BLDR CLAY 0012 SILT 0015 CLAY MSND 0025 BLUE CLAY 0096 GRVL CLAY 0100 GRVL 0103
CALEDON TOWN (ALBION CON 04 001	17 602006 4853047 W	7147	90	UT 0008				7315997 (Z271339) A	
CALEDON TOWN (ALBION CON 04 001	17 601894 4853117 W	1960/12 4823	4	SA 0113	80///:	NU		4900197 () A	LOAM 0004 BLUE CLAY BLDR 0020 BLUE CLAY 0077 GRVL 0081 CLAY MSND GRVL 0090 BLUE CLAY 0095 SHLE 0118
CALEDON TOWN (ALBION CON 04 001	17 602029 4853133 W	1964/10 1308	30	FR 0030	30/40/1/1:0	DO		4900202 ()	LOAM 0001 BRWN CLAY 0020 BLUE CLAY 0030 MSND 0041
CALEDON TOWN (ALBION CON 04 002	17 601815 4853273 W	1976/04 1307	30	FR 0052	20/48/4/1:0	DO		4904869 ()	BRWN LOAM 0012 GREY CLAY 0050 GREY SAND 0052
CALEDON TOWN (ALBION CON 04 003	17 601446 4853976 W	1965/12 4623	7 7	FR 0102 FR 0130	42/135/8/24:0	ST DO		4900207 ()	PRDG 0050 QSND 0060 CLAY SILT 0102 CLAY GRVL 0103 HPAN 0106 BLUE SHLE 0145
CALEDON TOWN (ALBION CON 04 004	17 600755 4854243 W	1977/07 5206	6	FR 0145	45/120/5/2:0	DO	0145 5	4905181 ()	BRWN LOAM 0002 BRWN CLAY 0019 BLUE CLAY 0028 BLUE CLAY GRVL 0034 BLUE CLAY 0037 BLUE CLAY GRVL 0060 SILT 0090 FSND DRTY 0096 SILT 0138 GRVL DRTY 0150 SHLE 0152

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
CALEDON TOWN (ALBION CON 04 004	17 600815 485442 3 W	1975/04 5206	5	FR 0150	55/145/ 3/6:0	DO	0150 3	4904898 ()	BRWN CLAY 0040 BLUE CLAY 0150 SAND 0153
CALEDON TOWN (ALBION CON 04 004	17 600755 485428 2 W	2012/12 7147	15	FR 0008				7193756 (Z142306) A	
CALEDON TOWN (ALBION CON 04 004	17 600727 485434 4 W	7147	5	UT 0040				7300071 (Z271213) A	
CALEDON TOWN (ALBION CON 04 004	17 600772 485422 3 W	1947/10 4823	5 5	FR 0160	60///:	ST DO		4900208 ()	CLAY MSND 0150 SHLE 0160
CALEDON TOWN (ALBION CON 06 027	17 599968 485330 3 W	2005/06 6607	2	16			0017 5	4909886 (Z28277) A026599	BRWN SAND GRVL 0005 GREY CLAY GRVL 0022

Appendix B Borehole Logs

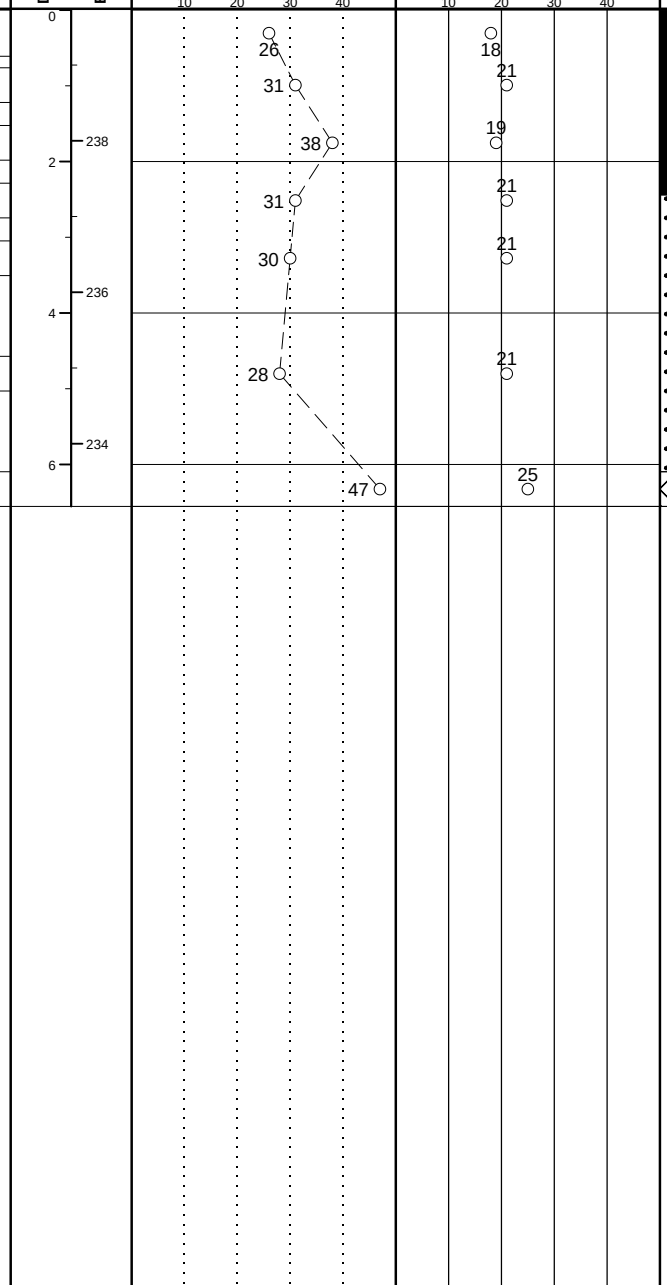
Appendix B1: GEI Support of Draft Plan of Subdivision

RECORD OF BOREHOLE No. 201

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4852895** Date Started: **Dec 06/24**
Reviewed By: **GW** Easting: **600193** Date Completed: **Dec 06/24**

Depth	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value
0.0	TOPSOIL: 100 mm	SS	1	80	26
	WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, very stiff to hard, brown to dark brown, moist	SS	2	50	31
		SS	3	100	38
	- - - Light brown - - -	SS	4	100	31
3.0					
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff to hard, light brown, moist	SS	5	100	30
		SS	6	100	28
6.6		SS	7	90	47
	Borehole Terminated at 6.6 m				



Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR | SA | SI | CL

Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Dec 16/24 at depth of: 5.6 m.
Groundwater Elevation: 234.1 m

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Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale **1 :100**

RECORD OF BOREHOLE No. 202

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4853084** Date Started: **Dec 06/24**
Reviewed By: **GW** Easting: **600107** Date Completed: **Dec 06/24**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)
0.0 / 239.3	TOPSOIL: 75 mm					0	
	WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, very stiff, brown to dark brown, moist	SS	1	80	17		
		SS	2	100	20		
1.5 / 237.8	CLAY AND SILT GLACIAL TILL: Cobbles and boulders, some sand, hard to very stiff, brown and grey to brown, wet to moist	SS	3	100	32	2	238
		SS	4	40	22		
		SS	5	100	28	4	236
		SS	6	100	28		234
	- - - Grey - - -					6	
6.6 / 232.8		SS	7	100	18		
	Borehole Terminated at 6.6 m						

FIELD TESTING: Shear Strength Testing (kPa) — Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded); 40 80 120 160. Penetration Testing — SPT; DCPT; 10 20 30 40.

LAB TESTING: Combustible Organic Vapour - Hex; Combustible Organic Vapour - IBL; Total Organic Vapour (ppm); 100 200 300 400. Atterberg Limits — PL; LL. Water Content (%); 10 20 30 40.

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%) — GR | SA | SI | CL

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Dec 16/24 at depth of: 3.6 m.
Cave depth after auger removal: Open
Groundwater Elevation: 235.7 m

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Scale **1 :100**

RECORD OF BOREHOLE No. 203

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4853616** Date Started: **Dec 06/24**
Reviewed By: **GW** Easting: **600289** Date Completed: **Dec 06/24**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)
0.0 / 246.3	TOPSOIL: 100 mm					0	246
	WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, very stiff, brown to dark brown, moist	SS	1	35	15		
1.5 / 244.8		SS	2	40	20	2	244
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard to very stiff, light brown, moist	SS	3	90	30		
		SS	4	90	34		
		SS	5	100	28	4	242
		SS	6	100	15		
	- - - Wet - -					6	240
6.6 / 239.8		SS	7	100	15		
	Borehole Terminated at 6.6 m						

FIELD TESTING
Shear Strength Testing (kPa)
× Other Test
+ Pocket Penetrometer
▲ Field Vane (Intact)
△ Field Vane (Remolded)
40 80 120 160
Penetration Testing
○ SPT ● DCPT
10 20 30 40

LAB TESTING
△ Combustible Organic Vapour - Hex
▲ Combustible Organic Vapour - IBL
◇ Total Organic Vapour (ppm)
100 200 300 400
Atterberg Limits
PL LL
○ Water Content (%)
10 20 30 40

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Dec 16/24 at depth of: 5.9 m.
Groundwater Elevation: 240.4 m

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Scale **1 :100**

RECORD OF BOREHOLE No. 204

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4853802** Date Started: **Dec 06/24**
Reviewed By: **GW** Easting: **600464** Date Completed: **Dec 06/24**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)
0.0 / 243.0	TOPSOIL: 760 mm	SS	1	20	11	0	
0.8 / 242.2	WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, very stiff to hard, brown to dark brown, moist	SS	2	30	23	2	242
		SS	3	65	33		
2.3 / 240.7	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, light brown, moist	SS	4	100	39	4	240
		SS	5	90	25		
		SS	6	90	14	6	238
6.6 / 236.4		SS	7	90	27		
	Borehole Terminated at 6.6 m						

FIELD TESTING: Shear Strength Testing (kPa) — Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded); 40 80 120 160. Penetration Testing — SPT; DCPT; 10 20 30 40.

LAB TESTING: Combustible Organic Vapour - Hex; Combustible Organic Vapour - IBL; Total Organic Vapour (ppm); 100 200 300 400. Atterberg Limits — PL; LL. Water Content (%); 10 20 30 40.

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%): GR | SA | SI | CL

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Dec 16/24 at depth of: Dry
Cave depth after auger removal: Open
Groundwater Elevation:

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Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale **1 :100**

RECORD OF BOREHOLE No. 205

GEI Consultants

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4853881** Date Started: **Dec 09/24**
Reviewed By: **GW** Easting: **600894** Date Completed: **Dec 09/24**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	FIELD TESTING (Shear Strength Testing (kPa); Penetration Testing: SPT ○, DCPT ●)	LAB TESTING (Combustible Organic Vapour - Hex △; Combustible Organic Vapour - IBL ▲; Total Organic Vapour (ppm) ◇; Atterberg Limits PL–LL; Water Content (%) ○)	Instrumentation Installation	COMMENTS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	0.0 239.0										
	0.2 238.8 TOPSOIL: 150 mm										
	WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, very stiff, brown to dark brown, moist	SS	1	100	9	0	238	9	14		
		SS	2	80	21			21	19		
	1.5 237.4								16		
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard, light brown, moist	SS	3	100	37	2		37			
		SS	4	100	47		236	47	17		
		SS	5	100	73			73 →	15		
						4					
		SS	6	100	40		234	40	15		
	- - - Very stiff - - -					6					
	6.6 232.4	SS	7	1	24			24	18		
	Borehole Terminated at 6.6 m										

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Dec 16/24 at depth of: Dry
Cave depth after auger removal: Open
Groundwater Elevation:

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Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale **1 :100**

RECORD OF BOREHOLE No. 206

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4853507** Date Started: **Dec 09/24**
Reviewed By: **GW** Easting: **600757** Date Completed: **Dec 09/24**

Depth	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	Elevation (m)
0.0						240.6
	TOPSOIL: 100 mm WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, hard, brown to dark brown, moist	SS	1	80	37	
		SS	2	65	52	
1.5						239.1
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard to very stiff, light brown, moist	SS	3	90	46	
		SS	4	100	32	
		SS	5	100	29	
	- - - Grey - - -	SS	6	1	13	
6.6		SS	7	100	25	234.1
	Borehole Terminated at 6.6 m					

Shear Strength Testing (kPa): × Other Test; + Pocket Penetrometer; ▲ Field Vane (Intact); △ Field Vane (Remolded)
Penetration Testing: ○ SPT ● DCPT

Lab Testing: △ Combustible Organic Vapour - Hex; ▲ Combustible Organic Vapour - IBL; ◇ Total Organic Vapour (ppm); Atterberg Limits (PL, LL); ○ Water Content (%)

GR	SA	SI	CL
1	7	39	53

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Dec 16/24 at depth of: 6.0 m.
Cave depth after auger removal: Open
Groundwater Elevation: 234.6 m

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RECORD OF BOREHOLE No. 207D

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4853692** Date Started: **Dec 10/24**
Reviewed By: **GW** Easting: **601213** Date Completed: **Dec 10/24**

Depth	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	Elevation (m)	GR	SA	SI	CL
0.0 / 233.3										
0.2 / 233.1	TOPSOIL: 150 mm	SS	1	60	17					
	WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, hard, brown to dark brown, moist	SS	2	100	41					
1.5 / 231.8										
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard, light brown, moist - - - Wet to moist - - -	SS	3	100	45					
		SS	4	100	34					
		SS	5	100	38					
		SS	6	100	60					
6.1 / 227.2										
	SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard, light brown, moist	SS	7	100	41					
7.6 / 225.7										
	SILT: Some clay, trace sand, very dense, grey, moist	SS	8	35	100+					
9.6 / 223.7		SS	9	30	100+		0	0	84	16
	Borehole Terminated at 9.6 m									

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Dec 16/24 at depth of: 8.6 m.
Cave depth after auger removal: Open
Groundwater Elevation: 224.7 m

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RECORD OF BOREHOLE No. 207S

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4853691** Date Started: **Dec 10/24**
Reviewed By: **GW** Easting: **61214** Date Completed: **Dec 10/24**

Depth	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value
0.0 / 233.4					
0.2 / 233.2	TOPSOIL: 150 mm	SS	1	60	17
	WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, hard, brown to dark brown, moist	SS	2	100	41
1.5 / 231.8	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard, light brown, moist	SS	3	100	45
	- - - Wet to moist - - -	SS	4	100	34
		SS	5	100	38
5.0 / 228.3		SS	6	100	60
	Borehole Terminated at 5.0 m				

DEPTH (m): 0, 2, 4
ELEVATION (m): 232, 230

FIELD TESTING
Shear Strength Testing (kPa)
× Other Test
+ Pocket Penetrometer
▲ Field Vane (Intact)
△ Field Vane (Remolded)
40 80 120 160
Penetration Testing
○ SPT ● DCPT
10 20 30 40
17 41 45 34 38 60

LAB TESTING
△ Combustible Organic Vapour - Hex
▲ Combustible Organic Vapour - IBL
◇ Total Organic Vapour (ppm)
100 200 300 400
Atterberg Limits
PL LL
○ Water Content (%)
10 20 30 40
14 16 16 17 18 16

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Dec 16/24 at depth of: Dry
Groundwater Elevation:

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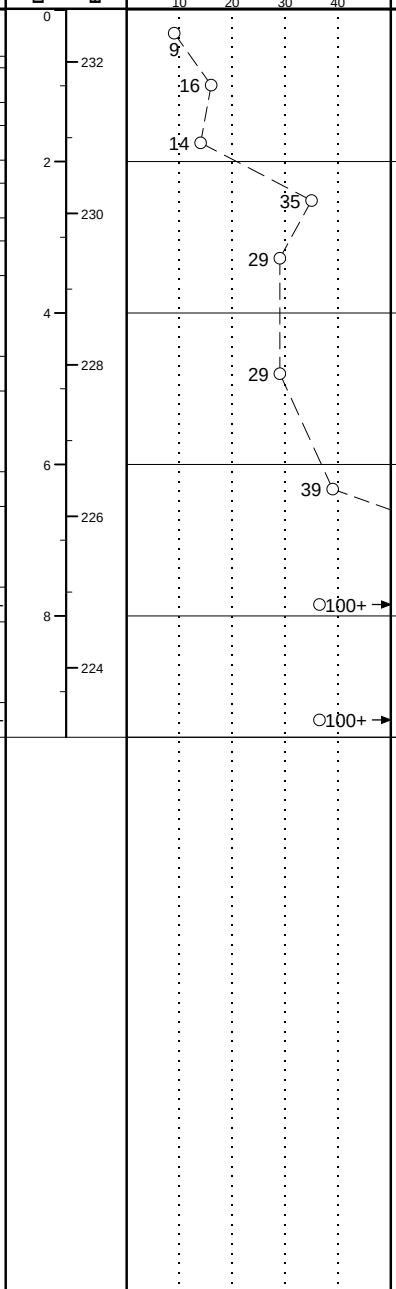
Scale **1 :100**

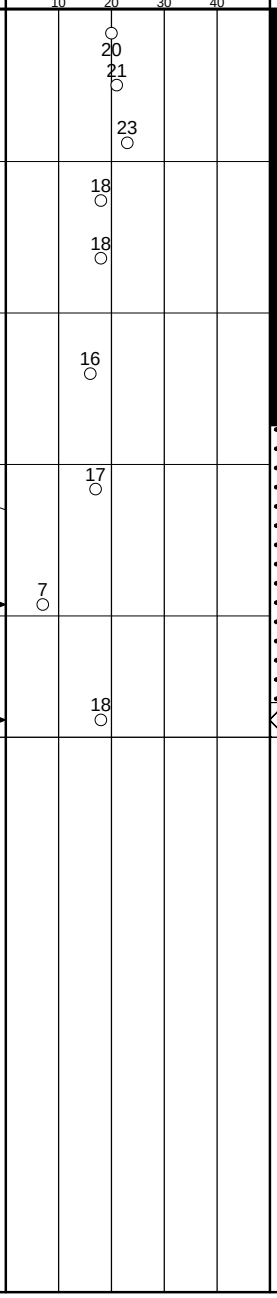
RECORD OF BOREHOLE No. 208

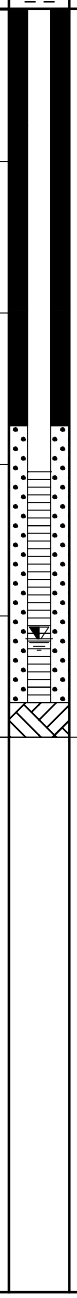
Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4853604** Date Started: **Dec 10/24**
Reviewed By: **GW** Easting: **601292** Date Completed: **Dec 10/24**

Depth	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	Elevation (m)
0.0 / 232.7						
0.2 / 232.5	TOPSOIL: 150 mm					
0.8 / 231.9	WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, very stiff, brown to dark brown, moist	SS	1	100	9	
		SS	2	80	16	
2.3 / 230.4	SILT: Trace clay, trace sand, compact, grey, dry to moist	SS	3	100	14	
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard, light brown, moist	SS	4	100	35	
		SS	5	100	29	
		SS	6	35	29	
		SS	7	100	39	
		SS	8	55	100+	
9.6 / 223.1		SS	9	45	100+	
	Borehole Terminated at 9.6 m					







GR	SA	SI	CL
1	14	43	42

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Dec 16/24 at depth of: 8.3 m.
Cave depth after auger removal: Open
Groundwater Elevation: 224.4 m

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RECORD OF BOREHOLE No. 209

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4853550** Date Started: **Dec 10/24**
Reviewed By: **GW** Easting: **601155** Date Completed: **Dec 10/24**

Depth	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	Elevation (m)
0.0 / 233.8						
0.2 / 233.6	TOPSOIL: 150 mm	SS	1	75	17	
0.8 / 233.0	WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, very stiff, brown to dark brown, moist	SS	2	85	56	
1.5 / 232.3	SILT: Trace clay, trace sand, very dense, grey, dry to moist	SS	3	90	48	232
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard, light brown, moist	SS	4	90	49	
		SS	5	100	58	
		SS	6	35	41	230
	- - - Grey - - -	SS	7	100	35	228
7.6 / 226.2	SILT: Trace to some clay, trace sand, very dense, grey, moist	SS	8	45	100+	226
9.6 / 224.2		SS	9	55	100+	
	Borehole Terminated at 9.6 m					

FIELD TESTING: Shear Strength Testing (kPa) — Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded); 40 80 120 160. Penetration Testing: SPT, DCPT; 10 20 30 40.

LAB TESTING: Combustible Organic Vapour - Hex; Combustible Organic Vapour - IBL; Total Organic Vapour (ppm); 100 200 300 400. Atterberg Limits: PL, LL. Water Content (%); 10 20 30 40.

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%): GR | SA | SI | CL

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Dec 16/24 at depth of: 5.4 m.
Cave depth after auger removal: Open
Groundwater Elevation: 228.4 m

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Scale **1 :100**

RECORD OF BOREHOLE No. 210

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4853407** Date Started: **Dec 09/24**
Reviewed By: **GW** Easting: **601012** Date Completed: **Dec 09/24**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)
	0.0 237.2						
	TOPSOIL: 75 mm WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, very stiff to hard, brown to dark brown, moist	SS	1	50	24	0	
	1.5 235.7	SS	2	55	68		236
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard, light brown, moist	SS	3	80	40	2	
		SS	4	80	46		234
		SS	5	80	37	4	
		SS	6	30	36		232
	6.6 230.6	SS	7	65	31	6	
	Borehole Terminated at 6.6 m						

FIELD TESTING
Shear Strength Testing (kPa)
× Other Test
+ Pocket Penetrometer
▲ Field Vane (Intact)
△ Field Vane (Remolded)
40 80 120 160
Penetration Testing
○ SPT ● DCPT
10 20 30 40

LAB TESTING
△ Combustible Organic Vapour - Hex
▲ Combustible Organic Vapour - IBL
◇ Total Organic Vapour (ppm)
100 200 300 400
Atterberg Limits
PL LL
○ Water Content (%)
10 20 30 40

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on:
Cave depth after auger removal: Open
Groundwater Elevation:

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RECORD OF BOREHOLE No. 211

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4852957** Date Started: **Dec 05/24**
Reviewed By: **GW** Easting: **600537** Date Completed: **Dec 05/24**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)
0.0 / 242.8	TOPSOIL: 100 mm	SS	1	100	27	0	242
	WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, very stiff to hard, brown to dark brown, moist	SS	2	100	40		
1.5 / 241.3	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard, light brown, moist	SS	3	60	45	2	240
	- - - Brown to grey - - -	SS	4	100	36		
		SS	5	100	41	4	238
	- - - Stiff - - -	SS	6	100	18		
6.6 / 236.3		SS	7	100	18	6	
	Borehole Terminated at 6.6 m						

FIELD TESTING
Shear Strength Testing (kPa)
× Other Test
+ Pocket Penetrometer
▲ Field Vane (Intact)
△ Field Vane (Remolded)
40 80 120 160
Penetration Testing
○ SPT ● DCPT
10 20 30 40

LAB TESTING
△ Combustible Organic Vapour - Hex
▲ Combustible Organic Vapour - IBL
◇ Total Organic Vapour (ppm)
100 200 300 400
Atterberg Limits
PL LL
○ Water Content (%)
10 20 30 40

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Dec 16/24 at depth of: Dry
Cave depth after auger removal: Open
Groundwater Elevation:

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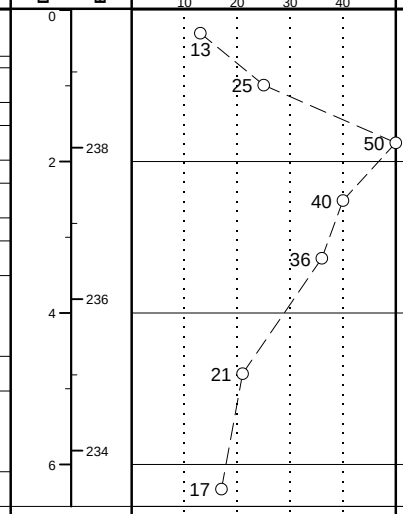
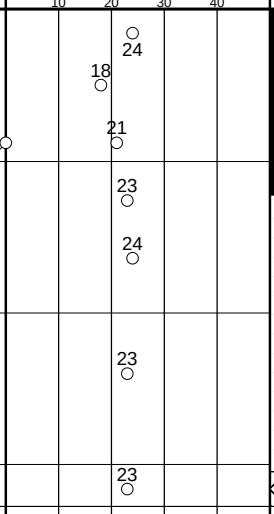
RECORD OF BOREHOLE No. 212

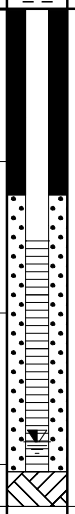
Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4853101** Date Started: **Dec 05/24**
Reviewed By: **GW** Easting: **600817** Date Completed: **Dec 05/24**

Depth	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value
0.0 / 239.8					
0.2 / 239.7	TOPSOIL: 150 mm				
	WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, stiff to very stiff, brown to dark brown, moist	SS	1	100	13
		SS	2	100	25
1.5 / 238.3	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard to very stiff, light brown, moist	SS	3	100	50
		SS	4	100	40
		SS	5	100	36
		SS	6	100	21
6.6 / 233.3		SS	7	10	17
	Borehole Terminated at 6.6 m				







Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Dec 16/24 at depth of: 5.7 m.
Cave depth after auger removal: Open
Groundwater Elevation: 234.1 m

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RECORD OF BOREHOLE No. 213

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4852776** Date Started: **Dec 05/24**
Reviewed By: **GW** Easting: **600777** Date Completed: **Dec 05/24**

Depth (m)	Elevation (m)	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value
0.0 / 0.2	238.9 / 238.8	TOPSOIL: 150 mm				
		WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, very stiff to hard, brown to dark brown, moist	SS	1	75	21
			SS	2	90	46
1.5	237.4	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard to very stiff, light brown, moist	SS	3	100	40
			SS	4	100	45
			SS	5	100	30
			SS	6	1	27
		- - - Moist to wet - - -	SS	7	100	24
6.6	232.4	Borehole Terminated at 6.6 m				

FIELD TESTING: Shear Strength Testing (kPa) — Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded); 40 80 120 160. Penetration Testing — SPT; DCPT; 10 20 30 40.

LAB TESTING: Combustible Organic Vapour - Hex; Combustible Organic Vapour - IBL; Total Organic Vapour (ppm); 100 200 300 400. Atterberg Limits — PL; LL; Water Content (%); 10 20 30 40.

COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
GR	SA	SI	CL
2	14	35	49

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on:
Cave depth after auger removal: Open
Groundwater Elevation:

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RECORD OF BOREHOLE No. 214

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4852656** Date Started: **Dec 05/24**
Reviewed By: **GW** Easting: **600572** Date Completed: **Dec 05/24**

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LITHOLOGY PROFILE		SOIL SAMPLING					FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)				
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m) / ELEVATION (m)	Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); Penetration Testing: SPT, DCPT	Combustible Organic Vapour - Hex, Combustible Organic Vapour - IBL, Total Organic Vapour (ppm); Atterberg Limits; Water Content (%)	Instrumentation Installation	GR	SA	SI	CL
	0.0 239.8 0.2 239.6 TOPSOIL: 165 mm													
	WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, very stiff to hard, brown to dark brown, moist	SS	1	80	20									
	1.5 238.2	SS	2	50	38									
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard, light brown, moist	SS	3	100	37	0 / 238								
		SS	4	100	37	2								
		SS	5	100	31	4 / 236								
	- - - Stiff, light brown to grey - - -	SS	6	90	13	6 / 234								
	6.6 233.2	SS	7	100	13									
	Borehole Terminated at 6.6 m													

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Dec 16/24 at depth of: Dry
Cave depth after auger removal: Open
Groundwater Elevation:

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RECORD OF BOREHOLE No. 215

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Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4853398** Date Started: **Dec 12/24**
Reviewed By: **GW** Easting: **601526** Date Completed: **Dec 12/24**

Depth (m)	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	Elevation (m)
0.0	TOPSOIL: 125 mm					230.0
	WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, stiff to hard, brown to dark brown, moist	SS	1	25	13	
		SS	2	55	33	
1.5						228.4
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard, light brown, moist	SS	3	100	46	
		SS	4	100	54	
		SS	5	100	37	
		SS	6	1	30	
	- - - Grey - - -	SS	7	45	100+	
	- - - Sand seams, wet - - -	SS	8	65	100+	
9.1						220.8
	SILT: Trace to some clay, trace sand, very dense, grey, moist	SS	9	20	100+	
		SS	10	20	100+	
12.6		SS	11	1	100+	217.3
	Borehole Terminated at 12.6 m					

FIELD TESTING: Shear Strength Testing (kPa) — Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded); Penetration Testing: SPT, DCPT

LAB TESTING: Combustible Organic Vapour - Hex; Combustible Organic Vapour - IBL; Total Organic Vapour (ppm); Atterberg Limits (PL, LL); Water Content (%)

Instrumentation Installation: First Water Strike SS8

COMMENTS & GRAIN SIZE DISTRIBUTION (%): GR, SA, SI, CL

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Dec 16/24 at depth of: 6.4 m.
Cave depth after auger removal: Open
Groundwater Elevation: 223.6 m

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Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale **1 :100**

RECORD OF BOREHOLE No. 216

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4853041** Date Started: **Dec 11/24**
Reviewed By: **GW** Easting: **601239** Date Completed: **Dec 11/24**

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LITHOLOGY PROFILE		SOIL SAMPLING					FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m) / ELEVATION (m)	Shear Strength Testing (kPa); Penetration Testing (SPT / DCPT)	Combustible Organic Vapour - Hex; Combustible Organic Vapour - IBL; Total Organic Vapour (ppm); Atterberg Limits; Water Content (%)	Instrumentation Installation		GR	SA	SI	CL
0.0 / 235.6	0.2 / 235.4 TOPSOIL: 205 mm					0 / 234								
	0.8 / 234.8 WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, stiff, brown to dark brown, moist	SS	1	80	14		14	20, 17						
		SS	2	90	46		46	12						
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard, light brown, moist	SS	3	100	34	2 / 232	34	19						
		SS	4	100	41		41	19						
		SS	5	100	36	4 / 230	36	13						
		SS	6	100	39		39	9						
		SS	7	45	100+	6 / 228	100+	8						
		SS	8	20	100+		100+	10		First Water Strike SS9	3	33	38	26
9.1 / 226.5	CLAYEY SILTY SAND: Trace gravel, hard, grey, very moist	SS	9	20	100+	8 / 226	100+	11						
		SS	10	20	100+	10 / 224	100+	21						
12.2 / 223.4	12.6 / 223.0 SILT: Trace to some clay, trace sand, very dense, grey, moist	SS	11	15	100+	12	100+							
	Borehole Terminated at 12.6 m													

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Dec 16/24 at depth of: 3.0 m.
Cave depth after auger removal: Open
Groundwater Elevation: 232.6 m

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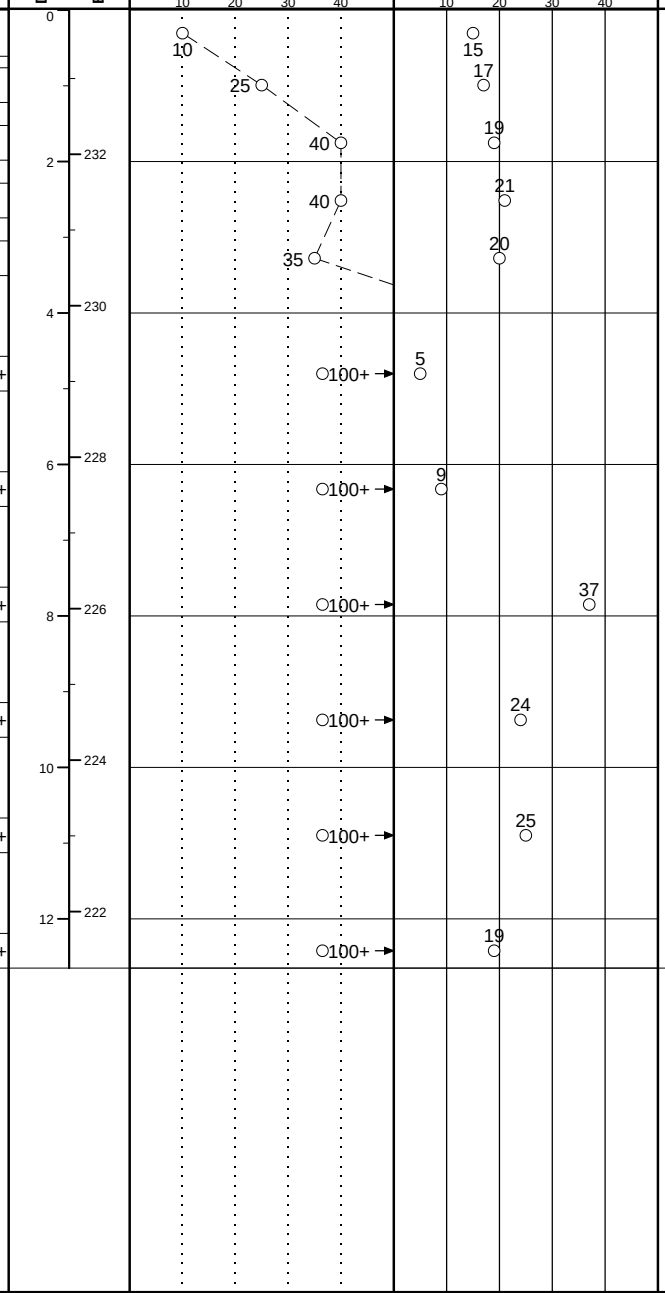
Scale **1 :100**

RECORD OF BOREHOLE No. 217

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4852798** Date Started: **Dec 11/24**
Reviewed By: **GW** Easting: **601237** Date Completed: **Dec 11/24**

Depth	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value
0.0 / 233.9					
0.3 / 233.6	TOPSOIL: 150 mm	SS	1	75	10
	WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, stiff, brown to dark brown, moist	SS	2	100	25
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff to hard, light brown, moist	SS	3	90	40
		SS	4	90	40
		SS	5	100	35
	- - - Some sand, dry - - -	SS	6	35	100+
		SS	7	35	100+
	- - - Wet - - -	SS	8	20	100+
	- - - Shale - - -	SS	9	20	100+
		SS	10	20	100+
12.6 / 221.3		SS	11	1	100+
	Borehole Terminated at 12.6 m				



Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
1	11	37	51

First Water Strike SS8

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on:
Cave depth after auger removal: Open
Groundwater Elevation:

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Scale **1 :100**
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RECORD OF BOREHOLE No. 218

Project Number: **2408195**
Project Client: **Global Properties Inc.**
Project Name: **Wildfield Village Solmar**
Project Location: **12561 Centreville Creek Rd Bolton, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark:

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **TA** Northing: **4853116** Date Started: **Dec 12/24**
Reviewed By: **GW** Easting: **601481** Date Completed: **Dec 12/24**

LITHOLOGY PROFILE		SOIL SAMPLING					FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m) / ELEVATION (m)	Shear Strength Testing (kPa); Penetration Testing (SPT ○, DCPT ●)	Atterberg Limits; Water Content (%)	Instrumentation Installation	GR	SA	SI	CL
0.0 / 230.3	TOPSOIL: 100 mm WEATHERED/DISTURBED: Clayey silt, some sand, trace gravel, inferred cobbles and boulders, stiff, brown to dark brown, moist	SS	1	35	14	0 / 230	14	15					
0.8 / 229.5		SS	2	100	39		39	15					
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard, light brown, moist	SS	3	100	50	2 / 228	50	16					
		SS	4	100	50		50	15					
		SS	5	100	50		50	17					
		SS	6	100	37	4 / 226	37	17					
	- - - Brown to grey - - -	SS	7	45	100+	6 / 224	100+	8					
7.6 / 222.7													
	SILT: Trace to some clay, trace sand, very dense, grey, moist	SS	8	35	100+	8 / 222	100+	15					
		SS	9	30	100+		100+	5					
10.7 / 219.6						10 / 220							
	SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, hard, light brown, moist	SS	10	35	100+		100+	8					
12.6 / 217.7		SS	11	10	100+	12 / 218	100+	15					
	Borehole Terminated at 12.6 m												

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Dec 16/24 at depth of: 3.3 m.
Cave depth after auger removal: Open
Groundwater Elevation: 227.0 m

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Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale **1 :100**

Appendix B2: GEI and SCS's Local Subwater Shed Study Wildfield

RECORD OF BOREHOLE No. 1-D

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **BH** Northing: **4853404** Date Started: **May 4/23**
Reviewed By: **RW** Easting: **599878.7** Date Completed: **May 4/23**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)
	Geodetic 0.0 242.3						
	TOPSOIL: 610 mm 0.6 241.7	AS	1			0	
	WEATHERED/DISTURBED Some organics, firm, brown to dark brown, moist 1.5 240.8	SS	2	100	7	1.5	241.5
	CLAY AND SILT GLACIAL TILL: Some sand, inferred cobbles and boulders, very stiff, grey, moist to wet	SS	3	100	17	3	240
		SS	4	45	24		
	- - - Stiff - - -	SS	5	100	9	4.5	238.5
	- - - Firm - - - 5.0 237.3	SS	6	100	6		
	Borehole Terminated at 5.0 m						

FIELD TESTING
Shear Strength Testing (kPa)
× Other Test
+ Pocket Penetrometer
▲ Field Vane (Intact)
△ Field Vane (Remolded)
40 80 120 160
Penetration Testing
○ SPT ● DCPT
10 20 30 40
7, 17, 24, 9, 6

LAB TESTING
△ Combustible Organic Vapour (ppm)
▲ Combustible Organic Vapour (%LEL)
◇ Total Organic Vapour (ppm)
100 200 300 400
Atterberg Limits
PL LL
○ Water Content (%)
10 20 30 40
21, 24, 25, 27, 30, 29

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
0	12	46	42

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Groundwater depth encountered on completion of drilling: 4.5 m. Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.46 m. Groundwater Elevation: 241.9 m

RECORD OF BOREHOLE No. 1-S

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **BH** Northing: **4853404** Date Started: **May 4/23**
Reviewed By: **RW** Easting: **599879.3** Date Completed: **May 4/23**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); Penetration Testing: SPT, DCPT	Combustible Organic Vapour (ppm), Combustible Organic Vapour (%LEL), Total Organic Vapour (ppm); Atterberg Limits; Water Content (%)	Instrumentation Installation	GR	SA	SI	CL
	Geodetic 0.0 242.3													
	TOPSOIL: 610 mm 0.6 241.7					0	241.5							
	WEATHERED/DISTURBED Some organics, firm, brown to dark brown, moist moist 1.5 240.8					1.5	240							
	CLAY AND SILT GLACIAL TILL: Some sand, inferred cobbles and boulders, very stiff, grey, moist to wet 3.0 239.3					3								
	Borehole Terminated at 3.0 m													

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Groundwater depth encountered on completion of drilling:
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.57 m.
Groundwater Elevation: 241.7 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

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RECORD OF BOREHOLE No. 2

Project Number:	**2100463**						
Project Client:	**Wildfield Village Landowners Group Inc.**						
Project Name:	**Wildfield Village**	Drilling Method:	**Solid Stem Augers**			Drilling Machine:	**Track Mount**
Project Location:	**Town of Caledon, ON**	Logged By:	**BH**	Northing:	**4853574**	Date Started:	**May 4/23**
Drilling Location:	**See Borehole Location Plan**	Reviewed By:	**RW**	Easting:	**600090.9**	Date Completed:	**May 4/23**
Local Benchmark:	**Geodetic**						

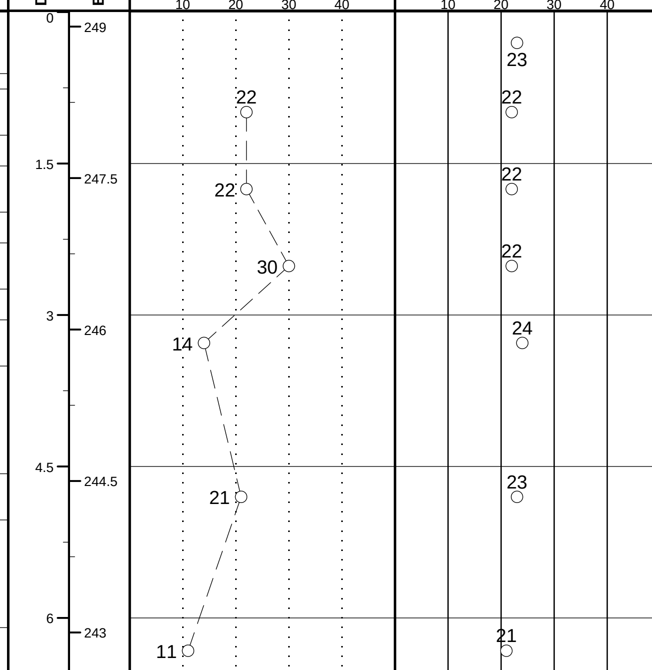
Depth (m) / Elev. (m)	Description (Geodetic)	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	Water Content (%)
0.0 / 249.1 – 0.1 / 249.0	TOPSOIL: 130 mm					
0.1 / 249.0 – 0.8 / 248.4	WEATHERED/DISTURBED Trace organics, brown, moist	AS	1			23
0.8 / 248.4	CLAY AND SILT GLACIAL TILL: Some sand trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	22	22
		SS	3	100	22	22
		SS	4	100	30	22
	- - - Stiff - - -	SS	5	100	14	24
	- - - Very stiff - - -	SS	6	100	21	23
6.6 / 242.6	- - - Stiff - - -	SS	7	100	11	21
	Borehole Terminated at 6.6 m					

FIELD TESTING — Shear Strength Testing (kPa): × Other Test; + Pocket Penetrometer; ▲ Field Vane (Intact); △ Field Vane (Remolded); 40, 80, 120, 160. Penetration Testing: ○ SPT ● DCPT; 10, 20, 30, 40

LAB TESTING — △ Combustible Organic Vapour (ppm); ▲ Combustible Organic Vapour (%LEL); ◇ Total Organic Vapour (ppm); 100, 200, 300, 400. Atterberg Limits: PL — LL; ○ Water Content (%); 10, 20, 30, 40

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%): GR | SA | SI | CL



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Groundwater depth encountered on completion of drilling: Dry

Cave depth after auger removal: Open

Groundwater depth observed on:

Groundwater Elevation:

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

RECORD OF BOREHOLE No. 3-D

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853765** Date Started: **May 3/23**
Reviewed By: **RW** Easting: **600186.9** Date Completed: **May 3/23**

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LITHOLOGY PROFILE		SOIL SAMPLING					FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m) / ELEVATION (m)	Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); Penetration Testing: SPT, DCPT	Combustible Organic Vapour (ppm), Combustible Organic Vapour (%LEL), Total Organic Vapour (ppm); Atterberg Limits; Water Content (%)	Instrumentation Installation	GR	SA	SI	CL
	Geodetic 0.0 / 247.8												
	0.2 / 247.7 TOPSOIL: 150 mm					0 / 247.5							
	WEATHERED/DISTURBED Stiff, brown, moist 0.6 / 247.2	SS	1	50	8		8	25					
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	17		17	20					
		SS	3	100	21	1.5 / 246	21	20		0	3	41	56
		SS	4	100	22		22	20					
	- - - Grey/brown/orange - - -	SS	5	100	20	3 / 244.5	20	20					
	- - - Stiff, grey, moist to wet - - - 5.0 / 242.8	SS	6	65	12	4.5 / 243	12	18					
	Borehole Terminated at 5.0 m												

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.21 m.
Groundwater Elevation: 247.6 m

RECORD OF BOREHOLE No. 3-S

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4863764** Date Started: **May 3/23**
Reviewed By: **RW** Easting: **600186.9** Date Completed: **May 3/23**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); Penetration Testing: SPT, DCPT	Combustible Organic Vapour (ppm), Combustible Organic Vapour (%LEL), Total Organic Vapour (ppm); Atterberg Limits; Water Content (%)	Instrumentation Installation	GR	SA	SI	CL
	Geodetic 0.0 247.9													
	0.2 247.7 TOPSOIL: 150 mm					0	247.5							
	WEATHERED/DISTURBED Stiff, brown, moist 0.6 247.3													
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist					1.5	246							
	3.0 244.8					3								
	Borehole Terminated at 3.0 m													

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.23 m.
Groundwater Elevation: 247.6 m

RECORD OF BOREHOLE No. 4-D

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4854033** Date Started: **May 3/23**
Reviewed By: **RW** Easting: **600270.7** Date Completed: **May 3/23**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	FIELD TESTING	LAB TESTING	Instrumentation Installation	COMMENTS & GRAIN SIZE DISTRIBUTION (%) GR	SA	SI	CL
	Geodetic 0.0 246.3							Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); 40 80 120 160; Penetration Testing: SPT, DCPT; 10 20 30 40	Combustible Organic Vapour (ppm), Combustible Organic Vapour (%LEL), Total Organic Vapour (ppm); 100 200 300 400; Atterberg Limits: PL, LL; Water Content (%); 10 20 30 40					
	0.2 246.2 TOPSOIL: 150 mm					0	246							
	WEATHERED/DISTURBED Firm, mottled brown, moist	SS	1	100	6			6	14					
	0.8 245.5 CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	23			23	18					
		SS	3	100	27	1.5	244.5	27	18					
		SS	4	100	21			21	21					
		SS	5	100	19	3	243	19	21					
	4.6 241.7 SILTY SAND GLACIAL TILL: Some clay, some gravel, inferred cobbles and boulders, compact, brown, moist	SS	6	100	20	4.5	241.5	20	19		12	41	34	13
	5.0 241.3 Borehole Terminated at 5.0 m													

Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.68 m.
Groundwater Elevation: 245.6 m

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RECORD OF BOREHOLE No. 4-S

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4854033** Date Started: **May 3/23**
Reviewed By: **RW** Easting: **600270** Date Completed: **May 3/23**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); Penetration Testing: SPT, DCPT	Combustible Organic Vapour (ppm), Combustible Organic Vapour (%LEL), Total Organic Vapour (ppm); Atterberg Limits; Water Content (%)	Instrumentation Installation	GR	SA	SI	CL
	Geodetic 0.0 246.4													
	0.2 246.2 TOPSOIL: 150 mm					0	246							
	WEATHERED/DISTURBED Firm, mottled brown, moist													
	0.8 245.6 CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist					1.5	244.5							
	3.0 243.3 Borehole Terminated at 3.0 m					3								

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.69 m.
Groundwater Elevation: 245.7 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

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RECORD OF BOREHOLE No. 5

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4854286** Date Started: **May 3/23**
Reviewed By: **RW** Easting: **600502.1** Date Completed: **May 3/23**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	FIELD TESTING (Shear Strength Testing (kPa); Penetration Testing SPT/DCPT)	LAB TESTING (Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm); Atterberg Limits; Water Content (%))	Instrumentation Installation	COMMENTS & GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
Geodetic 0.0	241.7										
0.2	241.6 TOPSOIL: 150 mm										
	WEATHERED/DISTURBED Trace organics, firm, brown, moist	SS	1	100	7	0	241.5	7	19		
0.8	240.9										
	CLAY AND SILT GLACIAL TILL: Some sand trace gravel, inferred cobbles and boulders, very stiff to hard, brown, moist	SS	2	100	20			20	16		
		SS	3	100	33	1.5	240	33	16		
		SS	4	100	36			36	16		
		SS	5	100	28	3	238.5	28	15		
	- - - Grey - - -	SS	6	100	19	4.5	237	19	15		
6.1	235.6										
	SILTY SAND GLACIAL TILL: Trace gravel, inferred cobbles and boulders, hard, brown, wet	SS	7	100	78	6	235.5	78	19		
	- - - Grey - - -	SS	8	100	46	7.5	234	46	10		
8.1	233.6										
	Borehole Terminated at 8.1 m										

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 3.33 m.
Groundwater Elevation: 238.4 m

RECORD OF BOREHOLE No. 6

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4854174** Date Started: **May 3/23**
Reviewed By: **RW** Easting: **600721.2** Date Completed: **May 3/23**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	FIELD TESTING (Shear Strength Testing (kPa); Penetration Testing)	LAB TESTING (Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm); Atterberg Limits; Water Content (%))	Instrumentation Installation	COMMENTS & GRAIN SIZE DISTRIBUTION (%) GR	SA	SI	CL
	Geodetic 0.0 240.2													
	TOPSOIL: 305 mm 0.3 239.9					0	240							
	WEATHERED/DISTURBED Trace organics, firm, brown, moist 0.8 239.4	SS	1	100	5			5	17					
	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff to hard, brown with grey, moist	SS	2	100	21			21	16					
		SS	3	100	26	1.5	238.5	26	16					
		SS	4	100	31			31	17					
	- - - Grey/brown - - -	SS	5	100	29	3	237	29	19					
	- - - Grey - - -	SS	6	100	21	4.5	235.5	21	17					
	6.6 233.6	SS	7	100	27	6	234	27	17		2	14	43	41
	Borehole Terminated at 6.6 m													

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Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on:
Cave depth after auger removal: Open
Groundwater Elevation:

RECORD OF BOREHOLE No. 7

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853981** Date Started: **May 2/23**
Reviewed By: **RW** Easting: **600519.4** Date Completed: **May 2/23**

Geodetic	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)
0.0 / 243.6	TOPSOIL: 75 mm					0	243
	WEATHERED/DISTURBED Firm, mottled brown, moist	SS	1	100	6		
0.8 / 242.9	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	26	1.5	241.5
	- - - Brown/grey - - -	SS	3	100	24		
		SS	4	100	22	3	240
	- - - Grey - - -	SS	5	100	17		
	- - - Stiff - - -	SS	6	100	11	4.5	238.5
6.6 / 237.1		SS	7	100	13	6	
	Borehole Terminated at 6.6 m						

FIELD TESTING: Shear Strength Testing (kPa) — Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded); 40 80 120 160. Penetration Testing — SPT; DCPT; 10 20 30 40.

LAB TESTING: Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm); 100 200 300 400. Atterberg Limits — PL; LL. Water Content (%); 10 20 30 40.

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%) — GR | SA | SI | CL

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 2.42 m.
Groundwater Elevation: 241.2 m

RECORD OF BOREHOLE No. 8

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853630** Date Started: **May 3/23**
Reviewed By: **RW** Easting: **600390.2** Date Completed: **May 3/23**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)
	Geodetic 0.0 244.5						
	TOPSOIL: 305 mm 0.3 244.2	SS	1	100	7	0	244.5
	WEATHERED/DISTURBED Firm, mottled brown, moist 0.8 243.8						
	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	22		
	- - - Brown/grey - - -	SS	3	100	19	1.5	243
		SS	4	100	26		
	- - - Grey - - -	SS	5	65	16	3	241.5
	- - - Stiff - - -	SS	6	100	9	4.5	240
	6.6 238.0	SS	7	100	13	6	238.5
	Borehole Terminated at 6.6 m						

FIELD TESTING
Shear Strength Testing (kPa)
× Other Test
+ Pocket Penetrometer
▲ Field Vane (Intact)
△ Field Vane (Remolded)
40 80 120 160
Penetration Testing
○ SPT ● DCPT
10 20 30 40

LAB TESTING
△ Combustible Organic Vapour (ppm)
▲ Combustible Organic Vapour (%LEL)
◇ Total Organic Vapour (ppm)
100 200 300 400
Atterberg Limits
PL LL
○ Water Content (%)
10 20 30 40

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

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Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on:
Cave depth after auger removal: Open
Groundwater Elevation:

RECORD OF BOREHOLE No. 9

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **BH** Northing: **4853378** Date Started: **May 4/23**
Reviewed By: **RW** Easting: **600167.6** Date Completed: **May 4/23**

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LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING		LAB TESTING			COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); Penetration Testing: SPT, DCPT		Combustible Organic Vapour (ppm), Combustible Organic Vapour (%LEL), Total Organic Vapour (ppm); Atterberg Limits: PL, LL; Water Content (%)		Instrumentation Installation	GR	SA	SI	CL
	Geodetic 0.0 246.4															
	0.2 246.2 TOPSOIL: 150 mm					0	246									
	WEATHER/DISTURBED Brown, moist	AS	1							21						
	0.8 245.6 CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	23			23		19						
		SS	3	30	24	1.5	244.5	24		19						
		SS	4	100	23			23		19						
		SS	5	100	21	3	243	21		20						
		SS	6	100	17	4.5	241.5	17		22						
	- - - Stiff - - -	SS	7	100	13	6	240	13		21						
	6.6 239.8 Borehole Terminated at 6.6 m															

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on:
Cave depth after auger removal: Open
Groundwater Elevation:

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RECORD OF BOREHOLE No. 10

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **BH** Northing: **4853146** Date Started: **May 4/23**
Reviewed By: **RW** Easting: **599933.4** Date Completed: **May 4/23**

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LITHOLOGY PROFILE		SOIL SAMPLING					FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m) / ELEVATION (m)	Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); Penetration Testing: SPT, DCPT	Combustible Organic Vapour (ppm), Combustible Organic Vapour (%LEL), Total Organic Vapour (ppm); Atterberg Limits; Water Content (%)	Instrumentation Installation	GR	SA	SI	CL
	Geodetic 0.0 / 244.9												
	0.2 / 244.7 TOPSOIL: 150 mm					0 / 244.5							
	WEATHERED/DISTURBED Mottled brown, moist	AS	1					23					
	0.8 / 244.1 CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	23		23	21					
		SS	3	100	24	1.5 / 243	24	22					
		SS	4	100	23		23	22					
		SS	5	100	21	3 / 241.5	21	23					
		SS	6	100	17	4.5 / 240	17	25					
	- - - Stiff, grey - - -	SS	7	100	13	6 / 238.5	13						
	6.6 / 238.3 Borehole Terminated at 6.6 m												

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Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on:
Cave depth after auger removal: Open
Groundwater Elevation:

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

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RECORD OF BOREHOLE No. 11-D

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **BH** Northing: **4853264** Date Started: **May 4/23**
Reviewed By: **RW** Easting: **600032.8** Date Completed: **May 4/23**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	FIELD TESTING	LAB TESTING	Instrumentation Installation	COMMENTS & GRAIN SIZE DISTRIBUTION (%)
	Geodetic 0.0 240.8							Shear Strength Testing (kPa): Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded) 40 80 120 160. Penetration Testing: SPT, DCPT 10 20 30 40	Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm) 100 200 300 400. Atterberg Limits: PL, LL. Water Content (%) 10 20 30 40		GR SA SI CL
	TOPSOIL: 610 mm 0.6 240.2	AS	1			0	240		34		
	WEATHERED/DISTURBED Stiff, darkbrown to brown, moist	SS	2	100	12			12	25		
	1.5 239.2					1.5	238.5				
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	3	100	19			19	19		0 8 43 49
		SS	4	100	28			28	18		
		SS	5	100	19	3	237	19	21		
	- - - Brown to grey - - -	SS	6	100	22	4.5	235.5	22	22		
	- - - Stiff, grey - - - 6.6 234.2	SS	7	100	12	6		12	20		
	Borehole Terminated at 6.6 m										

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 3.44 m.
Groundwater Elevation: 237.3 m

RECORD OF BOREHOLE No. 11-S

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **BH** Northing: **4853265** Date Started: **May 4/23**
Reviewed By: **RW** Easting: **600032.8** Date Completed: **May 4/23**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING		LAB TESTING			COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); 40 80 120 160; Penetration Testing: SPT, DCPT; 10 20 30 40		Combustible Organic Vapour (ppm), Combustible Organic Vapour (%LEL), Total Organic Vapour (ppm); 100 200 300 400; Atterberg Limits: PL, LL; Water Content (%); 10 20 30 40		Instrumentation Installation	GR	SA	SI	CL
	Geodetic 0.0 240.7															
	TOPSOIL: 610 mm					0										
	0.6 240.1						240									
	WEATHERED/DISTURBED Stiff, dark brown to brown, moist															
	1.5 239.2					1.5										
	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist						238.5									
	3.0 237.7					3										
	Borehole Terminated at 3.0 m															

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.43 m.
Groundwater Elevation: 240.3 m

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

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RECORD OF BOREHOLE No. 12-D

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **BH** Northing: **4853356** Date Started: **May 4/23**
Reviewed By: **RW** Easting: **600278.6** Date Completed: **May 4/23**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	FIELD TESTING	LAB TESTING	Instrumentation Installation	COMMENTS & GRAIN SIZE DISTRIBUTION (%)
	Geodetic 0.0 / 246.8							Shear Strength Testing (kPa): × Other Test; + Pocket Penetrometer; ▲ Field Vane (Intact); △ Field Vane (Remolded); 40 80 120 160. Penetration Testing: ○ SPT ● DCPT; 10 20 30 40	△ Combustible Organic Vapour (ppm); ▲ Combustible Organic Vapour (%LEL); ◇ Total Organic Vapour (ppm); 100 200 300 400. Atterberg Limits: PL — LL; ○ Water Content (%); 10 20 30 40		GR SA SI CL
	TOPSOIL/PEAT: 760 mm 0.8 / 246.0	AS	1			0	246		42		
	SILT AND ORGANICS: Roots, trace clay, firm, black/grey, moist 1.5 / 245.2	SS	2	100	6	1.5	244.5	6	47		
	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, stiff to very stiff, brown, moist	SS	3	100	9			9	21		
		SS	4	100	13	3	243	13	21		
	- - - Grey - - -	SS	5	100	15			15	22		
	5.0 / 241.7	SS	6	100	9	4.5		9	23		
	Borehole Terminated at 5.0 m										

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.53 m.
Groundwater Elevation: 246.2 m

RECORD OF BOREHOLE No. 12-S

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **BH** Northing: **4853356** Date Started: **May 4/23**
Reviewed By: **RW** Easting: **600278.4** Date Completed: **May 4/23**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); Penetration Testing: SPT, DCPT	Combustible Organic Vapour (ppm), Combustible Organic Vapour (%LEL), Total Organic Vapour (ppm); Atterberg Limits; Water Content (%)	Instrumentation Installation	GR	SA	SI	CL
	Geodetic 0.0 246.8													
	TOPSOIL/PEAT: 760 mm 0.8 246.1					0	246							
	SILT AND ORGANICS: Roots, trace clay, firm, black/grey, moist 1.5 245.3					1.5	244.5							
	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, stiff to very stiff, brown, moist 3.0 243.8					3								
	Borehole Terminated at 3.0 m													

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.53 m.
Groundwater Elevation: 246.3 m

RECORD OF BOREHOLE No. 13-D

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853809** Date Started: **May 2/23**
Reviewed By: **RW** Easting: **600648.2** Date Completed: **May 2/23**

Geodetic	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	Depth (m)	Elevation (m)
0.0 / 240.1						0	240
0.2 / 239.9	TOPSOIL: 205 mm						
	WEATHERED/DISTURBED Firm, mottled brown, moist	SS	1	100	5		
0.8 / 239.4	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	23	1.5	238.5
	- - - Grey/brown to brown - - -	SS	3	100	26		
		SS	4	100	27	3	237
		SS	5	100	28		
5.0 / 235.1		SS	6	100	30	4.5	235.5
	Borehole Terminated at 5.0 m						

FIELD TESTING: Shear Strength Testing (kPa) — Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded); 40 80 120 160
Penetration Testing: SPT; DCPT; 10 20 30 40

Depth (m)	SPT	DCPT
0	5	
1.5	23	26
3	27	28
4.5		30

LAB TESTING: Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm); 100 200 300 400
Atterberg Limits: PL — LL; Water Content (%); 10 20 30 40

Depth (m)	Water Content (%)
0	21
1.5	18
3	17
4.5	17
	17

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.66 m.
Groundwater Elevation: 239.5 m

RECORD OF BOREHOLE No. 13-S

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853809** Date Started: **May 2/23**
Reviewed By: **RW** Easting: **600647.6** Date Completed: **May 2/23**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)
	Geodetic 0.0 240.1					0	240
	0.2 TOPSOIL: 205 mm 239.9						
	WEATHERED/DISTURBED Firm, mottled brown, moist 0.8 239.4					1.5	238.5
	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist						
	- - - Grey/brown to brown - - -						
	3.0 237.1					3	
	Borehole Terminated at 3.0 m						

FIELD TESTING
Shear Strength Testing (kPa)
× Other Test
+ Pocket Penetrometer
▲ Field Vane (Intact)
△ Field Vane (Remolded)
40 80 120 160
Penetration Testing
○ SPT ● DCPT
10 20 30 40

LAB TESTING
△ Combustible Organic Vapour (ppm)
▲ Combustible Organic Vapour (%LEL)
◇ Total Organic Vapour (ppm)
100 200 300 400
Atterberg Limits
PL LL
○ Water Content (%)
10 20 30 40

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.62 m.
Groundwater Elevation: 239.5 m

RECORD OF BOREHOLE No. 14-D

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853898** Date Started: **May 2/23**
Reviewed By: **RW** Easting: **601014** Date Completed: **May 2/23**

Geodetic	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	FIELD TESTING	LAB TESTING	Instrumentation Installation	COMMENTS & GRAIN SIZE DISTRIBUTION (%)
0.0 / 234.7						0		Shear Strength Testing (kPa): Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded) 40 80 120 160	Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm) 100 200 300 400		GR SA SI CL
0.2 / 234.6	TOPSOIL: 180 mm										
	WEATHERED/DISTURBED Soft, mottled brown, moist	SS	1	100	4			4	23		
0.8 / 234.0	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	18	1.5	234	18	15		
	- - - Hard - - -	SS	3	100	33		232.5	33	16		
		SS	4	100	42	3		42	16		
	- - - Some gravel - - -	SS	5	100	37		231	37	16		
4.7 / 230.0		SS	6	100	100+	4.5		100+	13		Spoon bouncing
	Borehole Terminated at 4.7 m										

Penetration Testing: SPT ○ DCPT ● 10 20 30 40
Atterberg Limits: PL ——— LL; Water Content (%) ○ 10 20 30 40

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.52 m.
Groundwater Elevation: 234.2 m

RECORD OF BOREHOLE No. 14-S

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853899** Date Started: **May 2/23**
Reviewed By: **RW** Easting: **601014.4** Date Completed: **May 2/23**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING		LAB TESTING			COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); 40 80 120 160; Penetration Testing: SPT, DCPT; 10 20 30 40		Combustible Organic Vapour (ppm), Combustible Organic Vapour (%LEL), Total Organic Vapour (ppm); 100 200 300 400; Atterberg Limits: PL, LL; Water Content (%); 10 20 30 40		Instrumentation Installation	GR	SA	SI	CL
	Geodetic 0.0 234.8															
	0.2 234.6 TOPSOIL: 180 mm					0										
	WEATHERED/DISTURBED Soft, mottled brown, moist stiff, grey/ 0.8 234.0 brown/white, moist						234									
	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist - - - Hard - - -					1.5	232.5									
	3.0 231.7					3										
	Borehole Terminated at 3.0 m - - - Some gravel - - -															

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 1.49 m.
Groundwater Elevation: 233.3 m

RECORD OF BOREHOLE No. 15

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **BH** Northing: **4853612** Date Started: **May 3/23**
Reviewed By: **RW** Easting: **600658.4** Date Completed: **May 3/23**

LITHOLOGY PROFILE		SOIL SAMPLING					FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m) / ELEVATION (m)	Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); Penetration Testing: SPT, DCPT	Combustible Organic Vapour (ppm), Combustible Organic Vapour (%LEL), Total Organic Vapour (ppm); Atterberg Limits: PL, LL; Water Content (%)	Instrumentation Installation		GR	SA	SI	CL
	Geodetic 0.0 241.9													
	0.3 241.6 TOPSOIL: 305 mm	SS	1	100	6	0 / 241.5	6	21						
	0.8 241.1 WEATHERED/DISTURBED Firm, mottled brown, moist	SS	2	100	26		26	19						
	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	3	100	23	1.5 / 240	23	18						
	- - - Light grey - - -	SS	4	100	23		23	20						
		SS	5	100	20	3 / 238.5	20	21						
	- - - Firm, grey - - -	SS	6	5	6	4.5 / 237	6	20						
	6.6 235.3	SS	7	100	7	6 / 235.5	7	18						
	Borehole Terminated at 6.6 m													

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Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on:
Cave depth after auger removal: Open
Groundwater Elevation:

RECORD OF BOREHOLE No. 16

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853438** Date Started: **May 3/23**
Reviewed By: **RW** Easting: **600534.7** Date Completed: **May 3/23**

Geodetic	Depth (m)	Elevation (m)
0.0	0	242.7
0.3	0.3	242.4
0.8	0.8	242.0
1.5	1.5	241.5
3	3	240
4.5	4.5	238.5
6	6	237
6.6	6.6	236.2

Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	Field Testing (Penetration Testing: SPT / DCPT)	Lab Testing (Water Content (%))
TOPSOIL: 305 mm	SS	1	50	7	7	22
WEATHERED/DISTURBED Firm, brown, moist						
CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	22	22	18
	SS	3	100	26	26	20
- - - Brown to grey - - -	SS	4	100	26	26	20
	SS	5	100	22	22	22
- - - Stiff, grey - - -	SS	6	100	10	10	22
	SS	7	35	10	10	21
Borehole Terminated at 6.6 m						

Shear Strength Testing (kPa): Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded) — 40 80 120 160
Penetration Testing: SPT; DCPT — 10 20 30 40
Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm) — 100 200 300 400
Atterberg Limits: PL — LL
Water Content (%) — 10 20 30 40

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%): GR | SA | SI | CL

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.94 m.
Groundwater Elevation: 241.8 m

RECORD OF BOREHOLE No. 17-D

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853199** Date Started: **May 3/23**
Reviewed By: **RW** Easting: **600316.6** Date Completed: **May 3/23**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	FIELD TESTING (Shear Strength Testing (kPa); Penetration Testing SPT/DCPT)	LAB TESTING (Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm); Atterberg Limits PL–LL; Water Content (%))	Instrumentation Installation	COMMENTS & GRAIN SIZE DISTRIBUTION (%) GR	SA	SI	CL
Geodetic 0.0 / 244.7														
0.2 / 244.5	TOPSOIL: 205 mm					0	244.5							
	WEATHERED/DISTURBED Trace organics, firm, mottled brown, moist	SS	1	100	7			7	18					
0.8 / 243.9									19					
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	17			17						
		SS	3	100	21	1.5	243	21	22					
		SS	4	85	23			23	22					
		SS	5	100	21	3	241.5	21	19		1	8	42	49
	- - - Stiff - - -	SS	6	100	9	4.5	240	9	20					
5.0 / 239.6	Borehole Terminated at 5.0 m													

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.06 m.
Groundwater Elevation: 244.6 m

RECORD OF BOREHOLE No. 17-S

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853198** Date Started: **May 3/23**
Reviewed By: **RW** Easting: **600316.4** Date Completed: **May 3/23**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); 40 80 120 160; Penetration Testing: SPT, DCPT; 10 20 30 40	Combustible Organic Vapour (ppm), Combustible Organic Vapour (%LEL), Total Organic Vapour (ppm); 100 200 300 400; Atterberg Limits: PL, LL; Water Content (%); 10 20 30 40	Instrumentation Installation	GR	SA	SI	CL
	Geodetic 0.0 244.6													
	0.2 244.5 TOPSOIL: 205 mm					0	244.5							
	WEATHERED/DISTURBED Trace organics, firm, mottled brown, moist													
	0.8 243.9 CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist					1.5	243							
	3.0 241.6 Borehole Terminated at 3.0 m					3								

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.57 m.
Groundwater Elevation: 244.1 m

RECORD OF BOREHOLE No. 18-D

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **BH** Northing: **4852979** Date Started: **May 4/23**
Reviewed By: **RW** Easting: **600135.1** Date Completed: **May 4/23**

Geodetic	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	Depth (m)	Elevation (m)
0.0 / 240.5						0	240
0.1 / 240.4	TOPSOIL: 100 mm						
	WEATHERED/DISTURBED Brown, moist	AS	1				
0.8 / 239.7	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	18	1.5	238.5
		SS	3	100	19		
		SS	4	100	18	3	237
3.0 / 237.4	SANDY SILT GLACIAL TILL: Trace clay, trace gravel, inferred cobbles and boulders, compact, brown, moist	SS	5	100	16		
4.6 / 235.9	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	6	100	17	4.5	235.5
	- - - Grey - - -	SS	7	100	20	6	234
6.6 / 233.9	Borehole Terminated at 6.6 m						

FIELD TESTING
Shear Strength Testing (kPa)
× Other Test
+ Pocket Penetrometer
▲ Field Vane (Intact)
△ Field Vane (Remolded)
40 80 120 160
Penetration Testing
○ SPT ● DCPT
10 20 30 40

LAB TESTING
△ Combustible Organic Vapour (ppm)
▲ Combustible Organic Vapour (%LEL)
◇ Total Organic Vapour (ppm)
100 200 300 400
Atterberg Limits
PL LL
○ Water Content (%)
10 20 30 40

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
0	4	39	57

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.81 m.
Groundwater Elevation: 239.6 m

RECORD OF BOREHOLE No. 18-S

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **BH** Northing: **4852978** Date Started: **May 4/23**
Reviewed By: **RW** Easting: **600135.1** Date Completed: **May 4/23**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); Penetration Testing: SPT, DCPT	Combustible Organic Vapour (ppm), Combustible Organic Vapour (%LEL), Total Organic Vapour (ppm); Atterberg Limits; Water Content (%)	Instrumentation Installation	GR	SA	SI	CL
	Geodetic 0.0 240.5													
	0.1 240.4 TOPSOIL: 100 mm					0	240							
	WEATHERED/DISTURBED Brown, moist													
	0.8 239.7 CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist					1.5	238.5							
	3.0 237.4 Borehole Terminated at 3.0 m					3								

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 1.4 m.
Groundwater Elevation: 239.1 m

RECORD OF BOREHOLE No. 19

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853274** Date Started: **May 2/23**
Reviewed By: **RW** Easting: **600763.7** Date Completed: **May 2/23**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	FIELD TESTING (Shear Strength Testing (kPa); Penetration Testing SPT/DCPT)	LAB TESTING (Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm); Atterberg Limits; Water Content (%))	Instrumentation Installation	COMMENTS & GRAIN SIZE DISTRIBUTION (%) GR	SA	SI	CL
Geodetic 0.0	239.3													
0.2	TOPSOIL: 205 mm 239.1													
	WEATHERED/DISTURBED Firm, brown, moist	SS	1	100	7	0		7	16					
0.8	238.5						238.5							
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, mottled brown, moist	SS	2	100	21			21	20					
		SS	3	100	27	1.5		27	19					
	- - - Brown - - -	SS	4	100	20		237	20	23					
	- - - Grey - - -	SS	5	100	18	3		18	22					
							235.5							
	- - - Stiff - - -	SS	6	100	11	4.5		11	22		3	9	38	50
							234							
	- - - Very stiff - - -	SS	7	100	16	6		16	16					
6.6	232.7													
	Borehole Terminated at 6.6 m													

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.5 m.
Groundwater Elevation: 238.8 m

RECORD OF BOREHOLE No. 20

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853581** Date Started: **May 2/23**
Reviewed By: **RW** Easting: **600910.8** Date Completed: **May 2/23**

Geodetic	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	FIELD TESTING (Shear Strength Testing (kPa); Penetration Testing: SPT ○, DCPT ●)	LAB TESTING (Combustible Organic Vapour (ppm) △; Combustible Organic Vapour (%LEL) ▲; Total Organic Vapour (ppm) ◇; Atterberg Limits PL–LL; Water Content (%) ○)	Instrumentation Installation	COMMENTS & GRAIN SIZE DISTRIBUTION (%) GR	SA	SI	CL
0.0 / 239.3	TOPSOIL: 150 mm					0								
0.1 / 239.1	WEATHERED/DISTURBED Firm, brown, moist	SS	1	100	6			6	3					
0.8 / 238.5	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	24	1.5	238.5	24	18					
		SS	3	100	22		237	22	18		3	10	39	48
		SS	4	100	18	3		18	18					
		SS	5	100	15		235.5	15	22					
	- - - Stiff - - -	SS	6	100	10	4.5	234	10	18					
6.4 / 232.9	- - - Very stiff - - -	SS	7	100	19	6		19	14					
6.6 / 232.7	SAND: Trace gravel, compact, brown, wet													
	Borehole Terminated at 6.6 m													

Groundwater depth encountered on completion of drilling: 5.4 m. Cave depth after auger removal: 5.7 m.
Groundwater depth observed on: Groundwater Elevation:

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RECORD OF BOREHOLE No. 21

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853596** Date Started: **May 2/23**
Reviewed By: **RW** Easting: **601200.5** Date Completed: **May 2/23**

Geodetic	Depth (m)	Elevation (m)	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value
	0.0	233.3					
	0.3	233.0	TOPSOIL: 305 mm				
	0.8	232.5	WEATHERED/DISTURBED Trace organics, soft, brown, moist	SS	1	100	4
			CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	20
				SS	3	100	28
			- - - Hard - - -	SS	4	100	33
				SS	5	100	34
			- - - Very stiff, grey - - -	SS	6	100	22
	6.4	226.8		SS	7	100	30
			SILT GLACIAL TILL: Some clay, trace gravel, trace sand, inferred cobbles and boulders, dense, grey, moist				
			Borehole Terminated at 6.6 m				

FIELD TESTING: Shear Strength Testing (kPa) — Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded); 40 80 120 160. Penetration Testing — SPT; DCPT; 10 20 30 40.

LAB TESTING: Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm); 100 200 300 400. Atterberg Limits — PL; LL; Water Content (%); 10 20 30 40.

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%) — GR | SA | SI | CL

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Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on:
Cave depth after auger removal: Open
Groundwater Elevation:

RECORD OF BOREHOLE No. 22-D

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853330** Date Started: **May 2/23**
Reviewed By: **RW** Easting: **601177.5** Date Completed: **May 2/23**

Depth	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	Elevation (m)	Field Testing (SPT / DCPT)	Lab Testing (Water Content %)
0.0	Geodetic 233.5							
0.2	TOPSOIL: 205 mm 233.4							
	WEATHERED/DISTURBED Soft, mottled brown, moist	SS	1	100	4	233.5	4	9
0.8	232.8							
	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	19	232.5	19	19
		SS	3	100	24	231	24	17
	- - - Brown/grey - - -	SS	4	100	23		23	19
		SS	5	100	23	229.5	23	18
	- - - Grey - - -	SS	6	100	17		17	19
5.0	228.5							
	Borehole Terminated at 5.0 m							

Depth (m): 0, 1.5, 3, 4.5

Shear Strength Testing (kPa): Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded); 40 80 120 160
Penetration Testing: SPT DCPT; 10 20 30 40
Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm); 100 200 300 400
Atterberg Limits: PL LL
Water Content (%): 10 20 30 40

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 0.46 m.
Groundwater Elevation: 233.1 m

RECORD OF BOREHOLE No. 22-S

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853330** Date Started: **May 2/23**
Reviewed By: **RW** Easting: **601177** Date Completed: **May 2/23**

Depth (m)	Description	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	Elevation (m)
Geodetic 0.0						233.6
0.2	TOPSOIL: 205 mm					233.4
	WEATHERED/DISTURBED Soft, mottled brown, moist	SS	1	100	4	
0.8						232.8
	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	19	
		SS	3	100	24	
	- - - Brown/grey - - -	SS	4	100	23	
3.0						230.6
	Borehole Terminated at 3.0 m					

FIELD TESTING: Shear Strength Testing (kPa) — Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded); Penetration Testing: SPT, DCPT

LAB TESTING: Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm); Atterberg Limits (PL, LL); Water Content (%)

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%): GR, SA, SI, CL

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 1.67 m.
Groundwater Elevation: 231.9 m

RECORD OF BOREHOLE No. 23

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853057** Date Started: **May 2/23**
Reviewed By: **RW** Easting: **600985.6** Date Completed: **May 2/23**

Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)
Geodetic 0.0 / 238.6							
0.2 / 238.4	TOPSOIL: 255 mm						
	WEATHERED/DISTURBED Firm, mottled brown, moist	SS	1	100	5	0	238.5
0.8 / 237.9	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	19		
	- - - Brown/grey - - -	SS	3	100	24	1.5	237
		SS	4	100	19		
	- - - Moist to wet - - -	SS	5	100	22	3	235.5
	- - - Stiff, grey - - -	SS	6	100	9	4.5	234
6.6 / 232.1		SS	7	0	11	6	232.5
	Borehole Terminated at 6.6 m						

FIELD TESTING
Shear Strength Testing (kPa)
× Other Test
+ Pocket Penetrometer
▲ Field Vane (Intact)
△ Field Vane (Remolded)
40 80 120 160
Penetration Testing
○ SPT ● DCPT
10 20 30 40

LAB TESTING
△ Combustible Organic Vapour (ppm)
▲ Combustible Organic Vapour (%LEL)
◇ Total Organic Vapour (ppm)
100 200 300 400
Atterberg Limits
PL LL
○ Water Content (%)
10 20 30 40

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
0	2	40	58

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 1.96 m.
Groundwater Elevation: 236.7 m

RECORD OF BOREHOLE No. 24

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853876** Date Started: **May 123**
Reviewed By: **RW** Easting: **601208.1** Date Completed: **May 1/23**

Geodetic	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)
0.0 / 235.9						0	235.5
0.2 / 235.7	TOPSOIL: 205 mm						
	WEATHERED/DISTURBED Soft, mottled brown, moist	SS	1	100	4		
0.8 / 235.1	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	23	1.5	234
		SS	3	100	25		
		SS	4	100	25	3	232.5
		SS	5	100	21		
		SS	6	100	17	4.5	231
6.1 / 229.8	SILT AND SAND GLACIAL TILL: Trace clay, trace gravel, cobbles and boulders, very dense, grey, moist	SS	7	100	50+	6	229.5
7.6 / 228.3	INFERRED BEDROCK: Shale, highly weathered, grey	SS	8	0	50+	7.5	
	Borehole Terminated at 7.7 m						

FIELD TESTING: Shear Strength Testing (kPa) — Other Test; Pocket Penetrometer; Field Vane (Intact); Field Vane (Remolded); 40 80 120 160. Penetration Testing: SPT, DCPT; 10 20 30 40.

LAB TESTING: Combustible Organic Vapour (ppm); Combustible Organic Vapour (%LEL); Total Organic Vapour (ppm); 100 200 300 400. Atterberg Limits: PL, LL. Water Content (%); 10 20 30 40.

Instrumentation Installation

COMMENTS & GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

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Groundwater depth encountered on completion of drilling: 2.4 m. Cave depth after auger removal: Open

Groundwater depth observed on: Jul 11/23 at depth of: 1.91 m. Groundwater Elevation: 234.0 m

Scale: **1 :75**
Page: **1 of 1**

RECORD OF BOREHOLE No. 25

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Project Number:	**2100463**				
Project Client:	**Wildfield Village Landowners Group Inc.**				
Project Name:	**Wildfield Village**	Drilling Method:	**Solid Stem Augers**	Drilling Machine:	**Track Mount**
Project Location:	**Town of Caledon, ON**	Logged By:	**FH**	Northing:	**4853099**
Drilling Location:	**See Borehole Location Plan**	Reviewed By:	**RW**	Easting:	**601372.7**
Local Benchmark:	**Geodetic**				

Date Started: **May 1/23**
Date Completed: **May 1/23**

LITHOLOGY PROFILE / SOIL SAMPLING / FIELD TESTING / LAB TESTING

FIELD TESTING – Shear Strength Testing (kPa): × Other Test; + Pocket Penetrometer; ▲ Field Vane (Intact); △ Field Vane (Remolded) (40, 80, 120, 160). Penetration Testing: ○ SPT; ● DCPT (10, 20, 30, 40)

LAB TESTING – △ Combustible Organic Vapour (ppm); ▲ Combustible Organic Vapour (%LEL); ◇ Total Organic Vapour (ppm) (100, 200, 300, 400). Atterberg Limits: PL ├──┤ LL; ○ Water Content (%) (10, 20, 30, 40)

COMMENTS & GRAIN SIZE DISTRIBUTION (%): GR | SA | SI | CL

Instrumentation Installation

Depth (m)	Elevation (m)	Description (Geodetic)	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	Water Content (%)
0.0	232.2						
0.2	232.0	TOPSOIL: 205 mm					
		WEATHERED/DISTURBED Firm, mottled brown, moist	SS	1	100	7	17
0.8	231.5	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, brown, moist	SS	2	100	21	17
			SS	3	100	30	17
		- - - Hard, grey/brown - - -	SS	4	100	35	16
			SS	5	100	39	17
		- - - Grey - - -	SS	6	100	50+	13
5.0	227.3	SAND AND SILT GLACIAL TILL: Trace clay, trace gravel, very dense, grey, moist					
			SS	7	100	50+	10
		Borehole Terminated at 6.2 m					

Depth scale (m): 0, 1.5, 3, 4.5, 6. Elevation scale (m): 231, 229.5, 228, 226.5.

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: 5.7 m.
Groundwater depth observed on:
Groundwater Elevation:

Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

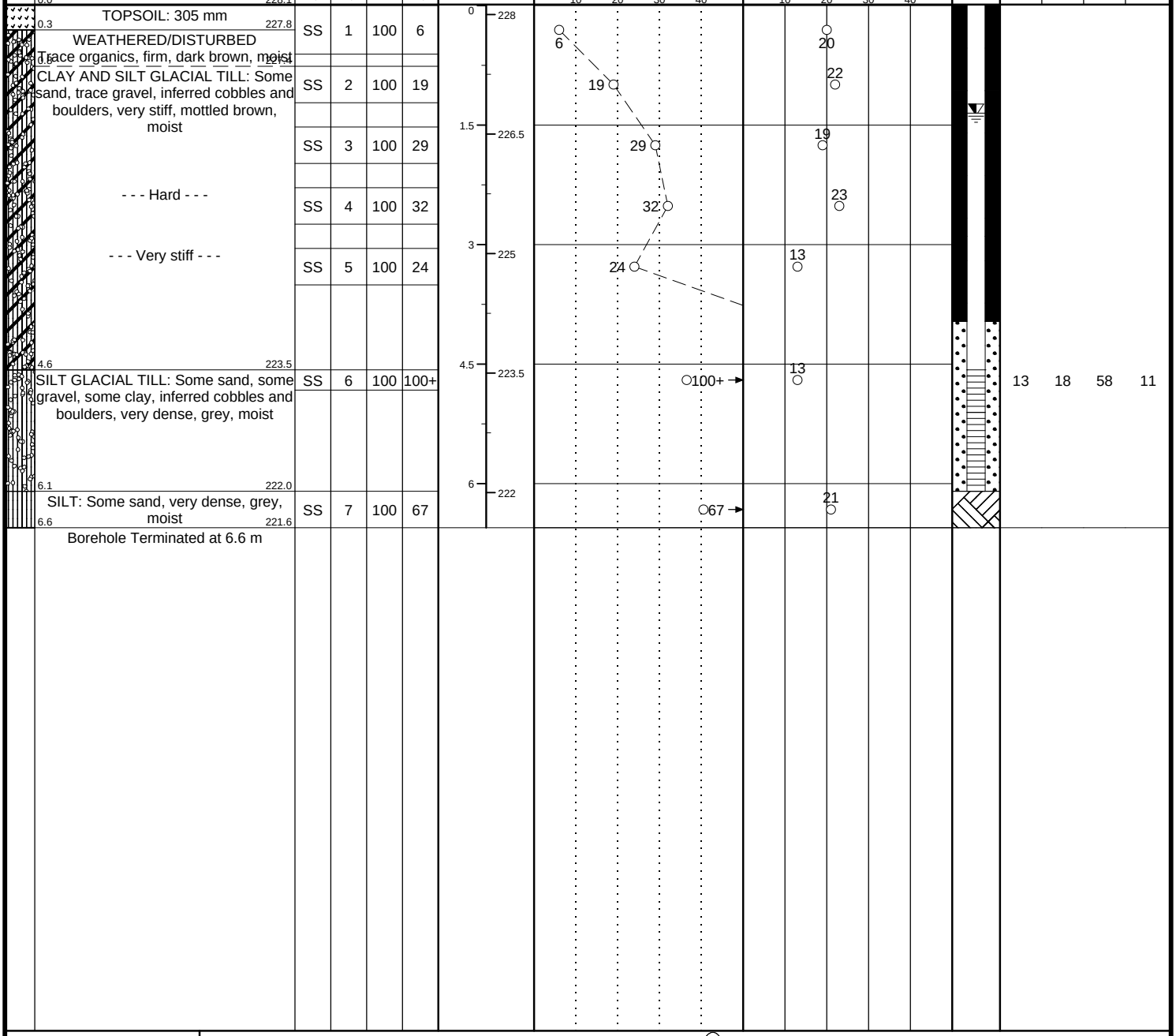
RECORD OF BOREHOLE No. 26-D

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853265** Date Started: **May 1/23**
Reviewed By: **RW** Easting: **601490.2** Date Completed: **May 1/23**

Geodetic	Depth (m)	Elevation (m)
	0.0	228.1
TOPSOIL: 305 mm	0.3	227.8
WEATHERED/DISTURBED Trace organics, firm, dark brown, moist	0.6	227.5
CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, mottled brown, moist		
- - - Hard - - -		
- - - Very stiff - - -	4.6	223.5
SILT GLACIAL TILL: Some sand, some gravel, some clay, inferred cobbles and boulders, very dense, grey, moist	6.1	222.0
SILT: Some sand, very dense, grey, moist	6.6	221.6
Borehole Terminated at 6.6 m		

Sample Type	Sample Number	Recovery (%)	SPT "N" Value
SS	1	100	6
SS	2	100	19
SS	3	100	29
SS	4	100	32
SS	5	100	24
SS	6	100	100+
SS	7	100	67



COMMENTS & GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
13	18	58	11

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 1.35 m.
Groundwater Elevation: 226.8 m

RECORD OF BOREHOLE No. 26-S

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **FH** Northing: **4853264** Date Started: **May 1/23**
Reviewed By: **RW** Easting: **601489.9** Date Completed: **May 1/23**

LITHOLOGY PROFILE		SOIL SAMPLING						FIELD TESTING		LAB TESTING			COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	Shear Strength Testing (kPa): Other Test, Pocket Penetrometer, Field Vane (Intact), Field Vane (Remolded); 40 80 120 160; Penetration Testing: SPT, DCPT; 10 20 30 40		Combustible Organic Vapour (ppm), Combustible Organic Vapour (%LEL), Total Organic Vapour (ppm); 100 200 300 400; Atterberg Limits: PL, LL; Water Content (%); 10 20 30 40		Instrumentation Installation	GR	SA	SI	CL
	Geodetic 0.0 228.1															
	TOPSOIL: 305 mm 0.3 227.8					0	228									
	WEATHERED/DISTURBED Trace organics, firm, dark brown, moist 0.6 227.5															
	CLAY AND SILT GLACIAL TILL: Some sand, trace gravel, inferred cobbles and boulders, very stiff, mottled brown, moist					1.5	226.5									
	- - - Hard - - -															
	3.0 225.1					3										
	Borehole Terminated at 3.0 m															

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Groundwater depth encountered on completion of drilling: Dry
Cave depth after auger removal: Open
Groundwater depth observed on: Jul 11/23 at depth of: 1.9 m.
Groundwater Elevation: 226.2 m

RECORD OF BOREHOLE No. 101

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **BH** Northing: **4852692** Date Started: **Jul 16/24**
Reviewed By: **RW/AB** Easting: **600400** Date Completed: **Jul 16/24**

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LITHOLOGY PROFILE		SOIL SAMPLING					FIELD TESTING	LAB TESTING		COMMENTS & GRAIN SIZE DISTRIBUTION (%)			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m) / ELEVATION (m)	Shear Strength Testing (kPa); Penetration Testing (SPT ○, DCPT ●)	Combustible Organic Vapour - Hex; Combustible Organic Vapour - IBL; Total Organic Vapour (ppm); Atterberg Limits (PL, LL); Water Content (%)	Instrumentation Installation	GR	SA	SI	CL
	Geodetic 0.0 240.2												
	0.2 TOPSOIL: 205 mm 239.9					0 240							
	WEATHERED/DISTURBED: Firm, brown, moist 0.8 239.4	SS	1	75	5		5	21					
	CLAY AND SILT GLACIAL TILL: Trace sand, inferred cobbles and boulders, stiff to very stiff, brown, moist	SS	2	100	13		13	22					
		SS	3	89	23	1.5 238.5	23	20					
		SS	4	100	23		23	22					
	- - - Brown to grey - - -	SS	5	100	20	3 237	20	21		1	6	41	52
		SS	6	100	12	4.5 235.5	12	19					
	6.6 233.6	SS	7		15	6 234	15	16					
	Borehole Terminated at 6.6 m												

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Aug 23/24 at depth of: 1.7 m.
Cave depth after auger removal: Open
Groundwater Elevation: 238.5 m

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Borehole details presented do not constitute a thorough understanding of all potential conditions present and require interpretative assistance from a qualified geotechnical engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Boring Log'.

Scale: **1 :75**

RECORD OF BOREHOLE No. 102

Project Number: **2100463**
Project Client: **Wildfield Village Landowners Group Inc.**
Project Name: **Wildfield Village**
Project Location: **Town of Caledon, ON**
Drilling Location: **See Borehole Location Plan**
Local Benchmark: **Geodetic**

Drilling Method: **Solid Stem Augers** Drilling Machine: **Track Mount**
Logged By: **BH** Northing: **4852541** Date Started: **Jul 16/24**
Reviewed By: **RW/AB** Easting: **600685** Date Completed: **Jul 16/24**

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Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT "N" Value	DEPTH (m)	ELEVATION (m)	FIELD TESTING: Penetration Testing (SPT ○ / DCPT ●)	LAB TESTING: Water Content (%)	Instrumentation Installation
	Geodetic 0.0 239.4									
	0.2 TOPSOIL: 180 mm 239.2									
	WEATHERED/DISTURBED: Stiff, brown, moist 0.8 238.6	SS	1		9	0	239.4	9	17	
	CLAY AND SILT GLACIAL TILL: Trace sand, trace gravel, inferred cobbles and boulders, stiff to very stiff, brown, moist	SS	2	100	15		238.5	15	19	
		SS	3	100	19	1.5		19	19	
	- - - Brown to grey - - -	SS	4	100	22		237	22	22	
		SS	5	100	20	3		20	16	
		SS	6	100	11	4.5	235.5	11	23	
		SS	7	100	13	6	234	13	21	
	6.6 232.8 Borehole Terminated at 6.6 m									

FIELD TESTING: Shear Strength Testing (kPa) — × Other Test; + Pocket Penetrometer; ▲ Field Vane (Intact); △ Field Vane (Remolded); 40 80 120 160

LAB TESTING: △ Combustible Organic Vapour - Hex; ▲ Combustible Organic Vapour - IBL; ◇ Total Organic Vapour (ppm) 100 200 300 400; Atterberg Limits PL — LL

COMMENTS & GRAIN SIZE DISTRIBUTION (%): GR | SA | SI | CL

Groundwater depth encountered on completion of drilling: Dry
Groundwater depth observed on: Aug 23/24 at depth of: 4.8 m.
Cave depth after auger removal: Open
Groundwater Elevation: 234.6 m

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Scale: **1 :75**

Log of Borehole: MW1

Project #: 325252.002 **Logged By:** CG

Project: Geotechnical Investigation

Client: Paul and Gail Piercey

Location: 12561 Centreville Creek Road, Caledon, Ontario

Drill Date: July 31, 2023 **Project Manager:** EN

Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value (20, 40, 60)	Shear Strength (kPa, 100, 200)	Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
		Ground Surface	243.24											
0		**Fill** brown to dark brown silty clay, trace wood fragments, stiff, WTPL	0.00 / 242.48		SS	1	60	10			23.9	1	0/0	PHCs, VOCs, PAHs, metals
1		**Possible Fill** Brown to greyish-brown silty clay, firm, APL.	0.76 / 241.72		SS	2	40	12			19.1	2	0/0	
2		**Silty Clay** brown-grey silty clay, very stiff to hard, WTPL to APL	1.52 / 240.95		SS	3	75	26			21.4	3	0/0	
		hard, APL-DTPL	2.29	Riser / Bentonite	SS	4	80	30			19.9	4	0/0	
3					SS	5	90	29			15.4	5	0/0	
4				Silica Sand										
5				Screen	SS	6	90	30			21.1	6	0/0	
6			237.14											
		stiff	6.10 / 236.53		SS	7	0	13			-	7	0/0	
		End of Borehole	6.71											
7														
8														
9														

Contractor: Tec Geological Drilling Inc.

Grade Elevation: 243.24 masl

Drilling Method: Split Spoon/Solid Stem Auger

Top of Casing Elevation: 244.12 masl

Well Casing Size: 5.1 cm

Sheet: 1 of 1

Log of Borehole: BH2

Project #: 325252.002 **Logged By:** CG

Project: Geotechnical Investigation

Client: Paul and Gail Piercey

Location: 12561 Centreville Creek Road, Caledon, Ontario

Drill Date: July 31, 2023 **Project Manager:** EN

Depth (m)	Description	Elevation (m)
0	Ground Surface	242.47
	Fill brown silty clay, trace sand, trace gravel, trace organics, firm, WTPL	0.00 / 241.71
1	**Silty Clay** brown silty clay, trace sand, grey seams, APL, very stiff	0.76
2		
3	some sand, DTPL-APL	239.42 / 3.05
4		
5	some gravel, hard	237.59 / 4.88
6	very stiff	236.38 / 6.10
7	End of Borehole	235.77 / 6.71
8		
9		

Monitoring Well Details: No Monitoring Well Installed

Sample Type	Sampler #	Recovery (%)	SPT N-Value	Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
SS	1	60	6	24.1	1	0/0	
SS	2	60	15	22.6	2	0/0	
SS	3	90	28	20.5	3	0/0	
SS	4	90	27	19.5	4	0/0	
SS	5	90	28	15.1	5	0/0	
SS	6	90	31	19.6	6	0/0	
SS	7	90	18	16.5	7	0/0	

Standard Penetration N-Value: 20, 40, 60

Shear Strength △ kPa △: 100, 200

Contractor: Tec Geological Drilling Inc.

Grade Elevation: 242.47 masl

Drilling Method: Split Spoon/Solid Stem Auger

Top of Casing Elevation: NM

Well Casing Size: NA

Sheet: 1 of 1

Log of Borehole: MW3

Project #: 325252.002 **Logged By:** CG

Project: Geotechnical Investigation

Client: Paul and Gail Piercey

Location: 12561 Centreville Creek Road, Caledon, Ontario

Drill Date: July 31, 2023 **Project Manager:** EN

Depth (m)	Description	Elevation (m)
0	Ground Surface	242.68
	Fill sandy silt, some gravel and brick fragments, trace clay, compact, moist.	0.00 / 241.92
1	**Silty Clay** Brown to dark brown silty clay, trace sand, organic staining, stiff, APL-DTPL.	0.76 / 240.39
2	**Silt** Brown silt, trace clay, trace sand and gravel, compact, very moist	2.29 / 239.63
3	**Silty Clay** Grey silty clay, trace gravel, hard, APL	3.05 / 238.87
4	very stiff, WTPL	3.81 / 237.34
5	occasional saturated grey seams, very stiff to stiff	5.33 / 235.97
6	End of Borehole	6.71
7		
8		
9		

Monitoring Well Details: Riser, Bentonite, Silica Sand, Screen

Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value (20, 40, 60)	Shear Strength (kPa, 100, 200)	Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
SS	1	35	13			11.6	1	0/0	
SS	2	25	12			19.4	2	0/0	
SS	3	80	21			13.6	3	0/0	
SS	4	75	23			20.4	4	0/0	
SS	5	90	31			21.5	5	0/0	
SS	6	90	18			23.7	6	0/0	PHCs, VOCs, PAHs, metals
SS	7	90	19			22.8	7	0/0	
SS	8	75	17			22.8	8	0/0	
SS	9	90	11			21	9	0/0	

Contractor: Tec Geological Drilling Inc.

Grade Elevation: 242.68 masl

Drilling Method: Split Spoon/Solid Stem Auger

Top of Casing Elevation: 243.66 masl

Well Casing Size: 5.1 cm

Sheet: 1 of 1

Log of Borehole: MW4

Project #: 325252.002 **Logged By:** CG

Project: Geotechnical Investigation

Client: Paul and Gail Piercey

Location: 12561 Centreville Creek Road, Caledon, Ontario

Drill Date: August 1, 2023 **Project Manager:** EN

Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value (20, 40, 60)	Shear Strength (kPa, 100, 200)	Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
		Ground Surface	243.41											PHCs, VOCs, PAHs, metals, OCPs
0		***Silt*** Brown Silt, some clay, trace sand and gravel, compact, very moist	0.00		SS	1	40	10			13	1	0/0	
1			241.89		SS	2	75	19			15.1	2	0/0	
		Silty Clay Brown and grey silty clay, trace sand, trace gravel, very stiff, APL-WTPL.	1.52		SS	3	75	21			18.8	3	0/0	
2		oxidation staining	241.12 2.29	Riser	SS	4	75	27			21	4	0/0	
3				Bentonite	SS	5	75	24			21.4	5	0/0	
		grey, very stiff to stiff	239.60 3.81		SS	6	85	19			22.3	6	0/0	
4				Silica Sand	SS	7	90	14			21.9	7	0/0	
5				Screen	SS	8	90	13			21.6	8	0/0	
6			236.70		SS	9	90	14			22	9	0/0	
		End of Borehole	6.71											
7														
8														
9														

Contractor: Tec Geological Drilling Inc.

Grade Elevation: 243.41 masl

Drilling Method: Split Spoon/Solid Stem Auger

Top of Casing Elevation: 244.36 masl

Well Casing Size: 5.1 cm

Sheet: 1 of 1

Log of Borehole: BH5

Project #: 325252.002 **Logged By:** CG

Project: Geotechnical Investigation

Client: Paul and Gail Piercey

Location: 12561 Centreville Creek Road, Caledon, Ontario

Drill Date: August 1, 2023 **Project Manager:** EN

Depth (m)	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)
0	Ground Surface	240.69								
0	**TopSoil**	0.00								
0	**Silty Clay** Brown and grey, trace to some sand and gravel, very stiff, APL.			SS	1	60	16	18.6	1	0/0
1				SS	2	50	16	21.9	2	0/0
2				SS	3	60	20	21.2	3	0/0
2		238.40								
2	**Silt Till** Brown-grey sandy silt, some clay, some gravel, compact, wet	2.29		SS	4	70	29	19.7	4	0/0
3		237.64								
3	**Silty Clay** Greyish-brown, trace gravel, grey seams, very stiff, APL.	3.05		SS	5	75	19	20.1	5	0/0
4										
4		236.11								
4	Grey, stiff	4.57		SS	6	80	14	19.1	6	0/0
5										
6		234.59								
6	DTPL	6.10		SS	7	90	15	11.1	7	0/0
6		234.13								
6	End of Borehole	6.55								
7										
8										
9										

No Monitoring Well Installed

Standard Penetration N-Value: 20, 40, 60

Shear Strength △ kPa △: 100, 200

Laboratory Analysis

Contractor: Tec Geological Drilling Inc.

Grade Elevation: 240.69 masl

Drilling Method: Split Spoon/Solid Stem Auger

Top of Casing Elevation: NM

Well Casing Size: NA

Sheet: 1 of 1

Log of Borehole: BH6

Project #: 325252.002 **Logged By:** CG

Project: Geotechnical Investigation

Client: Paul and Gail Piercey

Location: 12561 Centreville Creek Road, Caledon, Ontario

Drill Date: August 1, 2023 **Project Manager:** EN

Depth (m)	Description	Elevation (m)	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)
0	Ground Surface	240.75							
0	**TopSoil**	0.00							
0	**Silty Clay** Brown and grey, trace sand, soft, WTPL.	239.99	SS	1	40	3	28.5	1	0/0
0.76	Trace gravel, firm to very stiff, APL.		SS	2	70	8	17.9	2	0/0
1			SS	3	60	23	19.7	3	0/0
2		238.46							
2.29	grey, trace rock fragments, hard		SS	4	50	31	20.8	4	0/0
3		237.70							
3.05	very stiff		SS	5	60	18	19.9	5	0/0
4		236.48							
4.27	stiff		SS	6	70	11	19.1	6	0/0
5									
6			SS	7	60	12	16.1	7	0/0
6		234.20							
6.55	End of Borehole								
7									
8									
9									

Monitoring Well Details: No Monitoring Well Installed

Standard Penetration N-Value: 20, 40, 60

Shear Strength: kPa 100, 200

Laboratory Analysis

Contractor: Tec Geological Drilling Inc.

Grade Elevation: 240.75 masl

Drilling Method: Split Spoon/Solid Stem Auger

Top of Casing Elevation: NM

Well Casing Size: NA

Sheet: 1 of 1

Log of Borehole: BH7

Project #: 325252.002 **Logged By:** CG

Project: Geotechnical Investigation

Client: Paul and Gail Piercey

Location: 12561 Centreville Creek Road, Caledon, Ontario

Drill Date: August 1, 2023 **Project Manager:** EN

Depth (m)	Description	Elevation (m)
0	Ground Surface	239.59
	TopSoil	0.00
	Silty Clay	
	Brown and grey silty clay, trace sand and gravel, trace rootlets, firm, WTPL	238.83
1		0.76
	Some grey seams, stiff	238.07
	very stiff, APL	1.52
2		237.31
	hard	2.29
		236.55
3	grey, some sand, very stiff to stiff	3.05
4		
5		
6		233.04
	End of Borehole	6.55
7		
8		
9		

Monitoring Well Details: No Monitoring Well Installed

Sample Type	Sampler #	Recovery (%)	SPT N-Value	Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
SS	1	50	7	24.1	1	0/0	
SS	2	60	12	22.3	2	0/0	
SS	3	70	21	20.8	3	0/0	
SS	4	70	31	21.1	4	0/0	
SS	5	60	16	20.4	5	0/0	
SS	6	70	10	22.3	6	0/0	
SS	7	80	10	20.8	7	0/0	

Standard Penetration N-Value: 20, 40, 60

Shear Strength △ kPa △: 100, 200

Contractor: Tec Geological Drilling Inc.

Grade Elevation: 239.60 masl

Drilling Method: Split Spoon/Solid Stem Auger

Top of Casing Elevation: NM

Well Casing Size: NA

Sheet: 1 of 1

Log of Borehole: MW8

Project #: 325252.002 **Logged By:** CG

Project: Geotechnical Investigation

Client: Paul and Gail Piercey

Location: 12561 Centreville Creek Road, Caledon, Ontario

Drill Date: August 3, 2023 **Project Manager:** EN

Depth (m)	Description	Elevation (m)	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
0	Ground Surface	237.78								
0	**TopSoil**	0.00	SS	1	60	11	30.3	1	0/0	Metals, OCPs, pH
1	**Silty Clay** Orange-grey, trace sand and gravel, mottled, oxidation staining, stiff, WTPL to APL.		SS	2	40	12	21.8	2	0/0	
1.52	236.25									
2	some gravel, very stiff		SS	3	70	27	20.1	3	0/0	pH and Grain Size
3	234.73		SS	4	60	25	19.6	4	0/0	
3.05	grey, some sand		SS	5	50	23	20.8	5	0/0	
4			SS	6	40	17	21.7	6	0/0	
5			SS	7	60	15	18.8	7	0/0	
6	231.68		SS	8	40	15	21.1	8	0/0	
6.10	stiff		SS	9	60	13	19.2	9	0/0	
7	231.07									
6.71	End of Borehole									
8										
9										

Monitoring Well Details: Riser, Bentonite, Silica Sand, Screen

Standard Penetration N-Value: 20, 40, 60

Shear Strength: kPa 100 200

Contractor: Tec Geological Drilling Inc.

Grade Elevation: 237.78 masl

Drilling Method: Split Spoon/Solid Stem Auger

Top of Casing Elevation: 238.75 masl

Well Casing Size: 5.1 cm

Sheet: 1 of 1

Log of Borehole: BH9

Project #: 325252.002 **Logged By:** CG

Project: Geotechnical Investigation

Client: Paul and Gail Piercey

Location: 12561 Centreville Creek Road, Caledon, Ontario

Drill Date: August 3, 2023 **Project Manager:** EN

Depth (m)	Symbol	Description	Elevation (m)	Monitoring Well Details	Sample Type	Sampler #	Recovery (%)	SPT N-Value	Standard Penetration N-Value (20, 40, 60)	Shear Strength (kPa) (100, 200)	Water Content (%)	Sample ID	Soil Vapour Concentration (ppm)	Laboratory Analysis
		Ground Surface	239.01											
0		**TopSoil**	0.00		SS	1	50	17			22	1	0/0	
		Silty Clay Dark brown silty clay, trace sand and gravel, trace organics, very stiff to hard, APL.												
1					SS	2	10	35			18.8	2	0/0	
			237.49											
		Silt Brown silt, some clay, compact, wet	1.52		SS	3	70	18			21.7	3	0/0	
2			236.73											
		Silty Clay brown-grey silty clay, some gravel, very stiff	2.29		SS	4	80	26			20.8	4	0/0	
			235.96											
3		very stiff to stiff, DTPL	3.05		SS	5	80	26			17.2	5	0/0	
4														
					SS	6	75	13			19.6	6	0/0	
5			233.83											
		APL	5.18											
6					SS	7	100	11			20.2	7	0/0	
			232.46											
		End of Borehole	6.55											
7														

No Monitoring Well Installed

Contractor: Tec Geological Drilling Inc.

Grade Elevation: 239.01 masl

Drilling Method: Split Spoon/Solid Stem Auger

Top of Casing Elevation: NM

Well Casing Size: NA

Sheet: 1 of 1

Appendix C Geotechnical Laboratory Testing

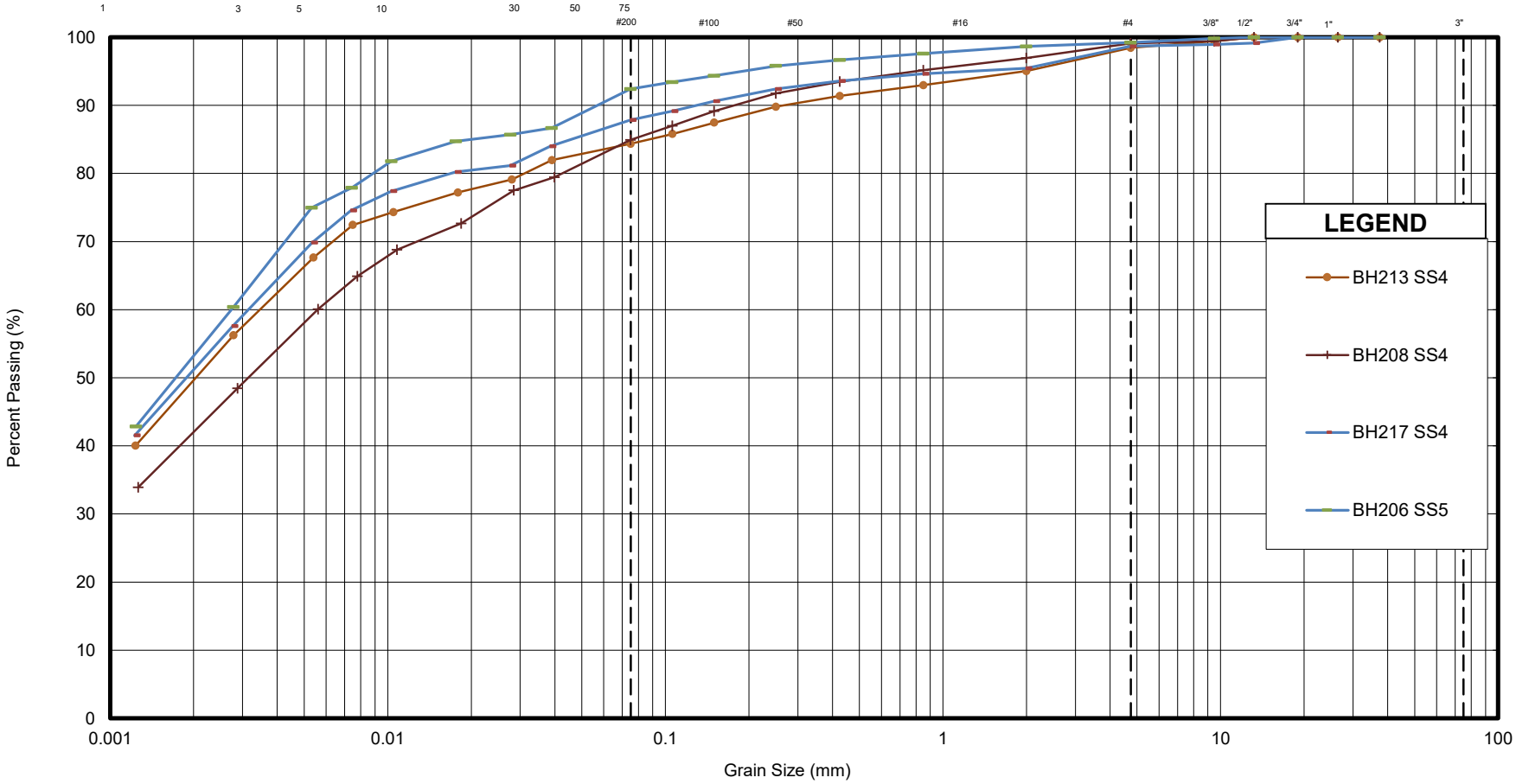
Appendix C1: GEI Support of Draft Plan of Subdivision

UNIFIED SOIL CLASSIFICATION SYSTEM

CLAY AND SILT	SAND			GRAVEL	
	Fine	Medium	Coarse	Fine	Coarse

GRAIN SIZE IN MICROMETERS

SIEVE DESIGNATION (IMPERIAL)



Sample	Description	Gr.	Sa.	Si.	Cl.	D_{10}	D_{30}	D_{60}	C_u	C_c
BH213 SS4	SILT AND CLAY, Some Sand, Trace Gravel	2	14	35	49	-	-	0.003	-	-
BH208 SS4	SILT AND CLAY, Some Sand, Trace Gravel	1	14	43	42	-	-	0.006	-	-
BH217 SS4	SILT AND CLAY, Some Sand, Trace Gravel	1	11	37	51	-	-	0.003	-	-
BH206 SS5	SILT AND CLAY, Trace Sand, Trace Gravel	1	7	39	53	-	-	0.003	-	-

GEI Consultants

GRAIN SIZE DISTRIBUTION - Wildfield Village

GLACIAL TILL

FIGURE No. C1

REF. No. 2408195

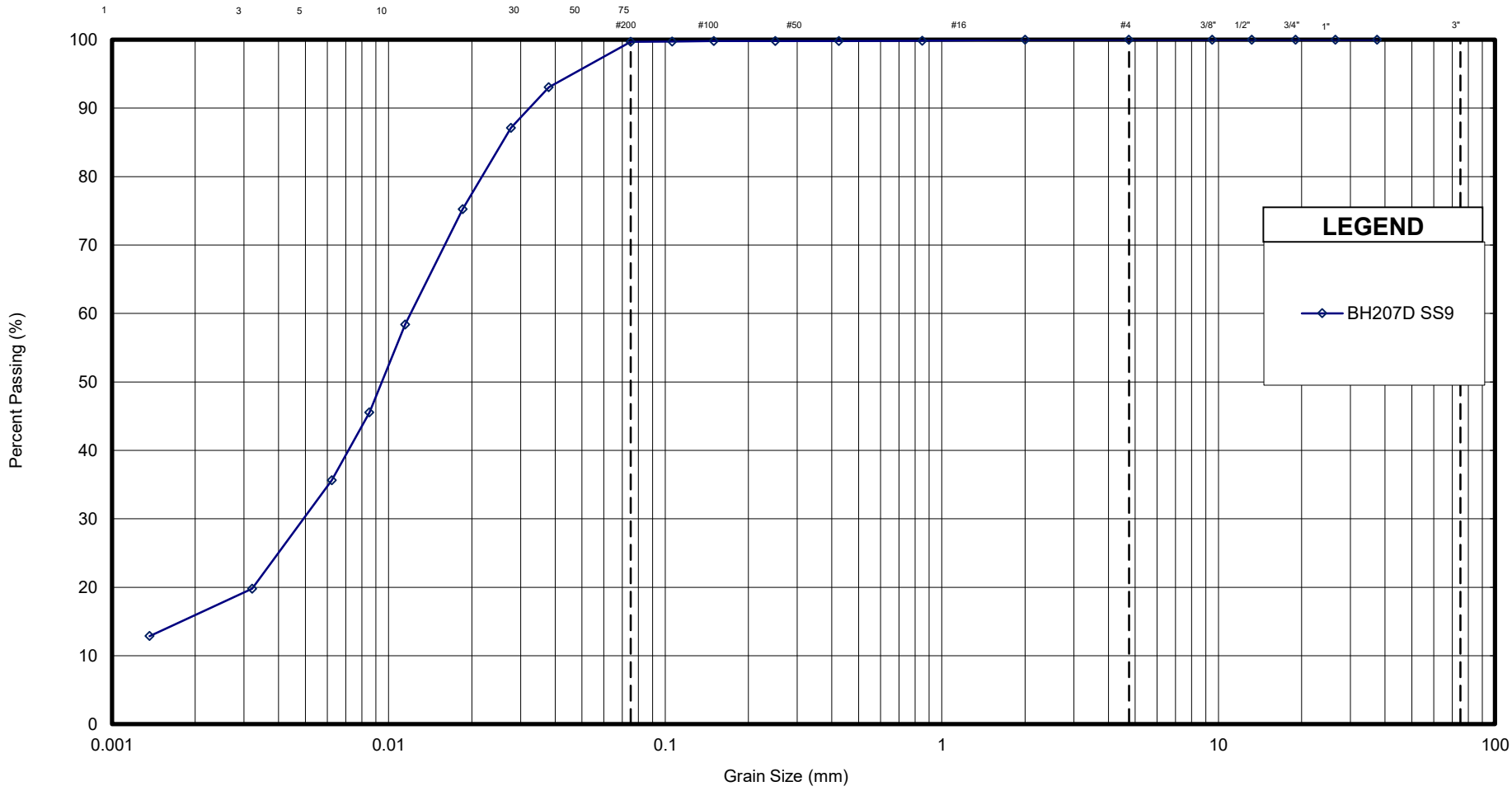
DATE January 2025

UNIFIED SOIL CLASSIFICATION SYSTEM

CLAY AND SILT	SAND			GRAVEL	
	Fine	Medium	Coarse	Fine	Coarse

GRAIN SIZE IN MICROMETERS

SIEVE DESIGNATION (IMPERIAL)



Sample	Description	Gr.	Sa.	Si.	Cl.	D_{10}	D_{30}	D_{60}	C_u	C_c
BH207D SS9	SILT, Some Clay	-	-	84	16	-	0.005	0.012	-	-

GEI Consultants

GRAIN SIZE DISTRIBUTION - Wildfield Village

SILT

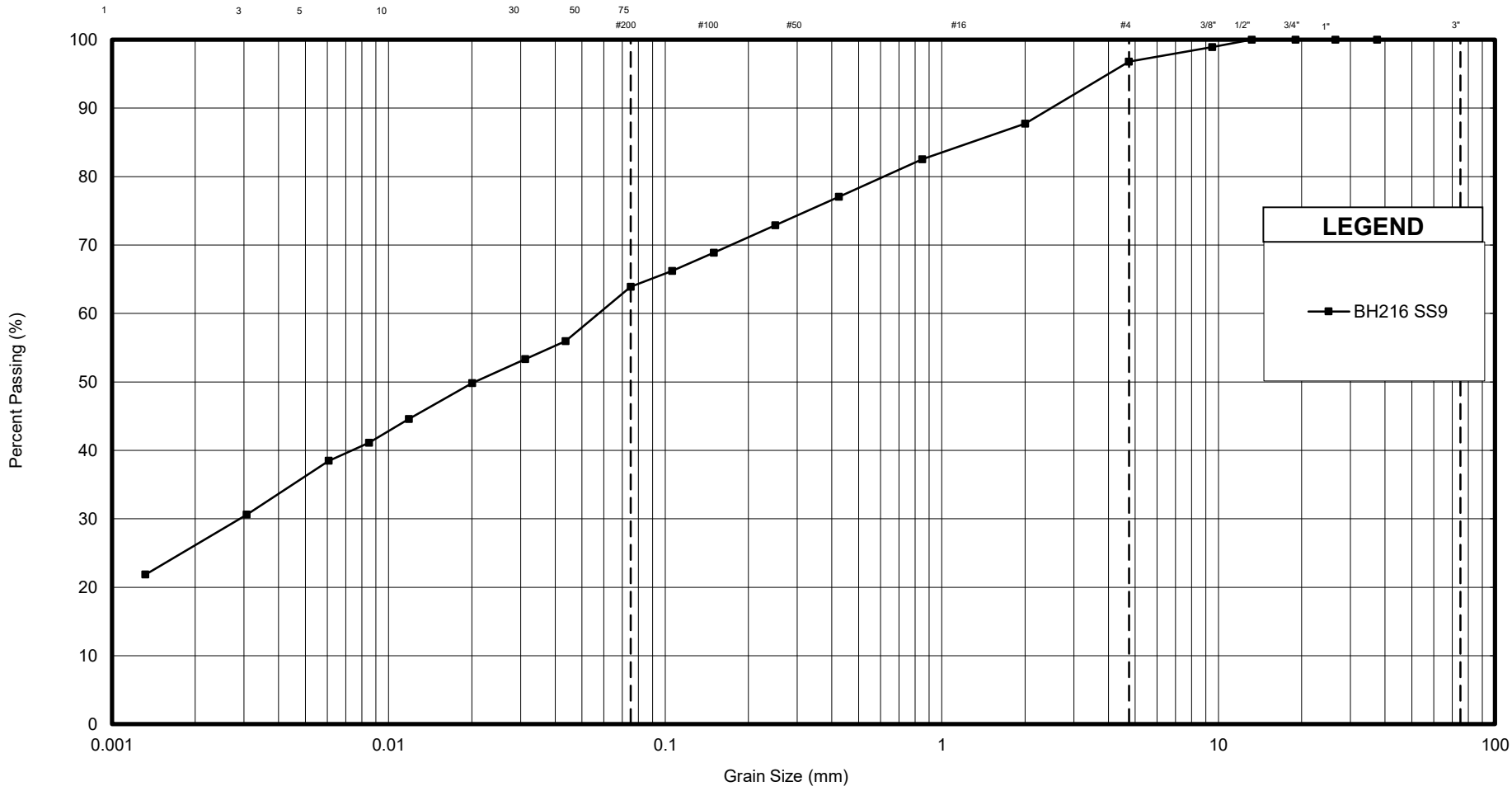
FIGURE No.	C2
REF. No.	2408195
DATE	January 2025

UNIFIED SOIL CLASSIFICATION SYSTEM

CLAY AND SILT	SAND			GRAVEL	
	Fine	Medium	Coarse	Fine	Coarse

GRAIN SIZE IN MICROMETERS

SIEVE DESIGNATION (IMPERIAL)



Sample	Description	Gr.	Sa.	Si.	Cl.	D_{10}	D_{30}	D_{60}	C_u	C_c
BH216 SS9	CLAYEY SANDY SILT, Trace Gravel	3	33	38	26	-	0.003	0.057	-	-

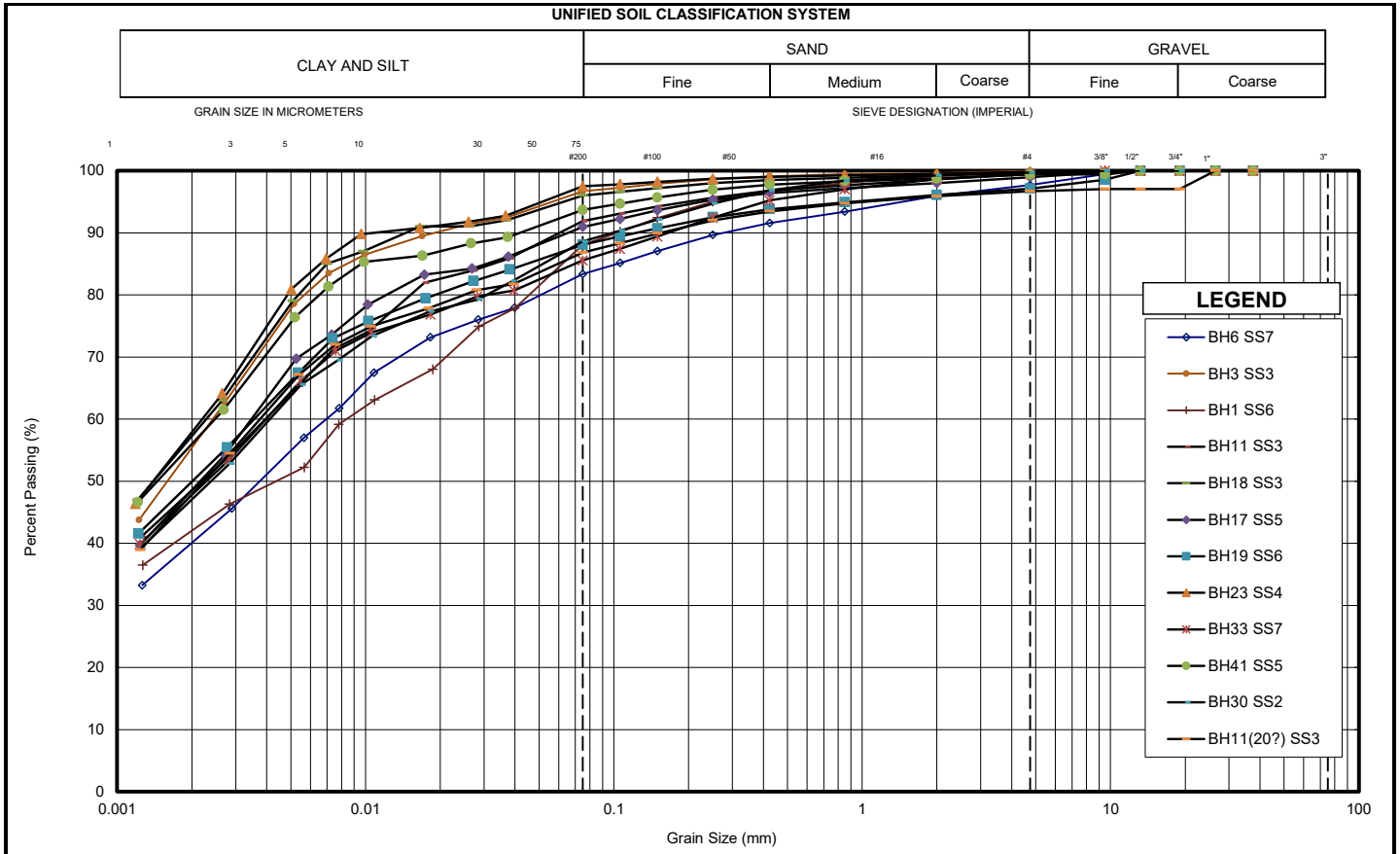
GEI Consultants

GRAIN SIZE DISTRIBUTION - Wildfield Village

CLAYEY SANDY SILT

FIGURE No.	C3
REF. No.	2408195
DATE	January 2025

Appendix C2: GEI and SCS's Local Subwater Shed Study Wildfield



Sample	Description	Gr.	Sa.	Si.	Cl.	D_{10}	D_{30}	D_{60}	C_u	C_c
BH6 SS7	SILT AND CLAY, Some Sand, Trace Gravel	2	14	43	40	-	-	0.007	-	-
BH3 SS3	CLAY AND SILT, Trace Sand	0	3	41	56	-	-	0.002	-	-
BH1 SS6	SILT AND CLAY, Some Sand	0	12	46	42	-	-	0.008	-	-
BH11 SS3	CLAY AND SILT, Trace Sand	0	8	43	49	-	-	0.004	-	-
BH18 SS3	CLAY AND SILT, Trace Sand	0	4	39	57	-	-	0.002	-	-
BH17 SS5	CLAY AND SILT, Trace Sand, Trace Gravel	1	8	42	49	-	-	0.003	-	-
BH19 SS6	CLAY AND SILT, Trace Sand, Trace Gravel	3	9	38	50	-	-	0.004	-	-
BH23 SS4	CLAY AND SILT, Trace Sand	0	2	40	58	-	-	0.002	-	-
BH33 SS7	CLAY AND SILT, Some Sand, Trace Gravel	1	14	38	47	-	-	0.004	-	-
BH41 SS5	CLAY AND SILT, Trace Sand, Trace Gravel	1	6	38	55	-	-	0.002	-	-
BH30 SS2	CLAY AND SILT, Some Sand	0	11	42	47	-	-	0.004	-	-
BH20 SS3	CLAY AND SILT, Some Sand, Trace Gravel	3	10	39	48	-	-	0.004	-	-

GEI Consultants

GRAIN SIZE DISTRIBUTION - Wildfield Village

COHESIVE GLACIAL TILL

FIGURE No. -

REF. No. 2100463

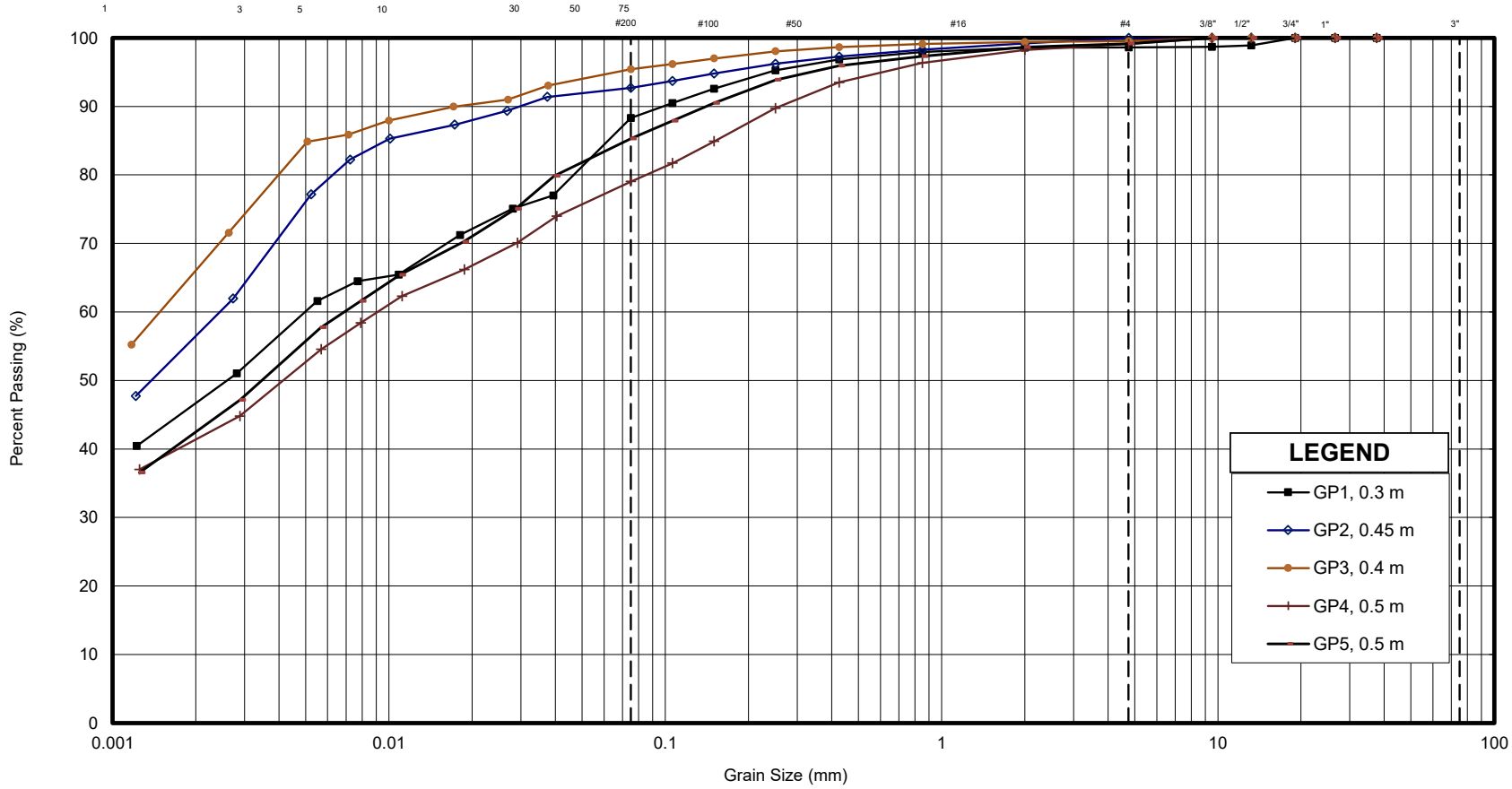
DATE August 2024

UNIFIED SOIL CLASSIFICATION SYSTEM

CLAY AND SILT	SAND			GRAVEL	
	Fine	Medium	Coarse	Fine	Coarse

GRAIN SIZE IN MICROMETERS

SIEVE DESIGNATION (IMPERIAL)



Sample	Description	Gr.	Sa.	Si.	Cl.	D_{10}	D_{30}	D_{60}	C_u	C_c
GP1	SILT AND CLAY, Some Sand, Trace Gravel	1	10	42	47	-	-	0.005	-	-
GP2	SILT AND CLAY, Trace Sand	-	7	36	57	-	-	0.002	-	-
GP3	SILTY CLAY, Trace Sand	-	4	29	67	-	-	0.001	-	-
GP4	SANDY SILT AND CLAY, Trace Gravel	1	20	38	41	-	-	0.009	-	-
GP5	SILT AND CLAY, Some Sand, Trace Gravel	1	14	43	42	-	-	0.007	-	-

GEI Consultants

GRAIN SIZE DISTRIBUTION - Wildfield Village

COHESIVE GLACIAL TILL

REF. No. 2100463

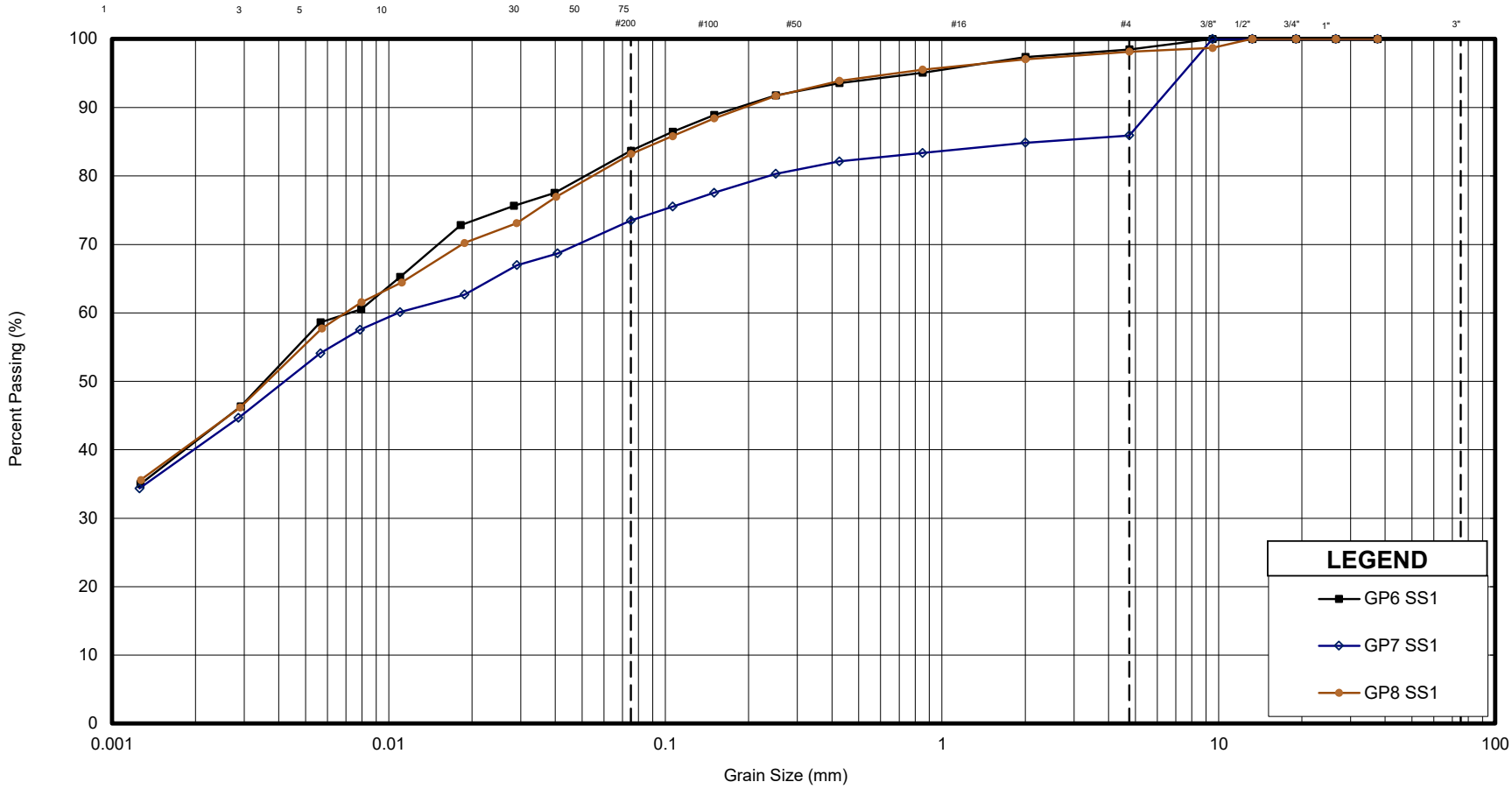
DATE August 2024

UNIFIED SOIL CLASSIFICATION SYSTEM

CLAY AND SILT	SAND			GRAVEL	
	Fine	Medium	Coarse	Fine	Coarse

GRAIN SIZE IN MICROMETERS

SIEVE DESIGNATION (IMPERIAL)



Sample	Description	Gr.	Sa.	Si.	Cl.	D_{10}	D_{30}	D_{60}	C_u	C_c
GP6 SS1	SILT AND CLAY, Some Sand Trace Gravel	2	15	42	41	-	-	0.007	-	-
GP7 SS1	SILTY CLAY, Some Grave, Some Sand	14	12	33	41	-	-	0.011	-	-
GP8 SS1	SILT AND CLAY, Some Sand Trace Gravel	2	15	42	41	-	-	0.007	-	-

GEI Consultants

GRAIN SIZE DISTRIBUTION - Wildfield Village

COHESIVE GLACIAL TILL

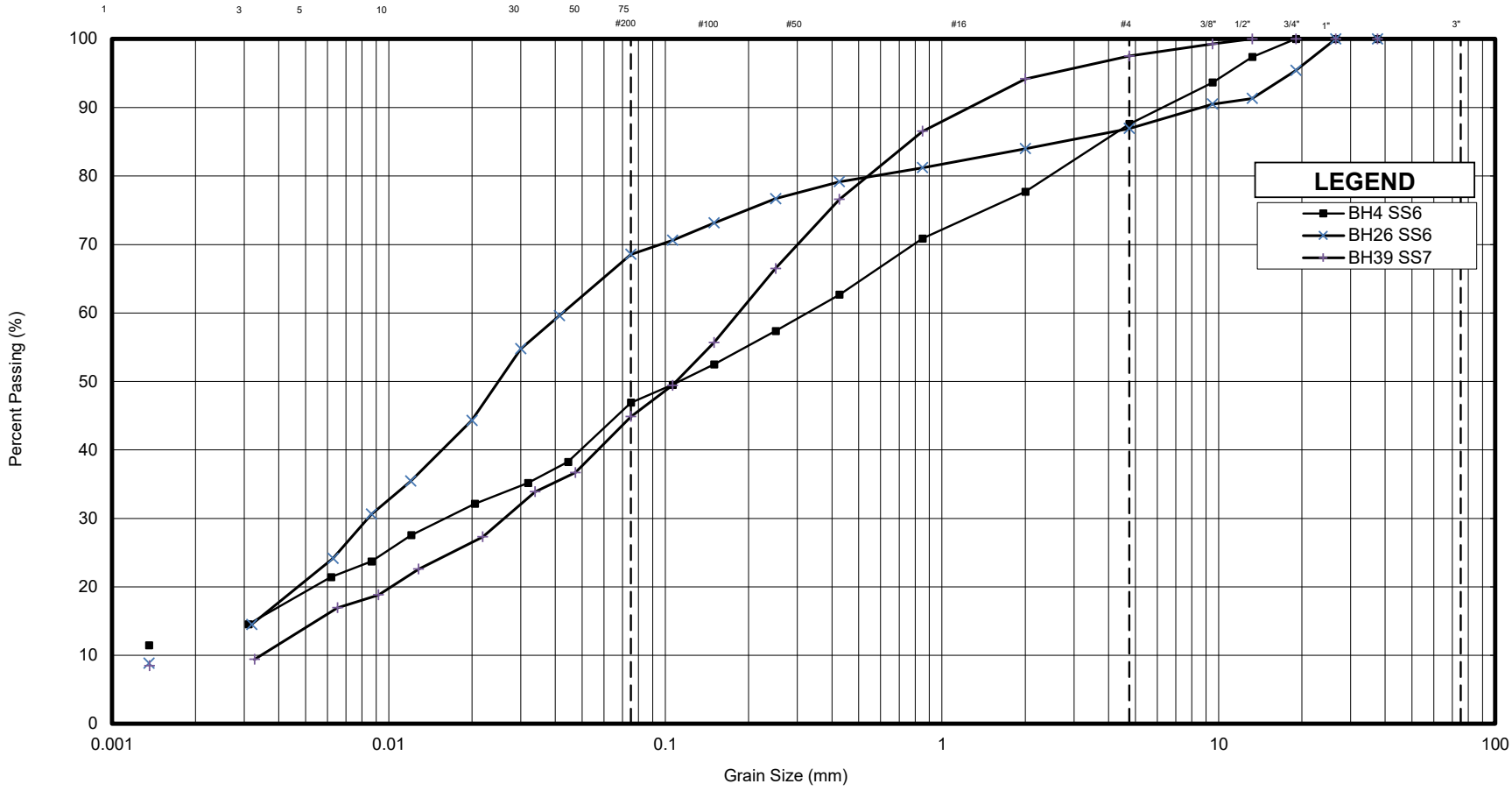
REF. No. 2100463

DATE August 2024

UNIFIED SOIL CLASSIFICATION SYSTEM

CLAY AND SILT	SAND			GRAVEL	
	Fine	Medium	Coarse	Fine	Coarse

GRAIN SIZE IN MICROMETERS — SIEVE DESIGNATION (IMPERIAL)



Sample	Description	Gr.	Sa.	Si.	Cl.	D_{10}	D_{30}	D_{60}	C_u	C_c
BH39 SS7	SAND AND SILT, Trace Clay, Trace Gravel	2	53	36	9	0.003	0.026	0.184	53.3	1.1
BH26 SS6	SILT, Some Sand, Some Gravel, Some Clay	13	18	58	11	0.002	0.008	0.042	26.3	1.0
BH4 SS6	SILTY SAND, Some Clay, Some Gravel	12	41	34	13	-	0.016	0.326	-	-

GEI Consultants

GRAIN SIZE DISTRIBUTION - Wildfield Village

COHESIONLESS GLACIAL TILL

FIGURE No. -

REF. No. 2100463

DATE August 2024

Appendix D Hydraulic Conductivity Testing

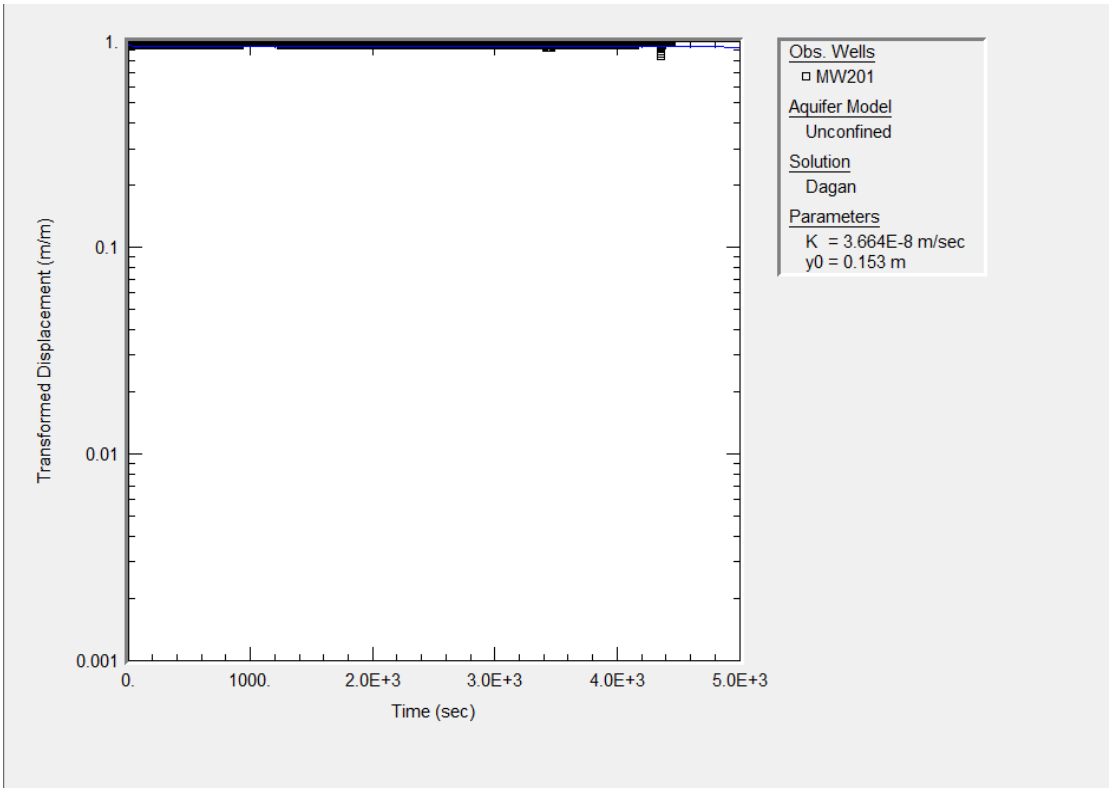
Appendix D1: GEI Support of Draft Plan of Subdivision

GEI Consultants

Estimation of K by Slug Test, based on Horslev equation

Date:	August 16 to 17, 2024
Conducted by:	T.Atikain

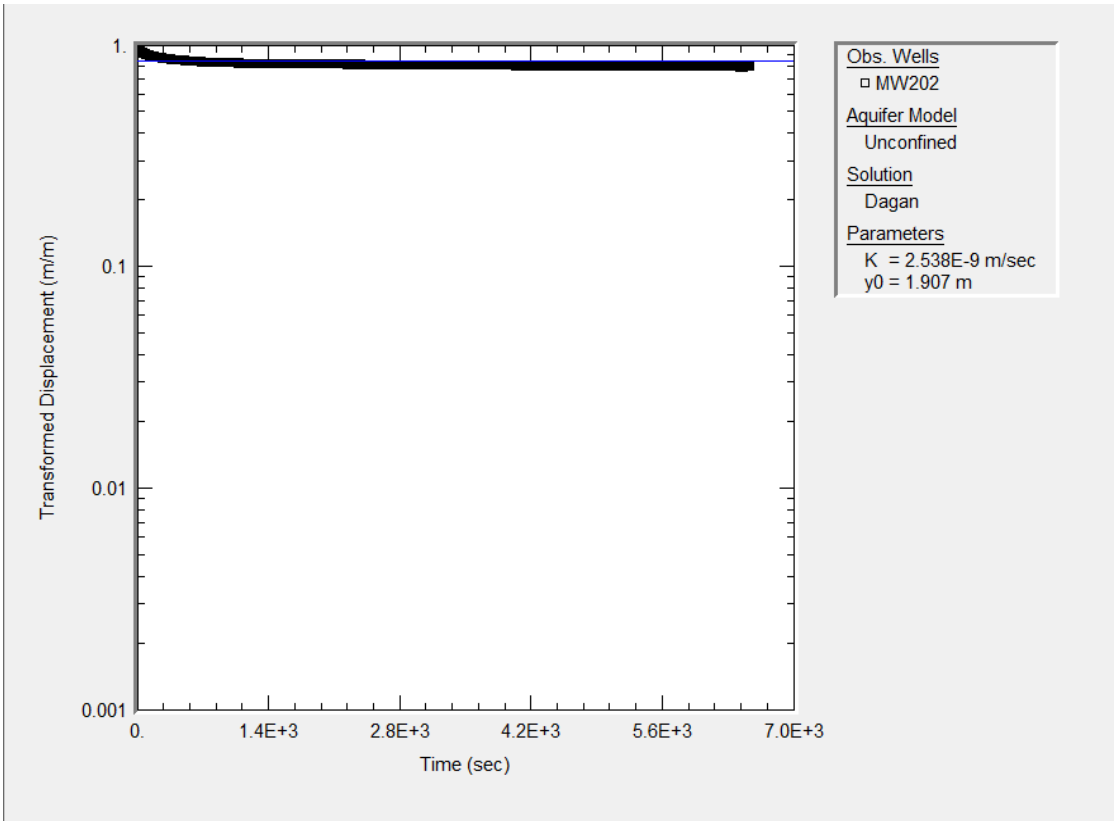
Well Number:	MW201	
Well Screen Bottom:	6.10	mbgs
Top of Pipe:	1.00	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	239.70	mbgs
Static Water Level:	5.60	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**$3.7x10^{-8}$**	m/s



Estimation of K by Slug Test, based on Horslev equation

Date:	August 16 to 17, 2024
Conducted by:	T.Atikain

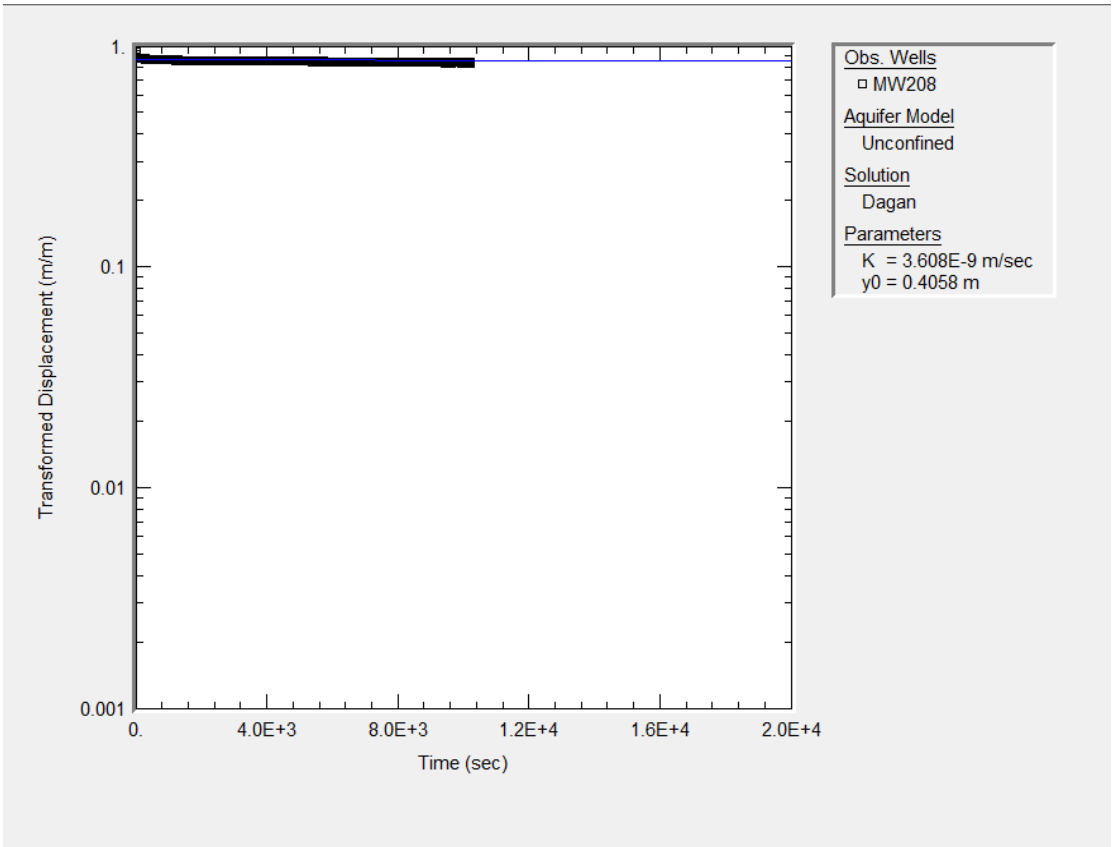
Well Number:	MW202	
Well Screen Bottom:	6.10	mbgs
Top of Pipe:	0.90	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	239.30	mbgs
Static Water Level:	3.60	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**$2.5x10^{-9}$**	m/s



Estimation of K by Slug Test, based on Horslev equation

Date:	August 16 to 17, 2024
Conducted by:	T.Atikain

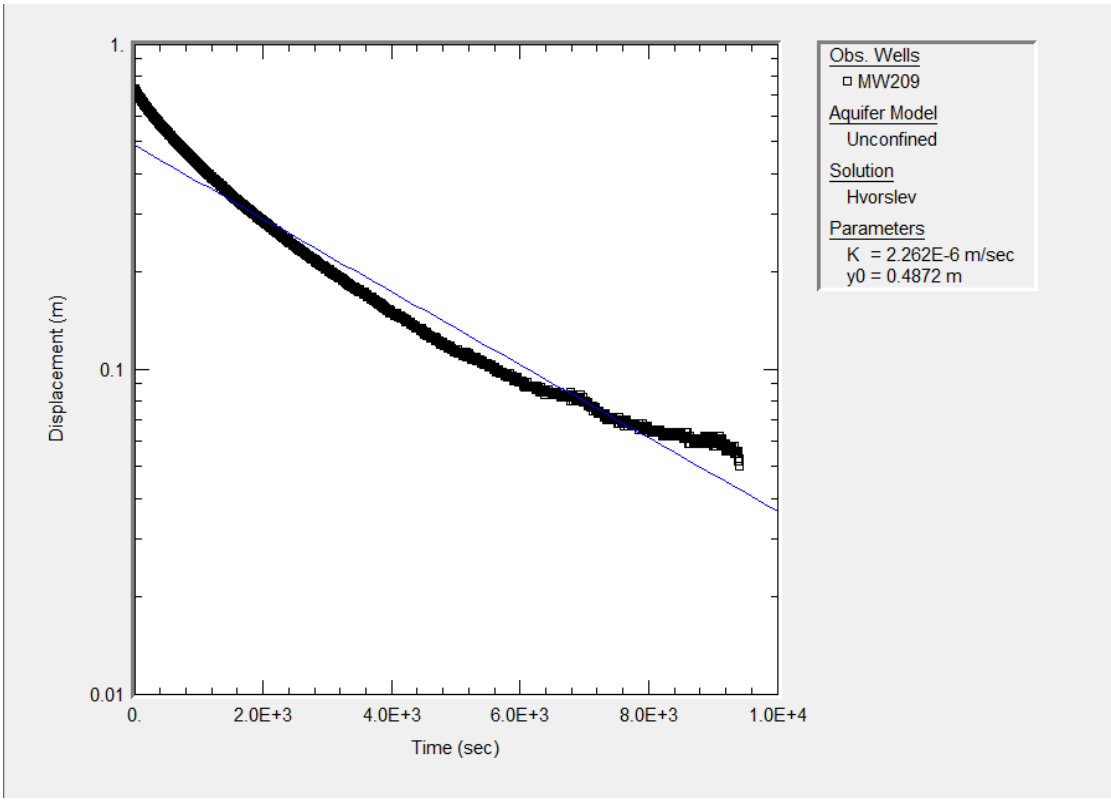
Well Number:	MW208	
Well Screen Bottom:	9.10	mbgs
Top of Pipe:	0.80	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	232.70	mbgs
Static Water Level:	8.30	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**$3.6x10^{-9}$**	m/s



Estimation of K by Slug Test, based on Horslev equation

Date:	August 16 to 17, 2024
Conducted by:	T.Atikain

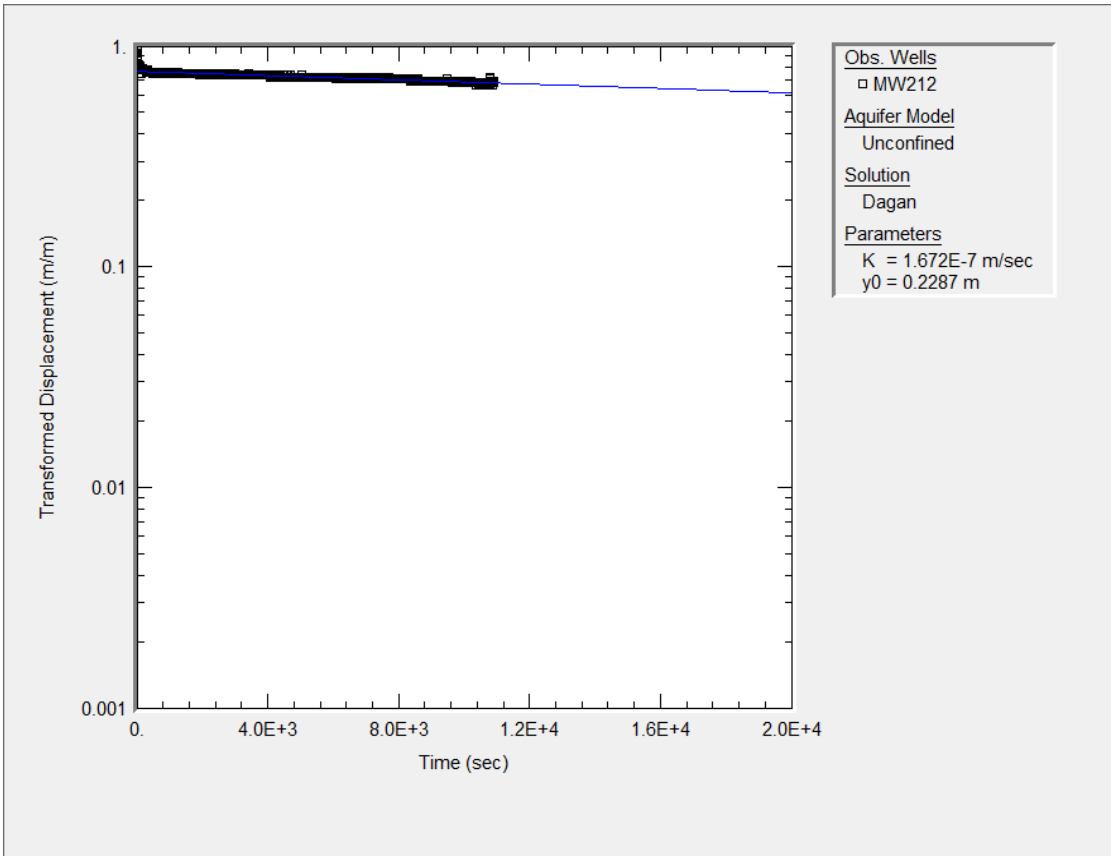
Well Number:	MW209	
Well Screen Bottom:	9.10	mbgs
Top of Pipe:	0.80	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	233.80	mbgs
Static Water Level:	5.40	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**$2.3x10^{-6}$**	m/s



Estimation of K by Slug Test, based on Horslev equation

Date:	August 16 to 17, 2024
Conducted by:	T.Atikain

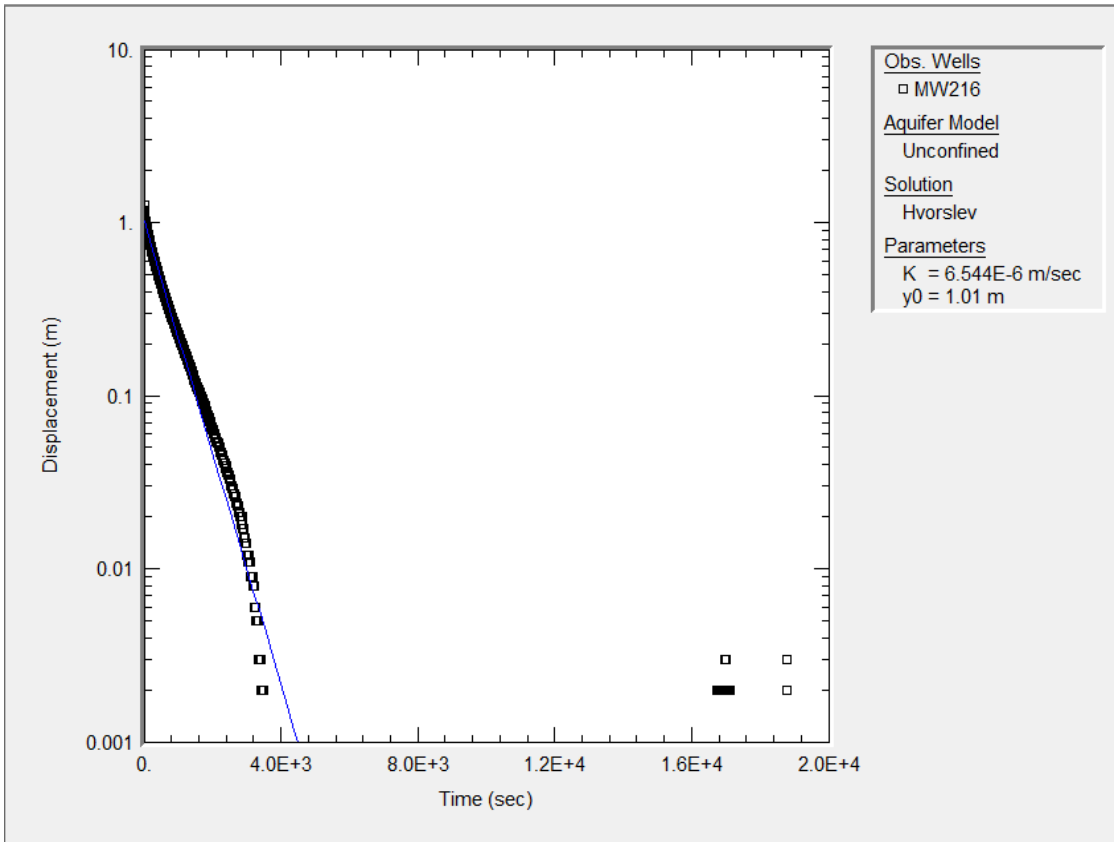
Well Number:	MW212	
Well Screen Bottom:	6.10	mbgs
Top of Pipe:	1.00	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	239.80	mbgs
Static Water Level:	5.70	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**$1.7x10^{-7}$**	m/s



Estimation of K by Slug Test, based on Horslev equation

Date:	August 16 to 17, 2024
Conducted by:	T.Atikain

Well Number:	MW216	
Well Screen Bottom:	12.20	mbgs
Top of Pipe:	0.90	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	235.60	mbgs
Static Water Level:	3.00	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**6.5×10^{-6}**	m/s



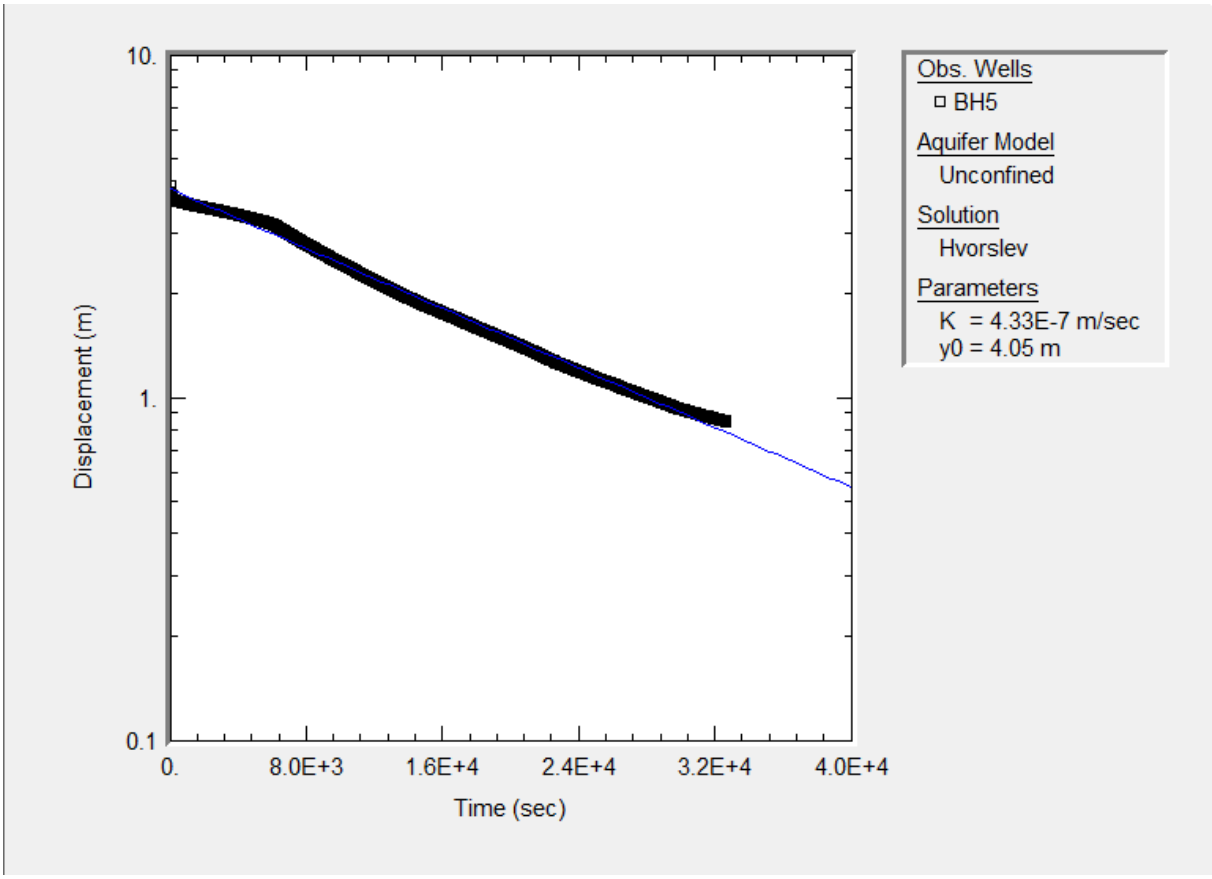
Appendix D2: GEI and SCS's Local Subwater Shed Study Wildfield

GEI Consultants

Estimation of K by Slug Test, based on Horslev equation

Date:	May 16 to 18, 2023
Conducted by:	B.Hwang

Well Number:	BH5	
Well Screen Bottom:	7.62	mbgs
Top of Pipe:	0.93	mbgs
Well Casing Diameter:	5.08	cm
Well Elevation:	241.8	mbgs
Static Water Level:	2.85	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**4.3×10^{-7}**	m/s

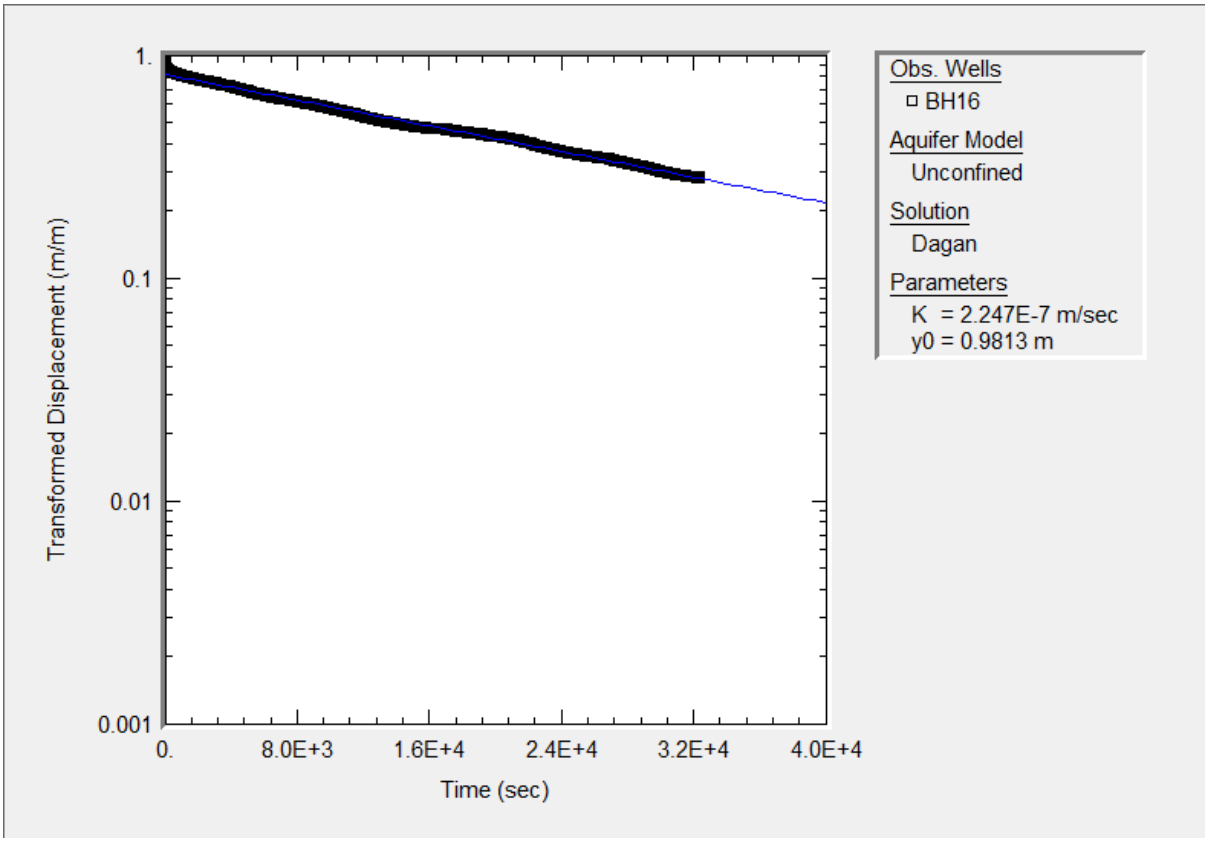


GEI Consultants

Estimation of K by Slug Test, based on Horslev equation

Date:	May 16 to 18, 2023
Conducted by:	B.Hwang

Well Number:	BH16	
Well Screen Bottom:	6.10	mbgs
Top of Pipe:	0.76	mbgs
Well Casing Diameter:	5.08	cm
Well Elevation:	242.77	mbgs
Static Water Level:	4.60	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**$2.2x10^{-7}$**	m/s

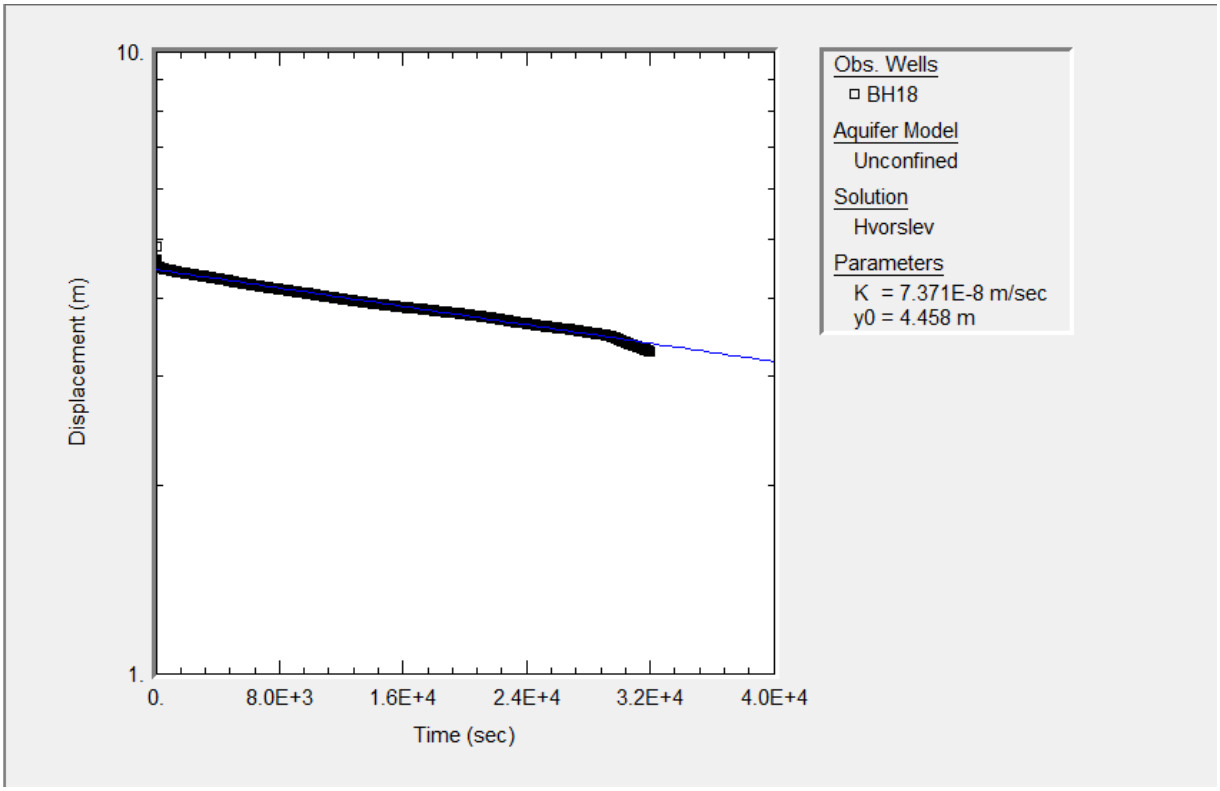


GEI Consultants

Estimation of K by Slug Test, based on Horslev equation

Date:	May 16 to 18, 2023
Conducted by:	B.Hwang

Well Number:	BH18D	
Well Screen Bottom:	6.70	mbgs
Top of Pipe:	0.75	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	240.53	mbgs
Static Water Level:	1.68	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**$7.4x10^{-8}$**	m/s

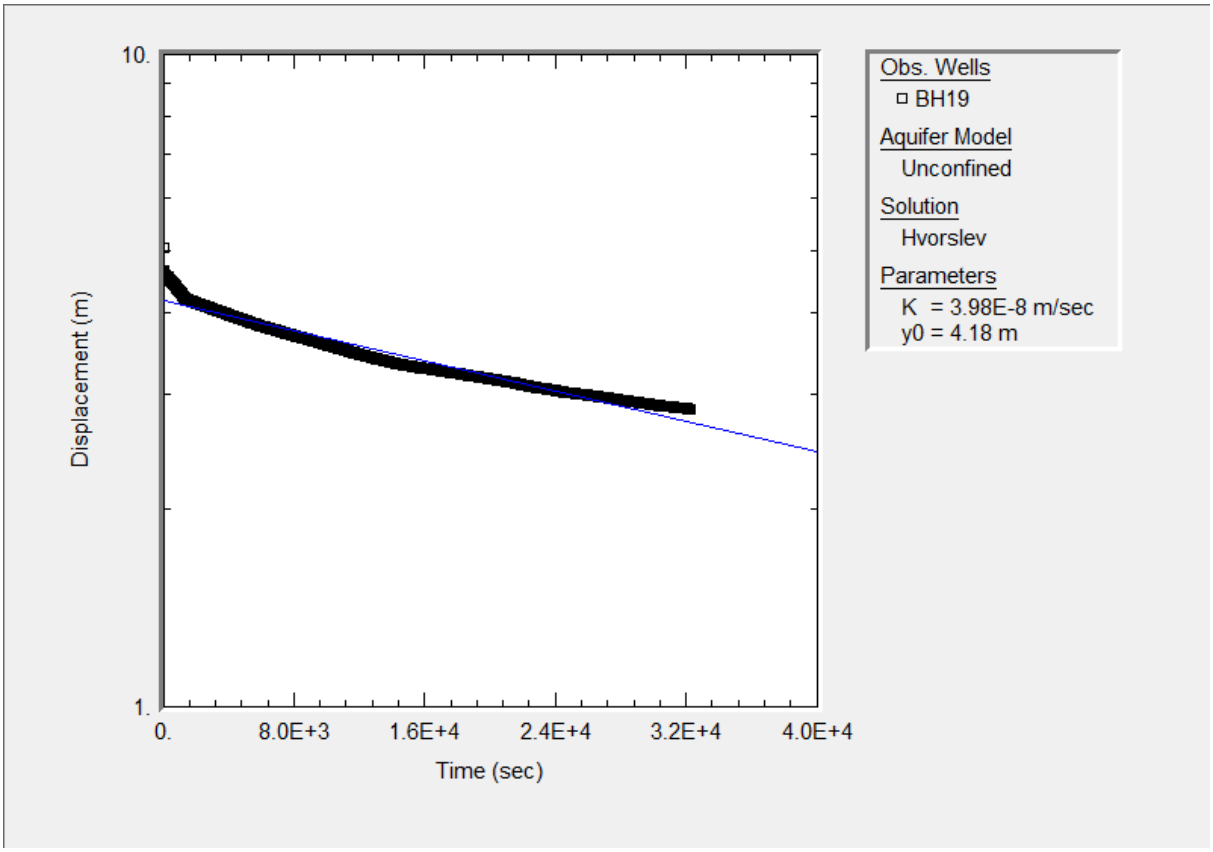


GEI Consultants

Estimation of K by Slug Test, based on Horslev equation

Date:	May 16 to 18, 2023
Conducted by:	B.Hwang

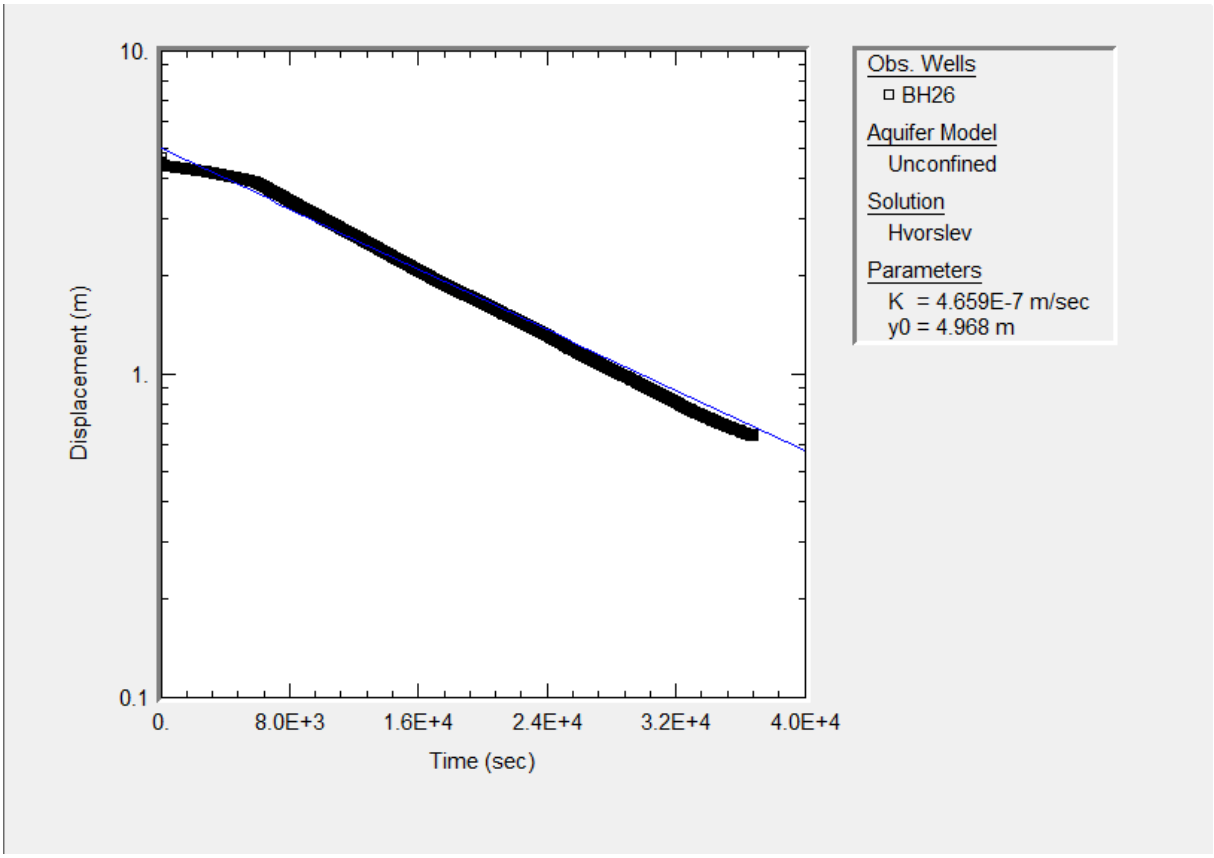
Well Number:	BH19	
Well Screen Bottom:	6.10	mbgs
Top of Pipe:	0.78	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	239.32	mbgs
Static Water Level:	0.31	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**$4.0x10^{-8}$**	m/s



Estimation of K by Slug Test, based on Horslev equation

Date:	May 16 to 18, 2023
Conducted by:	B.Hwang

Well Number:	BH26	
Well Screen Bottom:	6.10	mbgs
Top of Pipe:	0.78	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	228.17	mbgs
Static Water Level:	0.73	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**4.7×10^{-7}**	m/s

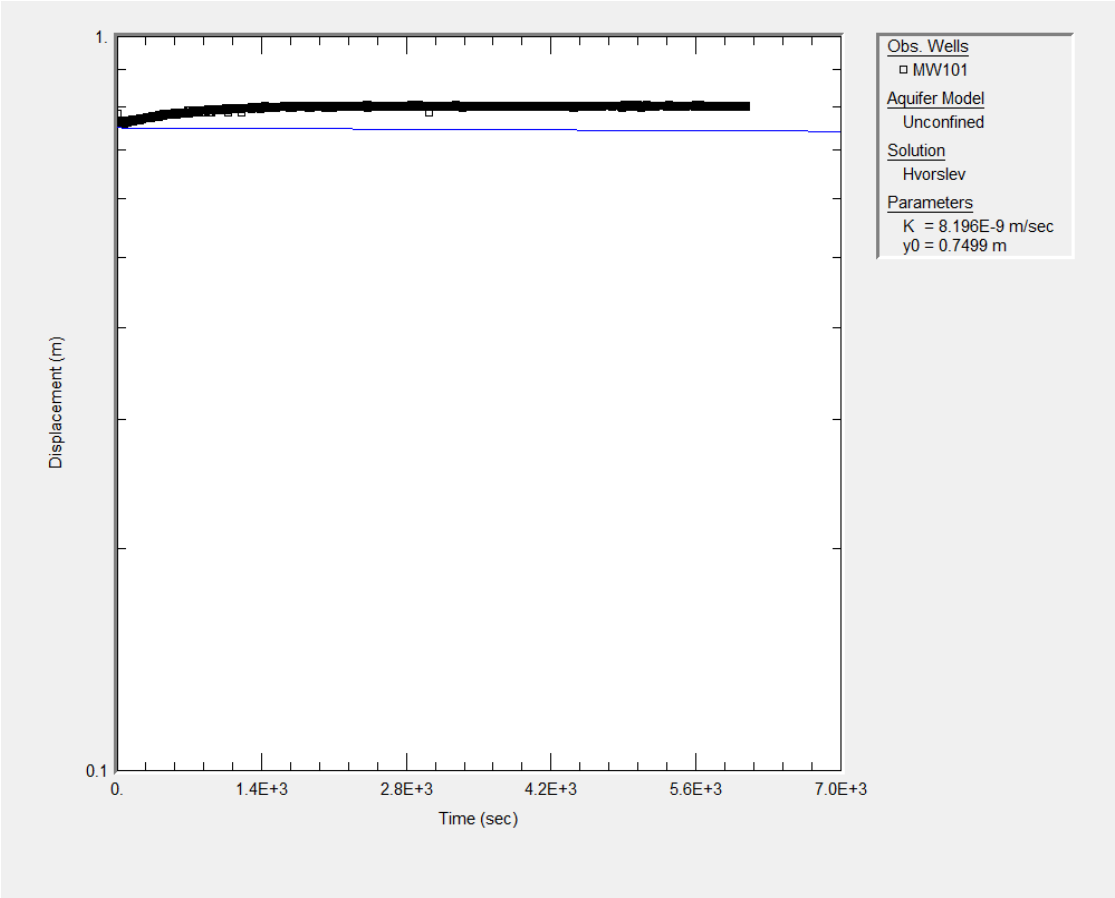


GEI Consultants

Estimation of K by Slug Test, based on Horslev equation

Date:	August 21 to 22, 2024
Conducted by:	T.Atikain

Well Number:	MW101	
Well Screen Bottom:	6.10	mbgs
Top of Pipe:	0.73	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	240.16	mbgs
Static Water Level:	1.74	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**$8.2x10^{-9}$**	m/s

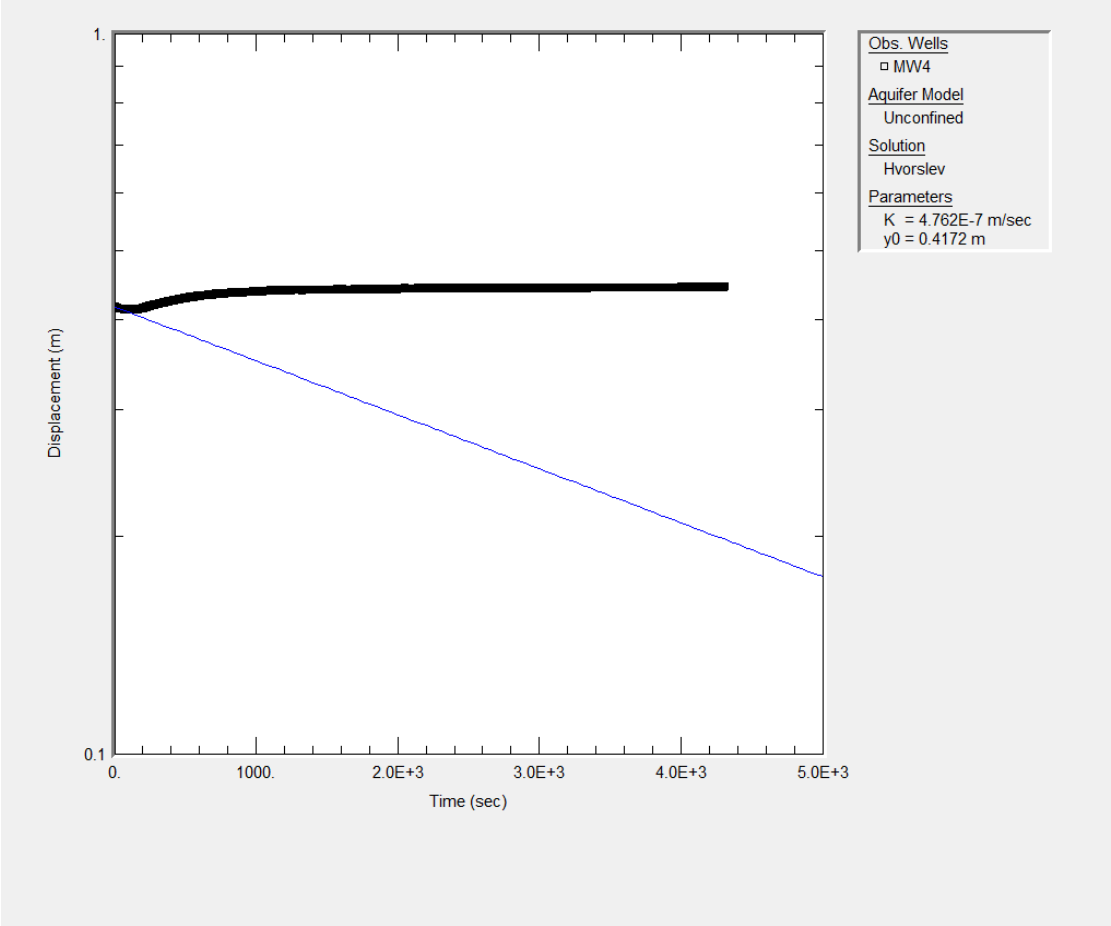


GEI Consultants

Estimation of K by Slug Test, based on Horslev equation

Date:	August 21 to 22, 2024
Conducted by:	T.Atikain

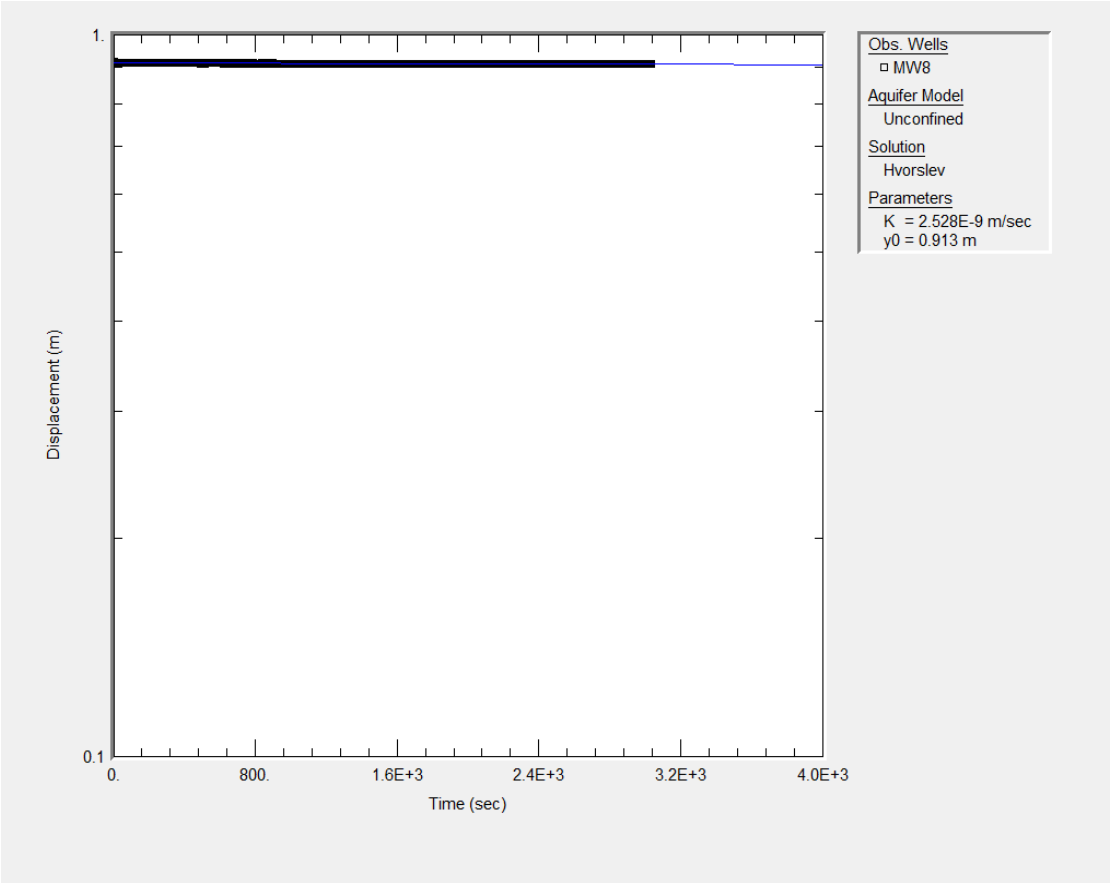
Well Number:	MW4 (Pinchin)	
Well Screen Bottom:	6.00	mbgs
Top of Pipe:	0.95	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	243.41	mbgs
Static Water Level:	2.48	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**$4.8x10^{-7}$**	m/s



Estimation of K by Slug Test, based on Horslev equation

Date:	August 21 to 22, 2024
Conducted by:	T.Atikain

Well Number:	MW8 (Pinchin)	
Well Screen Bottom:	6.00	mbgs
Top of Pipe:	0.97	mags
Well Casing Diameter:	5.08	cm
Well Elevation:	237.78	mbgs
Static Water Level:	2.40	mbgs
$K = r^2\ln(L/R)/(2LTo)$ =	**$2.5x10^{-9}$**	m/s



Appendix E Water Quality Laboratory Certificate of Analysis & Chain of Custody

Appendix E1: GEI Support of Draft Plan of Subdivision

Certificate of Analysis

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Frankie Huang
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3013369
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

Dear Frankie Huang:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____
Patrick Jacques, Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: https://directory.cala.ca/.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Certificate of Analysis

eurofins | Environment Testing

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Frankie Huang
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3013369
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1754595 GW 2024-12-17 MW209 (F)	1754596 GW 2024-12-17 MW209	1754597 GW 2024-12-17 MW202 (F)	1754598 GW 2024-12-17 MW202
General Chemistry	Total Suspended Solids	2	mg/L			<2	1270	4	1620
Metals	Ag	0.0001	mg/L	PWQO 0.0001		<0.0001	<0.0001		
		0.0004	mg/L	PWQO 0.0001				<0.0004*	<0.0004*
	Al	0.01	mg/L	IPWQO 0.075		0.02	1.59*		
		0.04	mg/L	IPWQO 0.075				<0.04	2.20*
	As	0.001	mg/L	PWQO 0.100		<0.001	0.002		
		0.004	mg/L	PWQO 0.100				<0.004	<0.004
	B	0.01	mg/L	IPWQO 0.200		0.37*	0.37*		
		0.04	mg/L	IPWQO 0.200				0.27*	0.27*
	Ba	0.01	mg/L			0.08	0.11		
		0.04	mg/L					<0.04	<0.04
	Be	0.0005	mg/L	PWQO 0.011		<0.0005	<0.0005		
		0.002	mg/L	PWQO 0.011				<0.002	<0.002
	Cd	0.0001	mg/L	PWQO 0.0002		<0.0001	<0.0001		
		0.0004	mg/L	PWQO 0.0002				<0.0004*	<0.0004*
	Co	0.0002	mg/L	IPWQO 0.0009		0.0005	0.0028*		
		0.0008	mg/L	IPWQO 0.0009				0.0087*	0.0132*
	Cr	0.001	mg/L			<0.001	0.005		
		0.004	mg/L					<0.004	0.005
	Cu	0.001	mg/L	IPWQO 0.005		<0.001	0.006*		
		0.004	mg/L	IPWQO 0.005				<0.004	0.014*
	Fe	0.03	mg/L	PWQO 0.30		0.34*	5.10*		
		0.1	mg/L	PWQO 0.30				<0.1	3.4*
	Hg	0.0001	mg/L			<0.0001	<0.0001		
		0.0004	mg/L					<0.0004	<0.0004

Guideline = PWQO - Ontario *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

eurofins | Environment Testing

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Frankie Huang
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3013369
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1754595 GW 2024-12-17 MW209 (F)	1754596 GW 2024-12-17 MW209	1754597 GW 2024-12-17 MW202 (F)	1754598 GW 2024-12-17 MW202
Metals	Mo	0.005	mg/L	IPWQO 0.040		<0.005	<0.005		
		0.02	mg/L	IPWQO 0.040				<0.02	<0.02
	Ni	0.005	mg/L	PWQO 0.025		<0.005	<0.005		
		0.02	mg/L	PWQO 0.025				<0.02	<0.02
	Pb	0.001	mg/L	PWQO 0.005		<0.001	0.004		
		0.004	mg/L	PWQO 0.005				<0.004	0.011*
	Sb	0.0005	mg/L	IPWQO 0.020		<0.0005	<0.0005		
		0.002	mg/L	IPWQO 0.020				<0.002	<0.002
	Se	0.001	mg/L	PWQO 0.100		<0.001	0.003		
		0.004	mg/L	PWQO 0.100				<0.004	0.005
	Tl	0.0001	mg/L	IPWQO 0.0003		<0.0001	<0.0001		
		0.0004	mg/L	IPWQO 0.0003				<0.0004*	<0.0004*
	U	0.001	mg/L	IPWQO 0.005		<0.001	<0.001		
		0.004	mg/L	IPWQO 0.005				0.027*	0.026*
	V	0.001	mg/L	IPWQO 0.006		<0.001	0.006		
		0.004	mg/L	IPWQO 0.006				<0.004	0.008*
	W	0.002	mg/L	IPWQO 0.030		<0.002	<0.002		
		0.008	mg/L	IPWQO 0.030				<0.008	<0.008
	Zn	0.01	mg/L	PWQO 0.030		<0.01	0.01		
		0.04	mg/L	PWQO 0.030				<0.04*	<0.04*
	Zr	0.002	mg/L	IPWQO 0.004		<0.002	<0.002		
		0.008	mg/L	IPWQO 0.004				<0.008*	<0.008*

Guideline = PWQO - Ontario *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Frankie Huang
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3013369
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 470360 **Analysis/Extraction Date** 2024-12-19 **Analyst** AaN **Method** EPA 200.8			
Silver	<0.0001 mg/L	112	80-120
Aluminum	<0.01 mg/L	113	80-120
Arsenic	<0.001 mg/L	99	80-120
Boron (total)	<0.01 mg/L	101	80-120
Barium	<0.01 mg/L	97	80-120
Beryllium	<0.0005 mg/L	104	80-120
Cadmium	<0.0001 mg/L	101	80-120
Cobalt	<0.0002 mg/L	109	80-120
Chromium Total	<0.001 mg/L	97	80-120
Copper	<0.001 mg/L	109	80-120
Iron	<0.03 mg/L	100	80-120
Mercury	<0.0001 mg/L	103	80-120
Molybdenum	<0.005 mg/L	107	80-120
Nickel	<0.005 mg/L	112	80-120
Lead	<0.001 mg/L	109	80-120
Antimony	<0.0005 mg/L	82	80-120

Guideline = PWQO - Ontario *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
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MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Frankie Huang
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3013369
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Selenium	<0.001 mg/L	97	80-120
Thallium	<0.0001 mg/L	107	80-120
Uranium	<0.001 mg/L	98	80-120
Vanadium	<0.001 mg/L	102	80-120
W	<0.002 mg/L	95	80-120
Zinc	<0.01 mg/L	108	80-120
Zr	<0.002 mg/L	98	80-120
Run No 470365 **Analysis/Extraction Date** 2024-12-23 **Analyst** SKH **Method** C SM2540			
Total Suspended Solids	<2 mg/L	94	90-110
Run No 470394 **Analysis/Extraction Date** 2024-12-20 **Analyst** AaN **Method** EPA 200.8			
Silver	<0.0004 mg/L	117	80-120
Aluminum	<0.04 mg/L	105	80-120
Arsenic	<0.004 mg/L	96	80-120
Boron (total)	<0.04 mg/L	99	80-120
Barium	<0.04 mg/L	95	80-120
Beryllium	<0.002 mg/L	102	80-120

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Frankie Huang
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3013369
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Cadmium	<0.0004 mg/L	101	80-120
Cobalt	<0.0008 mg/L	107	80-120
Chromium Total	<0.004 mg/L	95	80-120
Copper	<0.004 mg/L	108	80-120
Iron	<0.1 mg/L	98	80-120
Mercury	<0.0004 mg/L	114	80-120
Molybdenum	<0.02 mg/L	105	80-120
Nickel	<0.02 mg/L	109	80-120
Lead	<0.004 mg/L	106	80-120
Antimony	<0.002 mg/L	81	80-120
Selenium	<0.004 mg/L	94	80-120
Thallium	<0.0004 mg/L	105	80-120
Uranium	<0.004 mg/L	94	80-120
Vanadium	<0.004 mg/L	100	80-120
W	<0.008 mg/L	95	80-120
Zinc	<0.04 mg/L	107	80-120
Zr	<0.008 mg/L	92	80-120

Guideline = PWQO - Ontario *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
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Certificate of Analysis

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Frankie Huang
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3013369
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

Sample Comment Summary

Sample ID: 1754596	MW209	Sediments not included for metals analysis.
Sample ID: 1754597	MW202 (F)	Metals MRL elevated due to matrix interference (dilution was done).
Sample ID: 1754598	MW202	Metals MRL elevated due to matrix interference (dilution was done).

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Frankie Huang
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3013368
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

Dear Frankie Huang:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____
Patrick Jacques, Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

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eurofins | Environment Testing

Certificate of Analysis

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Frankie Huang
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3013368
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

				Lab I.D.	1754594
				Sample Matrix	GW
				Sample Type	
				Sampling Date	2024-12-17
				Sample I.D.	MW209
Group	**Analyte**	**MRL**	**Units**	**Guideline**	
Anions	F	0.10	mg/L		0.29
	SO4	1	mg/L		100
General Chemistry	BOD5	1	mg/L	MAC 15	1
	Cyanide (total)	0.005	mg/L	MAC 0.02	<0.005
	pH	1.00		6.0-9.0	7.86
	Phenols	0.001	mg/L	MAC 0.008	<0.001
	Total Suspended Solids	2	mg/L	MAC 15	180*
Metals	Ag	0.0001	mg/L	MAC 0.12	<0.0001
	Al	0.01	mg/L		1.92
	As	0.001	mg/L	MAC 0.02	<0.001
	Cd	0.0001	mg/L	MAC 0.008	<0.0001
	Co	0.0002	mg/L		0.0012
	Cr	0.001	mg/L	MAC 0.08	0.004
	Cu	0.001	mg/L	MAC 0.05	0.003
	Hg	0.0001	mg/L	MAC 0.0004	<0.0001
	Mn	0.01	mg/L	MAC 0.05	0.16*
	Mo	0.005	mg/L		<0.005
	Ni	0.005	mg/L	MAC 0.08	<0.005
	Pb	0.001	mg/L	MAC 0.12	0.002
	Sb	0.0005	mg/L		<0.0005
	Se	0.001	mg/L	MAC 0.02	<0.001
	Sn	0.01	mg/L		<0.01
	Ti	0.01	mg/L		0.14
	Zn	0.01	mg/L	MAC 0.04	<0.01
Microbiology	Escherichia Coli	0	ct/100mL	MAC 200	0

Guideline = Storm Sewer - Peel

*** = Guideline Exceedence**

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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Certificate of Analysis

eurofins | Environment Testing

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Frankie Huang
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3013368
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

				Lab I.D.	1754594
				Sample Matrix	GW
				Sample Type	
				Sampling Date	2024-12-17
				Sample I.D.	MW209
Group	**Analyte**	**MRL**	**Units**	**Guideline**	
Nutrients	Total Kjeldahl Nitrogen	0.100	mg/L	MAC 1	1.13*
	Total P	0.020	mg/L	MAC 0.4	0.277
Oil and Grease	Oil & Grease - Mineral	1	mg/L		<1
	Oil & Grease - Non-mineral	1	mg/L		<1
	Oil & Grease - Total	1	mg/L		<1
Others	Nonylphenol	0.20	ug/L		<0.20
	Nonylphenol Ethoxylates (Total)	0.10	ug/L		<0.10
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L	MAC 0.4	<0.1
Semi-Volatiles	Bis(2-ethylhexyl)phthalate	0.4	ug/L	MAC 8.8	1.6
	Di-n-butylphthalate	1.3	ug/L	MAC 15.0	<1.3
VOCs Surrogates	1,2-dichloroethane-d4	0	%		124
	4-bromofluorobenzene	0	%		73
	Toluene-d8	0	%		129
Volatiles	1,1,2,2-tetrachloroethane	0.5	ug/L	MAC 17	<0.5
	1,2-dichlorobenzene	0.4	ug/L	MAC 5.6	<0.4
	1,4-dichlorobenzene	0.4	ug/L	MAC 6.8	<0.4
	Benzene	0.5	ug/L	MAC 2.0	<0.5
	c-1,2-Dichloroethylene	0.4	ug/L	MAC 5.6	<0.4
	Chloroform	0.5	ug/L	MAC 2.0	<0.5
	Dichloromethane	4.0	ug/L	MAC 5.2	<4.0
	Ethylbenzene	0.5	ug/L	MAC 2.0	<0.5
	m/p-xylene	0.4	ug/L		<0.4
	Methyl Ethyl Ketone (MEK)	2	ug/L		<2
	o-xylene	0.4	ug/L		<0.4
	Styrene	0.5	ug/L		<0.5

Guideline = Storm Sewer - Peel

*** = Guideline Exceedence**

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Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

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Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Frankie Huang
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3013368
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1754594 GW 2024-12-17 MW209
Volatiles	t-1,3-Dichloropropylene	0.5	ug/L	MAC 5.6	<0.5
	Tetrachloroethylene	0.3	ug/L	MAC 4.4	<0.3
	Toluene	0.4	ug/L	MAC 2.0	<0.4
	Trichloroethylene	0.3	ug/L	MAC 8.0	<0.3
	Xylene; total	0.5	ug/L	MAC 4.4	<0.5

Guideline = Storm Sewer - Peel *** = Guideline Exceedence**

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Report Number: 3013368
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 469919 **Analysis/Extraction Date** 2024-12-23 **Analyst** C M **Method** B 625/P 8270			
Bis(2-ethylhexyl)phthalate	<0.4 ug/L	91	20-140
Di-n-butylphthalate	<1.3 ug/L	93	20-140
Run No 470279 **Analysis/Extraction Date** 2024-12-19 **Analyst** L V **Method** AMBCOLM1			
Escherichia Coli			
Run No 470322 **Analysis/Extraction Date** 2024-12-19 **Analyst** IP **Method** SM5530D/EPA420.2			
Phenols	<0.001 mg/L	105	50-120
Run No 470328 **Analysis/Extraction Date** 2024-12-19 **Analyst** SKH **Method** EPA 351.2			
Total Kjeldahl Nitrogen	<0.100 mg/L	99	70-130
Run No 470346 **Analysis/Extraction Date** 2024-12-24 **Analyst** Z S **Method** SM 5210B			
BOD5	<1 mg/L	96	75-125
Run No 470360 **Analysis/Extraction Date** 2024-12-19 **Analyst** AaN **Method** EPA 200.8			
Silver	<0.0001 mg/L	112	80-120

Guideline = Storm Sewer - Peel *** = Guideline Exceedence**

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Date Reported: 2024-12-24
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COC #: 918290

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Aluminum	<0.01 mg/L	113	80-120
Arsenic	<0.001 mg/L	99	80-120
Cadmium	<0.0001 mg/L	101	80-120
Cobalt	<0.0002 mg/L	109	80-120
Chromium Total	<0.001 mg/L	97	80-120
Copper	<0.001 mg/L	109	80-120
Mercury	<0.0001 mg/L	103	80-120
Manganese	<0.01 mg/L	108	80-120
Molybdenum	<0.005 mg/L	107	80-120
Nickel	<0.005 mg/L	112	80-120
Lead	<0.001 mg/L	109	80-120
Antimony	<0.0005 mg/L	82	80-120
Selenium	<0.001 mg/L	97	80-120
Sn	<0.01 mg/L	92	80-120
Titanium	<0.01 mg/L	100	80-120
Zinc	<0.01 mg/L	108	80-120

Run No 470365 **Analysis/Extraction Date** 2024-12-23 **Analyst** SKH
Method C SM2540

Guideline = Storm Sewer - Peel *** = Guideline Exceedence**

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Report Number: 3013368
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Total Suspended Solids	<2 mg/L	94	90-110
Run No 470385 **Analysis/Extraction Date** 2024-12-20 **Analyst** SKH **Method** EPA 365.1			
Total P	<0.020 mg/L	102	80-120
Run No 470393 **Analysis/Extraction Date** 2024-12-20 **Analyst** H S **Method** EPA 8260			
Tetrachloroethane, 1,1,2,2-	<0.5 ug/L	85	60-130
Dichlorobenzene, 1,2-	<0.4 ug/L	98	60-130
Dichlorobenzene, 1,4-	<0.4 ug/L	102	60-130
Benzene	<0.5 ug/L	99	60-130
Dichloroethylene, 1,2-cis-	<0.4 ug/L	99	60-130
Chloroform	<0.5 ug/L	112	60-130
Methylene Chloride	<4.0 ug/L	97	60-130
Ethylbenzene	<0.5 ug/L	102	60-130
m/p-xylene	<0.4 ug/L	102	60-130
Methyl Ethyl Ketone	<2 ug/L	110	60-130
o-xylene	<0.4 ug/L	92	60-130
Styrene	<0.5 ug/L	103	60-130

Guideline = Storm Sewer - Peel *** = Guideline Exceedence**

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Report Number: 3013368
Date Submitted: 2024-12-17
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Project: 2407542
COC #: 918290

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Dichloropropene,1,3-trans-	<0.5 ug/L	91	60-130
Tetrachloroethylene	<0.3 ug/L	127	60-130
Toluene	<0.4 ug/L	104	60-130
Trichloroethylene	<0.3 ug/L	99	60-130
Run No 470413 **Analysis/Extraction Date** 2024-12-20 **Analyst** H S **Method** EPA 8260			
Xylene Mixture			
Run No 470425 **Analysis/Extraction Date** 2024-12-23 **Analyst** IP **Method** SM 4110			
SO4	<1 mg/L	100	90-110
Run No 470428 **Analysis/Extraction Date** 2024-12-23 **Analyst** ACN **Method** SM 5520B/F			
Oil & Grease - Mineral	<1 mg/L	80	70-130
Oil & Grease - Non-mineral	<1 mg/L		70-130
Oil & Grease - Total	<1 mg/L	95	70-130
Run No 470443 **Analysis/Extraction Date** 2024-12-23 **Analyst** Z S **Method** SM4500-CNC/MOE E3015			
Cyanide (total)	<0.005 mg/L	88	61-139

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Project: 2407542
COC #: 918290

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 470448 **Analysis/Extraction Date** 2024-12-20 **Analyst** SD **Method** ASTM D7485			
Nonylphenol	<0.20 ug/L	96	50-150
Nonylphenol Ethoxylates (Total)			
Run No 470469 **Analysis/Extraction Date** 2024-12-23 **Analyst** AsA **Method** SM2320,2510,4500H/F			
F	<0.10 mg/L	107	90-110
pH		99	90-110
Run No 470493 **Analysis/Extraction Date** 2024-12-24 **Analyst** D T **Method** EPA 8081B			
Polychlorinated Biphenyls	<0.1 ug/L	102	60-140

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Project: 2407542
COC #: 918290

Dear Frankie Huang:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____
Patrick Jacques, Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: https://directory.cala.ca/.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Certificate of Analysis

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Report Number: 3013368
Date Submitted: 2024-12-17
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Project: 2407542
COC #: 918290

				Lab I.D.	1754594
				Sample Matrix	GW
				Sample Type	
				Sampling Date	2024-12-17
				Sample I.D.	MW209
Group	**Analyte**	**MRL**	**Units**	**Guideline**	
Anions	F	0.10	mg/L	MAC 10	0.29
	SO4	1	mg/L	MAC 1500	100
General Chemistry	BOD5	1	mg/L	MAC 300	1
	Cyanide (total)	0.005	mg/L	MAC 2	<0.005
	pH	1.00		MAC 5.5-10.0	7.86
	Phenols	0.001	mg/L	MAC 1.0	<0.001
	Total Suspended Solids	2	mg/L	MAC 350	180
Metals	Ag	0.0001	mg/L	MAC 5	<0.0001
	Al	0.01	mg/L	MAC 50	1.92
	As	0.001	mg/L	MAC 1	<0.001
	Cd	0.0001	mg/L	MAC 0.7	<0.0001
	Co	0.0002	mg/L	MAC 5	0.0012
	Cr	0.001	mg/L	MAC 5	0.004
	Cu	0.001	mg/L	MAC 3	0.003
	Hg	0.0001	mg/L	MAC 0.01	<0.0001
	Mn	0.01	mg/L	MAC 5	0.16
	Mo	0.005	mg/L	MAC 5	<0.005
	Ni	0.005	mg/L	MAC 3	<0.005
	Pb	0.001	mg/L	MAC 3	0.002
	Sb	0.0005	mg/L	MAC 5	<0.0005
	Se	0.001	mg/L	MAC 1	<0.001
	Sn	0.01	mg/L	MAC 5	<0.01
	Ti	0.01	mg/L	MAC 5	0.14
	Zn	0.01	mg/L	MAC 3	<0.01
Microbiology	Escherichia Coli	0	ct/100mL		0

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Group	Analyte	MRL	Units	Guideline	1754594 GW 2024-12-17 MW209
	Lab I.D.				1754594
	Sample Matrix				GW
	Sample Type				
	Sampling Date				2024-12-17
	Sample I.D.				MW209
Nutrients	Total Kjeldahl Nitrogen	0.100	mg/L	MAC 100	1.13
	Total P	0.020	mg/L	MAC 10	0.277
Oil and Grease	Oil & Grease - Mineral	1	mg/L	MAC 15	<1
	Oil & Grease - Non-mineral	1	mg/L	MAC 150	<1
	Oil & Grease - Total	1	mg/L		<1
Others	Nonylphenol	0.20	ug/L	MAC 20	<0.20
	Nonylphenol Ethoxylates (Total)	0.10	ug/L	MAC 200	<0.10
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L	MAC 1	<0.1
Semi-Volatiles	Bis(2-ethylhexyl)phthalate	0.4	ug/L	MAC 12	1.6
	Di-n-butylphthalate	1.3	ug/L	MAC 80	<1.3
VOCs Surrogates	1,2-dichloroethane-d4	0	%		124
	4-bromofluorobenzene	0	%		73
	Toluene-d8	0	%		129
Volatiles	1,1,2,2-tetrachloroethane	0.5	ug/L	MAC 1400	<0.5
	1,2-dichlorobenzene	0.4	ug/L	MAC 50	<0.4
	1,4-dichlorobenzene	0.4	ug/L	MAC 80	<0.4
	Benzene	0.5	ug/L	MAC 10	<0.5
	c-1,2-Dichloroethylene	0.4	ug/L	MAC 4000	<0.4
	Chloroform	0.5	ug/L	MAC 40	<0.5
	Dichloromethane	4.0	ug/L	MAC 2000	<4.0
	Ethylbenzene	0.5	ug/L	MAC 160	<0.5
	m/p-xylene	0.4	ug/L		<0.4
	Methyl Ethyl Ketone (MEK)	2	ug/L	MAC 8000	<2
	o-xylene	0.4	ug/L		<0.4
	Styrene	0.5	ug/L	MAC 200	<0.5

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Report Number: 3013368
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1754594 GW 2024-12-17 MW209
Volatiles	t-1,3-Dichloropropylene	0.5	ug/L	MAC 140	<0.5
	Tetrachloroethylene	0.3	ug/L	MAC 1000	<0.3
	Toluene	0.4	ug/L	MAC 270	<0.4
	Trichloroethylene	0.3	ug/L	MAC 400	<0.3
	Xylene; total	0.5	ug/L	MAC 1400	<0.5

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Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 469919 **Analysis/Extraction Date** 2024-12-23 **Analyst** C M **Method** B 625/P 8270			
Bis(2-ethylhexyl)phthalate	<0.4 ug/L	91	20-140
Di-n-butylphthalate	<1.3 ug/L	93	20-140
Run No 470279 **Analysis/Extraction Date** 2024-12-19 **Analyst** L V **Method** AMBCOLM1			
Escherichia Coli			
Run No 470322 **Analysis/Extraction Date** 2024-12-19 **Analyst** IP **Method** SM5530D/EPA420.2			
Phenols	<0.001 mg/L	105	50-120
Run No 470328 **Analysis/Extraction Date** 2024-12-19 **Analyst** SKH **Method** EPA 351.2			
Total Kjeldahl Nitrogen	<0.100 mg/L	99	70-130
Run No 470346 **Analysis/Extraction Date** 2024-12-24 **Analyst** Z S **Method** SM 5210B			
BOD5	<1 mg/L	96	75-125
Run No 470360 **Analysis/Extraction Date** 2024-12-19 **Analyst** AaN **Method** EPA 200.8			
Silver	<0.0001 mg/L	112	80-120

Guideline = Sanitary Sewer - Peel *** = Guideline Exceedence**

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Project: 2407542
COC #: 918290

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Aluminum	<0.01 mg/L	113	80-120
Arsenic	<0.001 mg/L	99	80-120
Cadmium	<0.0001 mg/L	101	80-120
Cobalt	<0.0002 mg/L	109	80-120
Chromium Total	<0.001 mg/L	97	80-120
Copper	<0.001 mg/L	109	80-120
Mercury	<0.0001 mg/L	103	80-120
Manganese	<0.01 mg/L	108	80-120
Molybdenum	<0.005 mg/L	107	80-120
Nickel	<0.005 mg/L	112	80-120
Lead	<0.001 mg/L	109	80-120
Antimony	<0.0005 mg/L	82	80-120
Selenium	<0.001 mg/L	97	80-120
Sn	<0.01 mg/L	92	80-120
Titanium	<0.01 mg/L	100	80-120
Zinc	<0.01 mg/L	108	80-120

Run No 470365 **Analysis/Extraction Date** 2024-12-23 **Analyst** SKH
Method C SM2540

Guideline = Sanitary Sewer - Peel *** = Guideline Exceedence**

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Project: 2407542
COC #: 918290

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Total Suspended Solids	<2 mg/L	94	90-110
Run No 470385 **Analysis/Extraction Date** 2024-12-20 **Analyst** SKH **Method** EPA 365.1			
Total P	<0.020 mg/L	102	80-120
Run No 470393 **Analysis/Extraction Date** 2024-12-20 **Analyst** H S **Method** EPA 8260			
Tetrachloroethane, 1,1,2,2-	<0.5 ug/L	85	60-130
Dichlorobenzene, 1,2-	<0.4 ug/L	98	60-130
Dichlorobenzene, 1,4-	<0.4 ug/L	102	60-130
Benzene	<0.5 ug/L	99	60-130
Dichloroethylene, 1,2-cis-	<0.4 ug/L	99	60-130
Chloroform	<0.5 ug/L	112	60-130
Methylene Chloride	<4.0 ug/L	97	60-130
Ethylbenzene	<0.5 ug/L	102	60-130
m/p-xylene	<0.4 ug/L	102	60-130
Methyl Ethyl Ketone	<2 ug/L	110	60-130
o-xylene	<0.4 ug/L	92	60-130
Styrene	<0.5 ug/L	103	60-130

Guideline = Sanitary Sewer - Peel *** = Guideline Exceedence**

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Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Frankie Huang
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3013368
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Dichloropropene,1,3-trans-	<0.5 ug/L	91	60-130
Tetrachloroethylene	<0.3 ug/L	127	60-130
Toluene	<0.4 ug/L	104	60-130
Trichloroethylene	<0.3 ug/L	99	60-130
Run No 470413 **Analysis/Extraction Date** 2024-12-20 **Analyst** H S **Method** EPA 8260			
Xylene Mixture			
Run No 470425 **Analysis/Extraction Date** 2024-12-23 **Analyst** IP **Method** SM 4110			
SO4	<1 mg/L	100	90-110
Run No 470428 **Analysis/Extraction Date** 2024-12-23 **Analyst** ACN **Method** SM 5520B/F			
Oil & Grease - Mineral	<1 mg/L	80	70-130
Oil & Grease - Non-mineral	<1 mg/L		70-130
Oil & Grease - Total	<1 mg/L	95	70-130
Run No 470443 **Analysis/Extraction Date** 2024-12-23 **Analyst** Z S **Method** SM4500-CNC/MOE E3015			
Cyanide (total)	<0.005 mg/L	88	61-139

Guideline = Sanitary Sewer - Peel *** = Guideline Exceedence**

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Certificate of Analysis

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647 Welham Rd Unit 14
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Attention: M. Frankie Huang
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Invoice to: GEI Consultants Inc.

Report Number: 3013368
Date Submitted: 2024-12-17
Date Reported: 2024-12-24
Project: 2407542
COC #: 918290

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 470448 **Analysis/Extraction Date** 2024-12-20 **Analyst** SD **Method** ASTM D7485			
Nonylphenol	<0.20 ug/L	96	50-150
Nonylphenol Ethoxylates (Total)			
Run No 470469 **Analysis/Extraction Date** 2024-12-23 **Analyst** AsA **Method** SM2320,2510,4500H/F			
F	<0.10 mg/L	107	90-110
pH		99	90-110
Run No 470493 **Analysis/Extraction Date** 2024-12-24 **Analyst** D T **Method** EPA 8081B			
Polychlorinated Biphenyls	<0.1 ug/L	102	60-140

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Appendix E2: GEI and SCS's Local Subwater Shed Study Wildfield

Certificate of Analysis

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997225
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

Dear Aiden Belfrage:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____
Raheleh Zafari, Environmental Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: https://directory.cala.ca/.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Certificate of Analysis

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Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997225
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1687732 SURF W 2023-05-18 BH5	1687733 SURF W 2023-05-18 BH18	1687734 SURF W 2023-05-18 BH26	1687735 SURF W 2023-05-18 BH33
General Chemistry	Total Suspended Solids	2	mg/L			13	319	49	158
Metals	Ag	0.0001	mg/L	PWQO 0.0001		<0.0001		<0.0001	<0.0001
		0.0002	mg/L	PWQO 0.0001			<0.0002*		
	Al	0.01	mg/L			0.04		0.04	0.31
		0.02	mg/L				0.14		
	As	0.001	mg/L	PWQO 0.100		<0.001		<0.001	<0.001
		0.002	mg/L	PWQO 0.100			<0.002		
	B	0.01	mg/L	IPWQO 0.200		0.09		0.04	0.35*
		0.02	mg/L	IPWQO 0.200			0.55*		
	Ba	0.01	mg/L			0.06		0.13	0.06
		0.02	mg/L				0.03		
	Be	0.0005	mg/L	PWQO 0.011		<0.0005		<0.0005	<0.0005
		0.001	mg/L	PWQO 0.011			<0.001		
	Cd	0.0001	mg/L	PWQO 0.0002		<0.0001		<0.0001	<0.0001
		0.0002	mg/L	PWQO 0.0002			<0.0002		
	Co	0.0002	mg/L	PWQO 0.0009		0.0016*		0.0015*	0.0063*
		0.0004	mg/L	PWQO 0.0009			0.0068*		
	Cr	0.001	mg/L			<0.001		<0.001	0.001
		0.002	mg/L				<0.002		
	Cu	0.001	mg/L	PWQO 0.005		<0.001		<0.001	0.002
		0.002	mg/L	PWQO 0.005			<0.002		
	Fe	0.03	mg/L	PWQO 0.30		0.06		0.09	0.19
		0.06	mg/L	PWQO 0.30			0.17		
	Hg	0.0001	mg/L	PWQO 0.0002		<0.0001	<0.0001	<0.0001	<0.0001
	Mo	0.005	mg/L	IPWQO 0.040		<0.005		<0.005	<0.005

Guideline = PWQO - Ontario

*** = Guideline Exceedence**

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Certificate of Analysis

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Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997225
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1687732 SURF W 2023-05-18 BH5	1687733 SURF W 2023-05-18 BH18	1687734 SURF W 2023-05-18 BH26	1687735 SURF W 2023-05-18 BH33
Metals	Mo	0.01	mg/L	IPWQO 0.040			<0.01		
	Ni	0.005	mg/L	PWQO 0.025		<0.005		<0.005	0.010
		0.01	mg/L	PWQO 0.025			<0.01		
	Pb	0.001	mg/L	PWQO 0.005		<0.001		<0.001	<0.001
		0.002	mg/L	PWQO 0.005			<0.002		
	Sb	0.0005	mg/L	IPWQO 0.020		<0.0005		<0.0005	<0.0005
		0.001	mg/L	IPWQO 0.020			<0.001		
	Se	0.001	mg/L	PWQO 0.100		0.002		<0.001	0.002
		0.002	mg/L	PWQO 0.100			<0.002		
	Tl	0.0001	mg/L	IPWQO 0.0003		<0.0001		<0.0001	<0.0001
		0.0002	mg/L	IPWQO 0.0003			<0.0002		
	U	0.001	mg/L	IPWQO 0.005		0.010*		0.004	0.012*
		0.002	mg/L	IPWQO 0.005			0.035*		
	V	0.001	mg/L	IPWQO 0.006		<0.001		0.001	0.002
		0.002	mg/L	IPWQO 0.006			<0.002		
	W	0.002	mg/L	IPWQO 0.030		<0.002		<0.002	<0.002
		0.004	mg/L	IPWQO 0.030			<0.004		
	Zn	0.01	mg/L	PWQO 0.030		<0.01		<0.01	<0.01
		0.02	mg/L	PWQO 0.030			<0.02		
	Zr	0.002	mg/L	IPWQO 0.004		<0.002		<0.002	<0.002
		0.004	mg/L	IPWQO 0.004			<0.004		

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Certificate of Analysis

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Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997225
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1687736 SURF W 2023-05-18 BH38	1687737 SURF W 2023-05-18 BH5 - F	1687738 SURF W 2023-05-18 BH18 - F	1687739 SURF W 2023-05-18 BH26 - F
General Chemistry	Total Suspended Solids	2	mg/L			103	<2	4	<2
Metals	Ag	0.0001	mg/L	PWQO 0.0001		<0.0001	<0.0001		<0.0001
		0.0002	mg/L	PWQO 0.0001				<0.0002*	
	Al	0.01	mg/L			0.44	<0.01		<0.01
		0.02	mg/L					0.09	
	As	0.001	mg/L	PWQO 0.100		0.001	<0.001		<0.001
		0.002	mg/L	PWQO 0.100				<0.002	
	B	0.01	mg/L	IPWQO 0.200		0.20	0.09		0.04
		0.02	mg/L	IPWQO 0.200				0.51*	
	Ba	0.01	mg/L			0.06	0.05		0.12
		0.02	mg/L					0.03	
	Be	0.0005	mg/L	PWQO 0.011		<0.0005	<0.0005		<0.0005
		0.001	mg/L	PWQO 0.011				<0.001	
	Cd	0.0001	mg/L	PWQO 0.0002		<0.0001	<0.0001		<0.0001
		0.0002	mg/L	PWQO 0.0002				<0.0002	
	Co	0.0002	mg/L	PWQO 0.0009		0.0011*	0.0018*		0.0014*
		0.0004	mg/L	PWQO 0.0009				0.0061*	
	Cr	0.001	mg/L			0.001	<0.001		<0.001
		0.002	mg/L					<0.002	
	Cu	0.001	mg/L	PWQO 0.005		0.001	<0.001		<0.001
		0.002	mg/L	PWQO 0.005				<0.002	
	Fe	0.03	mg/L	PWQO 0.30		0.99*	<0.03		<0.03
		0.06	mg/L	PWQO 0.30				0.07	
	Hg	0.0001	mg/L	PWQO 0.0002		<0.0001	<0.0001	<0.0001	<0.0001
	Mo	0.005	mg/L	IPWQO 0.040		<0.005	<0.005		<0.005

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Certificate of Analysis

eurofins | Environment Testing

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997225
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1687736 SURF W 2023-05-18 BH38	1687737 SURF W 2023-05-18 BH5 - F	1687738 SURF W 2023-05-18 BH18 - F	1687739 SURF W 2023-05-18 BH26 - F
Metals	Mo	0.01	mg/L	IPWQO 0.040				<0.01	
	Ni	0.005	mg/L	PWQO 0.025		<0.005	<0.005		<0.005
		0.01	mg/L	PWQO 0.025				<0.01	
	Pb	0.001	mg/L	PWQO 0.005		<0.001	<0.001		<0.001
		0.002	mg/L	PWQO 0.005				<0.002	
	Sb	0.0005	mg/L	IPWQO 0.020		<0.0005	<0.0005		<0.0005
		0.001	mg/L	IPWQO 0.020				<0.001	
	Se	0.001	mg/L	PWQO 0.100		<0.001	0.001		<0.001
		0.002	mg/L	PWQO 0.100				<0.002	
	Tl	0.0001	mg/L	IPWQO 0.0003		<0.0001	<0.0001		<0.0001
		0.0002	mg/L	IPWQO 0.0003				<0.0002	
	U	0.001	mg/L	IPWQO 0.005		0.002	0.011*		0.004
		0.002	mg/L	IPWQO 0.005				0.033*	
	V	0.001	mg/L	IPWQO 0.006		0.002	<0.001		<0.001
		0.002	mg/L	IPWQO 0.006				<0.002	
	W	0.002	mg/L	IPWQO 0.030		<0.002	<0.002		<0.002
		0.004	mg/L	IPWQO 0.030				<0.004	
	Zn	0.01	mg/L	PWQO 0.030		<0.01	<0.01		<0.01
		0.02	mg/L	PWQO 0.030				<0.02	
	Zr	0.002	mg/L	IPWQO 0.004		<0.002	<0.002		<0.002
		0.004	mg/L	IPWQO 0.004				<0.004	

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Certificate of Analysis

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647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
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Invoice to: GEI Consultants Inc.

Report Number: 1997225
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

Group	Analyte	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sampling Date / Sample I.D.		
					1687740 SURF W 2023-05-18 BH33 - F	1687741 SURF W 2023-05-18 BH38 - F
General Chemistry	Total Suspended Solids	2	mg/L		3	<2
Metals	Ag	0.0001	mg/L	PWQO 0.0001	<0.0001	<0.0001
	Al	0.01	mg/L		<0.01	<0.01
	As	0.001	mg/L	PWQO 0.100	<0.001	<0.001
	B	0.01	mg/L	IPWQO 0.200	0.35*	0.20
	Ba	0.01	mg/L		0.05	0.06
	Be	0.0005	mg/L	PWQO 0.011	<0.0005	<0.0005
	Cd	0.0001	mg/L	PWQO 0.0002	<0.0001	<0.0001
	Co	0.0002	mg/L	PWQO 0.0009	0.0061*	0.0006
	Cr	0.001	mg/L		0.003	<0.001
	Cu	0.001	mg/L	PWQO 0.005	0.001	<0.001
	Fe	0.03	mg/L	PWQO 0.30	<0.03	<0.03
	Hg	0.0001	mg/L	PWQO 0.0002	<0.0001	<0.0001
	Mo	0.005	mg/L	IPWQO 0.040	<0.005	<0.005
	Ni	0.005	mg/L	PWQO 0.025	0.010	<0.005
	Pb	0.001	mg/L	PWQO 0.005	<0.001	<0.001
	Sb	0.0005	mg/L	IPWQO 0.020	<0.0005	<0.0005
	Se	0.001	mg/L	PWQO 0.100	0.002	<0.001
	Tl	0.0001	mg/L	IPWQO 0.0003	<0.0001	<0.0001
	U	0.001	mg/L	IPWQO 0.005	0.012*	0.002
	V	0.001	mg/L	IPWQO 0.006	0.001	<0.001
	W	0.002	mg/L	IPWQO 0.030	<0.002	<0.002
	Zn	0.01	mg/L	PWQO 0.030	<0.01	<0.01
	Zr	0.002	mg/L	IPWQO 0.004	<0.002	<0.002

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Certificate of Analysis

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997225
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 442139 **Analysis/Extraction Date** 2023-05-24 **Analyst** SKH **Method** C SM2540			
Total Suspended Solids	<2 mg/L	98	90-110
Run No 442182 **Analysis/Extraction Date** 2023-05-23 **Analyst** SD **Method** EPA 200.8			
Aluminum	<0.01 mg/L	97	80-120
Arsenic	<0.001 mg/L	88	80-120
Boron (total)	<0.01 mg/L	105	80-120
Barium	<0.01 mg/L	95	80-120
Beryllium	<0.0005 mg/L	105	80-120
Cadmium	<0.0001 mg/L	101	80-120
Cobalt	<0.0002 mg/L	103	80-120
Chromium Total	<0.001 mg/L	107	80-120
Copper	<0.001 mg/L	101	80-120
Iron	<0.03 mg/L	84	80-120
Molybdenum	<0.005 mg/L	78	80-120
Nickel	<0.005 mg/L	103	80-120
Lead	<0.001 mg/L	94	80-120

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Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997225
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Antimony	<0.0005 mg/L	99	80-120
Selenium	<0.001 mg/L	98	80-120
Thallium	<0.0001 mg/L	90	80-120
Uranium	<0.001 mg/L	86	80-120
Vanadium	<0.001 mg/L	111	80-120
W	<0.002 mg/L	106	80-120
Zinc	<0.01 mg/L	105	80-120
Zr	<0.002 mg/L	97	80-120
Run No 442321 **Analysis/Extraction Date** 2023-05-23 **Analyst** SD **Method** EPA 200.8			
Mercury	<0.0001 mg/L	119	80-120
Run No 442322 **Analysis/Extraction Date** 2023-05-23 **Analyst** SD **Method** EPA 200.8			
Silver	<0.0001 mg/L	101	80-120
Run No 442334 **Analysis/Extraction Date** 2023-05-26 **Analyst** SD **Method** EPA 200.8			
Silver	<0.0002 mg/L	105	80-120
Aluminum	<0.02 mg/L	97	80-120
Arsenic	<0.002 mg/L	87	80-120

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Certificate of Analysis

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Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997225
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Boron (total)	<0.02 mg/L	98	80-120
Barium	<0.02 mg/L	92	80-120
Beryllium	<0.001 mg/L	100	80-120
Cadmium	<0.0002 mg/L	101	80-120
Cobalt	<0.0004 mg/L	99	80-120
Chromium Total	<0.002 mg/L	108	80-120
Copper	<0.002 mg/L	98	80-120
Iron	<0.06 mg/L	103	80-120
Molybdenum	<0.01 mg/L	85	80-120
Nickel	<0.01 mg/L	99	80-120
Lead	<0.002 mg/L	97	80-120
Antimony	<0.001 mg/L	79	80-120
Selenium	<0.002 mg/L	93	80-120
Thallium	<0.0002 mg/L	93	80-120
Uranium	<0.002 mg/L	90	80-120
Vanadium	<0.002 mg/L	110	80-120
W	<0.004 mg/L	92	80-120
Zinc	<0.02 mg/L	100	80-120

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997225
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Zr	<0.004 mg/L	87	80-120

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Report Number: 1997225
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

Sample Comment Summary

Sample ID: 1687733	BH18	Metals MRLs raised because of matrix interference, sample was diluted.
Sample ID: 1687738	BH18 - F	Metals MRLs raised because of matrix interference, sample was diluted.

Guideline = PWQO - Ontario *** = Guideline Exceedence**

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Certificate of Analysis

Environment Testing

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
Invoice to: GEI Consultants Inc.
PO#:

Report Number: 1997224
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055
Temperature (C): 9
Custody Seal:

Dear Aiden Belfrage:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

Raheleh Zafari, Environmental Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise stated
.
Eurofins Environment Testing Canada Inc. is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at https://directory.cala.ca/

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline or regulatory limits listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official guideline or regulation as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Certificate of Analysis

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Attention: M. Aiden Belfrage
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Report Number: 1997224
Date Submitted: 2023-05-18
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Project: 2100463
COC #: 222055

Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria

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Report Number: 1997224
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

Guideline = O.Reg 153-T1-Groundwater

Hydrocarbons

Analyte	Batch No	MRL	Units	Guideline	1687727 GW153 2023-05-18 13:05 BH5	1687728 GW153 2023-05-18 11:00 BH18	1687729 GW153 2023-05-18 14:00 BH26	1687730 GW153 2023-05-18 09:45 BH33	1687731 GW153 2023-05-18 15:00 BH38
Lab I.D.					1687727	1687728	1687729	1687730	1687731
Sample Matrix					GW153	GW153	GW153	GW153	GW153
Sample Type									
Sample Date					2023-05-18	2023-05-18	2023-05-18	2023-05-18	2023-05-18
Sampling Time					13:05	11:00	14:00	09:45	15:00
Sample I.D.					BH5	BH18	BH26	BH33	BH38
PHC's F1	442316	20	ug/L	STD 420				<20	
	442376	20	ug/L	STD 420	<20	<20	<20		<20
PHC's F1-BTEX	442330	20	ug/L					<20	
	442384	20	ug/L		<20	<20	<20		<20
PHC's F2	442301	20	ug/L	STD 150	<20	<20		<20	<20
	442378	20	ug/L	STD 150			<20		
PHC's F3	442301	50	ug/L	STD 500	<50	<50		<50	<50
	442378	50	ug/L	STD 500			<50		
PHC's F4	442301	50	ug/L	STD 500	<50	<50		<50	<50
	442378	50	ug/L	STD 500			<50		

Volatiles

Analyte	Batch No	MRL	Units	Guideline	1687727 GW153 2023-05-18 13:05 BH5	1687728 GW153 2023-05-18 11:00 BH18	1687729 GW153 2023-05-18 14:00 BH26	1687730 GW153 2023-05-18 09:45 BH33	1687731 GW153 2023-05-18 15:00 BH38
Lab I.D.					1687727	1687728	1687729	1687730	1687731
Sample Matrix					GW153	GW153	GW153	GW153	GW153
Sample Type									
Sample Date					2023-05-18	2023-05-18	2023-05-18	2023-05-18	2023-05-18
Sampling Time					13:05	11:00	14:00	09:45	15:00
Sample I.D.					BH5	BH18	BH26	BH33	BH38
Acetone	442316	30	ug/L	STD 2700				<30	
	442376	30	ug/L	STD 2700	<30	<30	<30		<30
Benzene	442316	0.5	ug/L	STD 0.5				<0.5	
	442376	0.5	ug/L	STD 0.5	<0.5	<0.5	<0.5		<0.5
Bromodichloromethane	442316	0.3	ug/L	STD 2				<0.3	
	442376	0.3	ug/L	STD 2	<0.3	<0.3	<0.3		<0.3
Bromoform	442316	0.4	ug/L	STD 5				<0.4	
	442376	0.4	ug/L	STD 5	<0.4	<0.4	<0.4		<0.4
Bromomethane	442316	0.5	ug/L	STD 0.89				<0.5	

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Report Number: 1997224
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

Guideline = O.Reg 153-T1-Groundwater

Volatiles

Analyte	Batch No	MRL	Units	Guideline	1687727 GW153 2023-05-18 13:05 BH5	1687728 GW153 2023-05-18 11:00 BH18	1687729 GW153 2023-05-18 14:00 BH26	1687730 GW153 2023-05-18 09:45 BH33	1687731 GW153 2023-05-18 15:00 BH38
Lab I.D.					1687727	1687728	1687729	1687730	1687731
Sample Matrix					GW153	GW153	GW153	GW153	GW153
Sample Type									
Sample Date					2023-05-18	2023-05-18	2023-05-18	2023-05-18	2023-05-18
Sampling Time					13:05	11:00	14:00	09:45	15:00
Sample I.D.					BH5	BH18	BH26	BH33	BH38
Bromomethane	442376	0.5	ug/L	STD 0.89	<0.5	<0.5	<0.5		<0.5
Carbon Tetrachloride	442316	0.2	ug/L	STD 0.2				<0.2	
	442376	0.2	ug/L	STD 0.2	<0.2	<0.2	<0.2		<0.2
Chlorobenzene	442316	0.5	ug/L	STD 0.5				<0.5	
	442376	0.5	ug/L	STD 0.5	<0.5	<0.5	<0.5		<0.5
Chloroform	442316	0.5	ug/L	STD 2				<0.5	
	442376	0.5	ug/L	STD 2	<0.5	<0.5	<0.5		<0.5
Dibromochloromethane	442316	0.3	ug/L	STD 2				<0.3	
	442376	0.3	ug/L	STD 2	<0.3	<0.3	<0.3		<0.3
Dichlorobenzene, 1,2-	442316	0.4	ug/L	STD 0.5				<0.4	
	442376	0.4	ug/L	STD 0.5	<0.4	<0.4	<0.4		<0.4
Dichlorobenzene, 1,3-	442316	0.4	ug/L	STD 0.5				<0.4	
	442376	0.4	ug/L	STD 0.5	<0.4	<0.4	<0.4		<0.4
Dichlorobenzene, 1,4-	442316	0.4	ug/L	STD 0.5				<0.4	
	442376	0.4	ug/L	STD 0.5	<0.4	<0.4	<0.4		<0.4
Dichlorodifluoromethane	442316	0.5	ug/L	STD 590				<0.5	
	442376	0.5	ug/L	STD 590	<0.5	<0.5	<0.5		<0.5
Dichloroethane, 1,1-	442316	0.4	ug/L	STD 0.5				<0.4	
	442376	0.4	ug/L	STD 0.5	<0.4	<0.4	<0.4		<0.4
Dichloroethane, 1,2-	442316	0.5	ug/L	STD 0.5				<0.5	
	442376	0.5	ug/L	STD 0.5	<0.5	<0.5	<0.5		<0.5
Dichloroethylene, 1,1-	442316	0.5	ug/L	STD 0.5				<0.5	
	442376	0.5	ug/L	STD 0.5	<0.5	<0.5	<0.5		<0.5

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647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997224
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

Guideline = O.Reg 153-T1-Groundwater

Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D.	1687727	1687728	1687729	1687730	1687731
					Sample Matrix	GW153	GW153	GW153	GW153	GW153
					Sample Type					
					Sample Date	2023-05-18	2023-05-18	2023-05-18	2023-05-18	2023-05-18
					Sampling Time	13:05	11:00	14:00	09:45	15:00
					Sample I.D.	BH5	BH18	BH26	BH33	BH38
Dichloroethylene, 1,2-cis-	442316	0.4	ug/L	STD 1.6					<0.4	
	442376	0.4	ug/L	STD 1.6	<0.4	<0.4	<0.4		<0.4
Dichloroethylene, 1,2-trans-	442316	0.4	ug/L	STD 1.6					<0.4	
	442376	0.4	ug/L	STD 1.6	<0.4	<0.4	<0.4		<0.4
Dichloropropane, 1,2-	442316	0.5	ug/L	STD 0.5					<0.5	
	442376	0.5	ug/L	STD 0.5	<0.5	<0.5	<0.5		<0.5
Dichloropropene,1,3-	442316	0.5	ug/L	STD 0.5					<0.5	
	442376	0.5	ug/L	STD 0.5	<0.5	<0.5	<0.5		<0.5
Dichloropropene,1,3-cis-	442316	0.5	ug/L						<0.5	
	442376	0.5	ug/L		<0.5	<0.5	<0.5		<0.5
Dichloropropene,1,3-trans-	442316	0.5	ug/L						<0.5	
	442376	0.5	ug/L		<0.5	<0.5	<0.5		<0.5
Ethylbenzene	442316	0.5	ug/L	STD 0.5					<0.5	
	442376	0.5	ug/L	STD 0.5	<0.5	<0.5	<0.5		<0.5
Ethylene dibromide	442316	0.2	ug/L	STD 0.2					<0.2	
	442376	0.2	ug/L	STD 0.2	<0.2	<0.2	<0.2		<0.2
Hexane (n)	442316	5	ug/L	STD 5					<5	
	442376	5	ug/L	STD 5	<5	<5	<5		<5
Methyl Ethyl Ketone	442316	2	ug/L	STD 400					<2	
	442376	2	ug/L	STD 400	<2	<2	<2		<2
Methyl Isobutyl Ketone	442316	10	ug/L	STD 640					<10	
	442376	10	ug/L	STD 640	<10	<10	<10		<10
Methyl tert-Butyl Ether (MTBE)	442316	2	ug/L	STD 15					<2	

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Project: 2100463
COC #: 222055

Guideline = O.Reg 153-T1-Groundwater

Volatiles

Analyte	Batch No	MRL	Units	Guideline	1687727 GW153 2023-05-18 13:05 BH5	1687728 GW153 2023-05-18 11:00 BH18	1687729 GW153 2023-05-18 14:00 BH26	1687730 GW153 2023-05-18 09:45 BH33	1687731 GW153 2023-05-18 15:00 BH38
Lab I.D.					1687727	1687728	1687729	1687730	1687731
Sample Matrix					GW153	GW153	GW153	GW153	GW153
Sample Type									
Sample Date					2023-05-18	2023-05-18	2023-05-18	2023-05-18	2023-05-18
Sampling Time					13:05	11:00	14:00	09:45	15:00
Sample I.D.					BH5	BH18	BH26	BH33	BH38
Methyl tert-Butyl Ether (MTBE)	442376	2	ug/L	STD 15	<2	<2	<2		<2
Methylene Chloride	442316	4.0	ug/L	STD 5				<4.0	
	442376	4.0	ug/L	STD 5	<4.0	<4.0	<4.0		<4.0
Styrene	442316	0.5	ug/L	STD 0.5				<0.5	
	442376	0.5	ug/L	STD 0.5	<0.5	<0.5	<0.5		<0.5
Tetrachloroethane, 1,1,1,2-	442316	0.5	ug/L	STD 1.1				<0.5	
	442376	0.5	ug/L	STD 1.1	<0.5	<0.5	<0.5		<0.5
Tetrachloroethane, 1,1,2,2-	442316	0.5	ug/L	STD 0.5				<0.5	
	442376	0.5	ug/L	STD 0.5	<0.5	<0.5	<0.5		<0.5
Tetrachloroethylene	442316	0.3	ug/L	STD 0.5				<0.3	
	442376	0.3	ug/L	STD 0.5	<0.3	<0.3	<0.3		<0.3
Toluene	442316	0.4	ug/L	STD 0.8				<0.4	
	442376	0.4	ug/L	STD 0.8	<0.4	<0.4	0.4		<0.4
Trichloroethane, 1,1,1-	442316	0.4	ug/L	STD 0.5				<0.4	
	442376	0.4	ug/L	STD 0.5	<0.4	<0.4	<0.4		<0.4
Trichloroethane, 1,1,2-	442316	0.4	ug/L	STD 0.5				<0.4	
	442376	0.4	ug/L	STD 0.5	<0.4	<0.4	<0.4		<0.4
Trichloroethylene	442316	0.3	ug/L	STD 0.5				<0.3	
	442376	0.3	ug/L	STD 0.5	<0.3	<0.3	<0.3		<0.3
Trichlorofluoromethane	442316	0.5	ug/L	STD 150				<0.5	
	442376	0.5	ug/L	STD 150	<0.5	<0.5	<0.5		<0.5
Vinyl Chloride	442316	0.2	ug/L	STD 0.5				<0.2	
	442376	0.2	ug/L	STD 0.5	<0.2	<0.2	<0.2		<0.2

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Report Number: 1997224
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

Guideline = O.Reg 153-T1-Groundwater

Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D.	1687727	1687728	1687729	1687730	1687731
					Sample Matrix	GW153	GW153	GW153	GW153	GW153
					Sample Type					
					Sample Date	2023-05-18	2023-05-18	2023-05-18	2023-05-18	2023-05-18
					Sampling Time	13:05	11:00	14:00	09:45	15:00
					Sample I.D.	BH5	BH18	BH26	BH33	BH38
Xylene Mixture	442329	0.5	ug/L	STD 72					<0.5	
	442383	0.5	ug/L	STD 72		<0.5	<0.5	<0.5		<0.5
Xylene, m/p-	442316	0.4	ug/L						<0.4	
	442376	0.4	ug/L			<0.4	<0.4	<0.4		<0.4
Xylene, o-	442316	0.4	ug/L						<0.4	
	442376	0.4	ug/L			<0.4	<0.4	<0.4		<0.4

PHC Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D.	1687727	1687728	1687729	1687730	1687731
					Sample Matrix	GW153	GW153	GW153	GW153	GW153
					Sample Type					
					Sample Date	2023-05-18	2023-05-18	2023-05-18	2023-05-18	2023-05-18
					Sampling Time	13:05	11:00	14:00	09:45	15:00
					Sample I.D.	BH5	BH18	BH26	BH33	BH38
Alpha-androstrane	442301	0	%			110	112		81	103
	442378	0	%					85		

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Guideline = O.Reg 153-T1-Groundwater

VOCs Surrogates

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.				
					1687727 GW153 2023-05-18 13:05 BH5	1687728 GW153 2023-05-18 11:00 BH18	1687729 GW153 2023-05-18 14:00 BH26	1687730 GW153 2023-05-18 09:45 BH33	1687731 GW153 2023-05-18 15:00 BH38
1,2-dichloroethane-d4	442316	0	%					107	
	442376	0	%		92	95	94		94
4-bromofluorobenzene	442316	0	%					80	
	442376	0	%		80	78	77		80
Toluene-d8	442316	0	%					98	
	442376	0	%		94	93	94		92

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Report Number: 1997224
Date Submitted: 2023-05-18
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Project: 2100463
COC #: 222055

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
442301	PHC's F2	<20 ug/L	96	60-140		60-140		0-30
442301	PHC's F3	<50 ug/L	96	60-140		60-140		0-30
442301	PHC's F4	<50 ug/L	96	60-140		60-140		0-30
442316	Tetrachloroethane, 1,1,1,2-	<0.5 ug/L	88	60-130	109	50-140	0	0-30
442316	Trichloroethane, 1,1,1-	<0.4 ug/L	81	60-130	113	50-140	0	0-30
442316	Tetrachloroethane, 1,1,2,2-	<0.5 ug/L	109	60-130	110	50-140	0	0-30
442316	Trichloroethane, 1,1,2-	<0.4 ug/L	87	60-130	107	50-140	0	0-30
442316	Dichloroethane, 1,1-	<0.4 ug/L	102	60-130	119	50-140	0	0-30
442316	Dichloroethylene, 1,1-	<0.5 ug/L	91	60-130	112	50-140	0	0-30
442316	Dichlorobenzene, 1,2-	<0.4 ug/L	104	60-130	102	50-140	0	0-30
442316	Dichloroethane, 1,2-	<0.5 ug/L	82	60-130	124	50-140	0	0-30
442316	Dichloropropane, 1,2-	<0.5 ug/L	82	60-130	120	50-140	0	0-30
442316	Dichlorobenzene, 1,3-	<0.4 ug/L	100	60-130	101	50-140	0	0-30
442316	Dichloropropene,1,3-							
442316	Dichlorobenzene, 1,4-	<0.4 ug/L	100	60-130	101	50-140	0	0-30
442316	Acetone	<30 ug/L		60-130	71	50-140	0	0-30
442316	Benzene	<0.5 ug/L	84	60-130	120	50-140	0	0-30
442316	Bromodichloromethane	<0.3 ug/L	102	60-130	121	50-140	0	0-30
442316	Bromoform	<0.4 ug/L	84	60-130	101	50-140	0	0-30
442316	Bromomethane	<0.5 ug/L	101	60-130	112	50-140	0	0-30
442316	Dichloroethylene, 1,2-cis-	<0.4 ug/L	110	60-130	119	50-140	0	0-30
442316	Dichloropropene,1,3-cis-	<0.5 ug/L	102	60-130	112	50-140	0	0-30
442316	Carbon Tetrachloride	<0.2 ug/L	83	60-130	113	50-140	0	0-30
442316	Chloroform	<0.5 ug/L	103	60-130	119	50-140	0	0-30
442316	Dibromochloromethane	<0.3 ug/L	83	60-130	103	50-140	0	0-30
442316	Dichlorodifluoromethane	<0.5 ug/L	92	60-130	101	50-140	0	0-30
442316	Methylene Chloride	<4.0 ug/L	107	60-130	103	50-140	0	0-30
442316	Ethylbenzene	<0.5 ug/L	80	60-130	112	50-140	0	0-30
442316	Ethylene dibromide	<0.2 ug/L	89	60-130	100	50-140	0	0-30
442316	PHC's F1	<20 ug/L	96	60-140	100	60-140	0	0-30
442316	Hexane (n)	<5 ug/L	100	60-130	107	50-140	0	0-30
442316	Xylene, m/p-	<0.4 ug/L	102	60-130	112	50-140	0	0-30

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Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997224
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
442316	Methyl Ethyl Ketone	<2 ug/L	120	60-130	121	50-140	0	0-30
442316	Methyl Isobutyl Ketone	<10 ug/L	100	60-130	107	50-140	0	0-30
442316	Methyl tert-Butyl Ether (MTBE)	<2 ug/L	100	60-130	114	50-140	0	0-30
442316	Chlorobenzene	<0.5 ug/L	83	60-130	109	50-140	0	0-30
442316	Xylene, o-	<0.4 ug/L	102	60-130	113	50-140	0	0-30
442316	Styrene	<0.5 ug/L	99	60-130	111	50-140	0	0-30
442316	Dichloroethylene, 1,2-trans-	<0.4 ug/L	103	60-130	118	50-140	0	0-30
442316	Dichloropropene,1,3-trans-	<0.5 ug/L	96	60-130	111	50-140	0	0-30
442316	Tetrachloroethylene	<0.3 ug/L	110	60-130	112	50-140	0	0-30
442316	Toluene	<0.4 ug/L	108	60-130	125	50-140	0	0-30
442316	Trichloroethylene	<0.3 ug/L	99	60-130	112	50-140	0	0-30
442316	Trichlorofluoromethane	<0.5 ug/L	110	60-130	105	50-140	0	0-30
442316	Vinyl Chloride	<0.2 ug/L	99	60-130	111	50-140	0	0-30
442329	Xylene Mixture							
442330	PHC's F1-BTEX							
442376	Tetrachloroethane, 1,1,1,2-	<0.5 ug/L	88	60-130	109	50-140	0	0-30
442376	Trichloroethane, 1,1,1-	<0.4 ug/L	81	60-130	113	50-140	0	0-30
442376	Tetrachloroethane, 1,1,2,2-	<0.5 ug/L	109	60-130	110	50-140	0	0-30
442376	Trichloroethane, 1,1,2-	<0.4 ug/L	87	60-130	107	50-140	0	0-30
442376	Dichloroethane, 1,1-	<0.4 ug/L	102	60-130	119	50-140	0	0-30
442376	Dichloroethylene, 1,1-	<0.5 ug/L	91	60-130	112	50-140	0	0-30
442376	Dichlorobenzene, 1,2-	<0.4 ug/L	104	60-130	102	50-140	0	0-30
442376	Dichloroethane, 1,2-	<0.5 ug/L	82	60-130	124	50-140	0	0-30
442376	Dichloropropane, 1,2-	<0.5 ug/L	82	60-130	120	50-140	0	0-30
442376	Dichlorobenzene, 1,3-	<0.4 ug/L	100	60-130	101	50-140	0	0-30
442376	Dichloropropene,1,3-							
442376	Dichlorobenzene, 1,4-	<0.4 ug/L	100	60-130	101	50-140	0	0-30
442376	Acetone	<30 ug/L		60-130	71	50-140	0	0-30
442376	Benzene	<0.5 ug/L	84	60-130	120	50-140	0	0-30
442376	Bromodichloromethane	<0.3 ug/L	102	60-130	121	50-140	0	0-30
442376	Bromoform	<0.4 ug/L	84	60-130	101	50-140	0	0-30
442376	Bromomethane	<0.5 ug/L	101	60-130	112	50-140	0	0-30
442376	Dichloroethylene, 1,2-cis-	<0.4 ug/L	110	60-130	119	50-140	0	0-30

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L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997224
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
442376	Dichloropropene,1,3-cis-	<0.5 ug/L	102	60-130	112	50-140	0	0-30
442376	Carbon Tetrachloride	<0.2 ug/L	83	60-130	113	50-140	0	0-30
442376	Chloroform	<0.5 ug/L	103	60-130	119	50-140	0	0-30
442376	Dibromochloromethane	<0.3 ug/L	83	60-130	103	50-140	0	0-30
442376	Dichlorodifluoromethane	<0.5 ug/L	92	60-130	101	50-140	0	0-30
442376	Methylene Chloride	<4.0 ug/L	107	60-130	103	50-140	0	0-30
442376	Ethylbenzene	<0.5 ug/L	80	60-130	112	50-140	0	0-30
442376	Ethylene dibromide	<0.2 ug/L	89	60-130	100	50-140	0	0-30
442376	PHC's F1	<20 ug/L	94	60-140	87	60-140	0	0-30
442376	Hexane (n)	<5 ug/L	100	60-130	107	50-140	0	0-30
442376	Xylene, m/p-	<0.4 ug/L	102	60-130	112	50-140	0	0-30
442376	Methyl Ethyl Ketone	<2 ug/L	120	60-130	121	50-140	0	0-30
442376	Methyl Isobutyl Ketone	<10 ug/L	100	60-130	107	50-140	0	0-30
442376	Methyl tert-Butyl Ether (MTBE)	<2 ug/L	100	60-130	114	50-140	0	0-30
442376	Chlorobenzene	<0.5 ug/L	83	60-130	109	50-140	0	0-30
442376	Xylene, o-	<0.4 ug/L	102	60-130	113	50-140	0	0-30
442376	Styrene	<0.5 ug/L	99	60-130	111	50-140	0	0-30
442376	Dichloroethylene, 1,2-trans-	<0.4 ug/L	103	60-130	118	50-140	0	0-30
442376	Dichloropropene,1,3-trans-	<0.5 ug/L	96	60-130	111	50-140	0	0-30
442376	Tetrachloroethylene	<0.3 ug/L	110	60-130	112	50-140	0	0-30
442376	Toluene	<0.4 ug/L	108	60-130	125	50-140	0	0-30
442376	Trichloroethylene	<0.3 ug/L	99	60-130	112	50-140	0	0-30
442376	Trichlorofluoromethane	<0.5 ug/L	110	60-130	105	50-140	0	0-30
442376	Vinyl Chloride	<0.2 ug/L	99	60-130	111	50-140	0	0-30
442378	PHC's F2	<20 ug/L	100	60-140		60-140		0-30
442378	PHC's F3	<50 ug/L	100	60-140		60-140		0-30
442378	PHC's F4	<50 ug/L	100	60-140		60-140		0-30
442383	Xylene Mixture							
442384	PHC's F1-BTEX							

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Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
442301	PHC's F2	GC/FID	2023-05-25	2023-05-25	SS	CCME O.Reg 153/04
442301	PHC's F3	GC/FID	2023-05-25	2023-05-25	SS	CCME O.Reg 153/04
442301	PHC's F4	GC/FID	2023-05-25	2023-05-25	SS	CCME O.Reg 153/04
442316	Tetrachloroethane, 1,1,1,2-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Trichloroethane, 1,1,1-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Tetrachloroethane, 1,1,2,2-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Trichloroethane, 1,1,2-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Dichloroethane, 1,1-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Dichloroethylene, 1,1-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Dichlorobenzene, 1,2-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Dichloroethane, 1,2-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Dichloropropane, 1,2-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Dichlorobenzene, 1,3-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Dichloropropene,1,3-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Dichlorobenzene, 1,4-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Acetone	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Benzene	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Bromodichloromethane	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Bromoform	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Bromomethane	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Dichloroethylene, 1,2-cis-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Dichloropropene,1,3-cis-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Carbon Tetrachloride	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Chloroform	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Dibromochloromethane	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Dichlorodifluoromethane	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Methylene Chloride	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Ethylbenzene	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Ethylene dibromide	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	PHC's F1	GC/FID	2023-05-24	2023-05-24	PJ	CCME O.Reg 153/04
442316	Hexane (n)	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Xylene, m/p-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260

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Report Number: 1997224
Date Submitted: 2023-05-18
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Project: 2100463
COC #: 222055

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
442316	Methyl Ethyl Ketone	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Methyl Isobutyl Ketone	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Methyl tert-Butyl Ether (MTBE)	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Chlorobenzene	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Xylene, o-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Styrene	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Dichloroethylene, 1,2-trans-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Dichloropropene,1,3-trans-	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Tetrachloroethylene	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Toluene	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Trichloroethylene	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Trichlorofluoromethane	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442316	Vinyl Chloride	GC-MS	2023-05-24	2023-05-24	PJ	EPA 8260
442329	Xylene Mixture	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442330	PHC's F1-BTEX	GC/FID	2023-05-25	2023-05-25	PJ	CCME O.Reg 153/04
442376	Tetrachloroethane, 1,1,1,2-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Trichloroethane, 1,1,1-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Tetrachloroethane, 1,1,2,2-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Trichloroethane, 1,1,2-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dichloroethane, 1,1-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dichloroethylene, 1,1-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dichlorobenzene, 1,2-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dichloroethane, 1,2-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dichloropropane, 1,2-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dichlorobenzene, 1,3-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dichloropropene,1,3-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dichlorobenzene, 1,4-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Acetone	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Benzene	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Bromodichloromethane	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Bromoform	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Bromomethane	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dichloroethylene, 1,2-cis-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260

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Project: 2100463
COC #: 222055

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
442376	Dichloropropene,1,3-cis-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Carbon Tetrachloride	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Chloroform	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dibromochloromethane	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dichlorodifluoromethane	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Methylene Chloride	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Ethylbenzene	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Ethylene dibromide	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	PHC's F1	GC/FID	2023-05-25	2023-05-25	PJ	CCME O.Reg 153/04
442376	Hexane (n)	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Xylene, m/p-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Methyl Ethyl Ketone	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Methyl Isobutyl Ketone	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Methyl tert-Butyl Ether (MTBE)	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Chlorobenzene	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Xylene, o-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Styrene	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dichloroethylene, 1,2-trans-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dichloropropene,1,3-trans-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Tetrachloroethylene	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Toluene	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Trichloroethylene	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Trichlorofluoromethane	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Vinyl Chloride	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442378	PHC's F2	GC/FID	2023-05-26	2023-05-26	SS	CCME O.Reg 153/04
442378	PHC's F3	GC/FID	2023-05-26	2023-05-26	SS	CCME O.Reg 153/04
442378	PHC's F4	GC/FID	2023-05-26	2023-05-26	SS	CCME O.Reg 153/04
442383	Xylene Mixture	GC-MS	2023-05-26	2023-05-26	PJ	EPA 8260
442384	PHC's F1-BTEX	GC/FID	2023-05-26	2023-05-26	PJ	CCME O.Reg 153/04

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MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997224
Date Submitted: 2023-05-18
Date Reported: 2023-05-26
Project: 2100463
COC #: 222055

CWS for Petroleum Hydrocarbons in Soil - Tier 1

Notes:

1. The laboratory method complies with CCME Tier 1 reference method for PHC in soil. It is validated for laboratory use.
2. Where the F1 fraction (C6 to C10) and BTEX are both measured, F1-BTEX is reported.
3. Where the F2 fraction (C10 to C16) and naphthalene are both measured, F2-naphthalene is reported.
4. Where the F3 fraction (C16 to C34) and PAHs* are both measured, F3-PAH is reported.
5. F4G is analyzed if the chromatogram does not descend to baseline before C50. Where F4 (C34 to C50) and F4G are both reported, the higher result is compared to the standard.
6. Unless otherwise stated in the sample comments, the following criteria have been met where applicable:

   - nC6 and nC10 response factors within 30% of response factor for toluene;
   - nC10, nC16, and nC34 response factors within 10% of each other;
   - C50 response factors within 70% of nC10 + nC16 + nC34 average; and,
   - Linearity is within 15%.

7. Unless otherwise stated in the sample comments, sampling requirements and analytical holding times have been met.
8. Gravimetric heavy hydrocarbons (F4G) cannot be added to the C6 and C50 hydrocarbons.
9. *PAHs = phenanthrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene and pyrene.

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Certificate of Analysis

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997226
Date Submitted: 2023-05-18
Date Reported: 2023-06-08
Project: 2100463
COC #: 222055

Dear Aiden Belfrage:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____
Raheleh Zafari, Environmental Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: https://directory.cala.ca/.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

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Certificate of Analysis

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997226
Date Submitted: 2023-05-18
Date Reported: 2023-06-08
Project: 2100463
COC #: 222055

Group	Analyte	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sampling Date / Sample I.D.	
					1687742 STRM W 2023-05-18 BH5	1687743 STRM W 2023-05-18 BH26
Anions	F	0.10	mg/L		0.18	0.11
	SO4	1	mg/L		256	105
General Chemistry	BOD5	1	mg/L	MAC 15	1	1
	Cyanide (total)	0.005	mg/L	MAC 0.02	<0.005	<0.005
	pH	1.00		6.0-9.0	7.79	7.82
	Phenols	0.002	mg/L	MAC 0.008	<0.002	<0.002
	Total Suspended Solids	2	mg/L	MAC 15	36*	8
Metals	Ag	0.0001	mg/L	MAC 0.12	<0.0001	<0.0001
	Al	0.01	mg/L		0.06	0.03
	As	0.001	mg/L	MAC 0.02	<0.001	<0.001
	Cd	0.0001	mg/L	MAC 0.008	<0.0001	<0.0001
	Co	0.0002	mg/L		0.0016	0.0014
	Cr	0.001	mg/L	MAC 0.08	<0.001	<0.001
	Cu	0.001	mg/L	MAC 0.05	<0.001	<0.001
	Hg	0.0001	mg/L	MAC 0.0004	<0.0001	<0.0001
	Mn	0.01	mg/L	MAC 0.05	0.16*	0.11*
	Mo	0.005	mg/L		<0.005	<0.005
	Ni	0.005	mg/L	MAC 0.08	<0.005	<0.005
	Pb	0.001	mg/L	MAC 0.12	<0.001	<0.001
	Sb	0.0005	mg/L		<0.0005	<0.0005
	Se	0.001	mg/L	MAC 0.02	0.001	<0.001
	Sn	0.01	mg/L		<0.01	<0.01
	Ti	0.01	mg/L		<0.01	<0.01
	Zn	0.01	mg/L	MAC 0.04	<0.01	<0.01
Microbiology	Escherichia Coli	0	ct/100mL	MAC 200	0	0

Guideline = Storm Sewer - Peel

*** = Guideline Exceedence**

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Certificate of Analysis

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Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997226
Date Submitted: 2023-05-18
Date Reported: 2023-06-08
Project: 2100463
COC #: 222055

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1687742 STRM W 2023-05-18 BH5	1687743 STRM W 2023-05-18 BH26
Nutrients	Total Kjeldahl Nitrogen	0.100	mg/L	MAC 1		0.285	0.192
	Total P	0.020	mg/L	MAC 0.4		<0.020	<0.020
Oil and Grease	Oil & Grease - Mineral	1	mg/L			<1	<1
	Oil & Grease - Non-mineral	1	mg/L			<1	<1
	Oil & Grease - Total	1	mg/L			<1	<1
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L	MAC 0.4		<0.1	<0.1
Semi-Volatiles	1,2-dichlorobenzene	0.2	ug/L	MAC 5.6		<0.2	<0.2
	1,4-dichlorobenzene	0.4	ug/L	MAC 6.8		<0.4	<0.4
	Bis(2-ethylhexyl)phthalate	0.4	ug/L	MAC 8.8		<0.4	<0.4
	Di-n-butylphthalate	1.3	ug/L	MAC 15.0		<1.3	<1.3
Subcontract	Nonylphenol Ethoxalate (Total)	10	ug/L			<10	<10
	Nonylphenols (Total)	1	ug/L			<1	<1
VOCs Surrogates	1,2-dichloroethane-d4	0	%			96	93
	4-bromofluorobenzene	0	%			78	78
	Toluene-d8	0	%			92	92
Volatiles	1,1,2,2-tetrachloroethane	0.5	ug/L	MAC 17		<0.5	<0.5
	Benzene	0.5	ug/L	MAC 2.0		<0.5	<0.5
	c-1,2-Dichloroethylene	0.4	ug/L	MAC 5.6		<0.4	<0.4
	Chloroform	0.5	ug/L	MAC 2.0		<0.5	<0.5
	Dichloromethane	4.0	ug/L	MAC 5.2		<4.0	<4.0
	Ethylbenzene	0.5	ug/L	MAC 2.0		<0.5	<0.5
	m/p-xylene	0.4	ug/L			<0.4	<0.4
	Methyl Ethyl Ketone (MEK)	2	ug/L			<2	<2
	o-xylene	0.4	ug/L			<0.4	<0.4
	Styrene	0.5	ug/L			<0.5	<0.5

Guideline = Storm Sewer - Peel *** = Guideline Exceedence**

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Certificate of Analysis

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Client: GEI Consultants Inc.
647 Welham Rd Unit 14
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L4N 0B7
Attention: M. Aiden Belfrage
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Invoice to: GEI Consultants Inc.

Report Number: 1997226
Date Submitted: 2023-05-18
Date Reported: 2023-06-08
Project: 2100463
COC #: 222055

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1687742 STRM W 2023-05-18 BH5	1687743 STRM W 2023-05-18 BH26
Volatiles	t-1,3-Dichloropropylene	0.5	ug/L	MAC 5.6		<0.5	<0.5
	Tetrachloroethylene	0.3	ug/L	MAC 4.4		<0.3	<0.3
	Toluene	0.4	ug/L	MAC 2.0		<0.4	0.4
	Trichloroethylene	0.3	ug/L	MAC 8.0		<0.3	<0.3
	Xylene; total	0.5	ug/L	MAC 4.4		<0.5	<0.5

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Certificate of Analysis

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L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997226
Date Submitted: 2023-05-18
Date Reported: 2023-06-08
Project: 2100463
COC #: 222055

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 439934 **Analysis/Extraction Date** 2023-05-23 **Analyst** C M **Method** B 625/P 8270			
Dichlorobenzene, 1,2-	<0.2 ug/L	74	20-140
Dichlorobenzene, 1,4-	<0.4 ug/L	68	20-140
Bis(2-ethylhexyl)phthalate	<0.4 ug/L	84	20-140
Di-n-butylphthalate	<1.3 ug/L	96	20-140
Run No 442126 **Analysis/Extraction Date** 2023-05-24 **Analyst** M E **Method** SM 5210B			
BOD5	<1 mg/L	98	75-125
Run No 442139 **Analysis/Extraction Date** 2023-05-24 **Analyst** SKH **Method** C SM2540			
Total Suspended Solids	<2 mg/L	98	90-110
Run No 442169 **Analysis/Extraction Date** 2023-05-23 **Analyst** R G **Method** EPA 8081B			
Polychlorinated Biphenyls	<0.1 ug/L	91	60-140
Run No 442182 **Analysis/Extraction Date** 2023-05-23 **Analyst** SD **Method** EPA 200.8			
Aluminum	<0.01 mg/L	97	80-120
Arsenic	<0.001 mg/L	88	80-120

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Certificate of Analysis

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L4N 0B7
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Report Number: 1997226
Date Submitted: 2023-05-18
Date Reported: 2023-06-08
Project: 2100463
COC #: 222055

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Cadmium	<0.0001 mg/L	101	80-120
Cobalt	<0.0002 mg/L	103	80-120
Chromium Total	<0.001 mg/L	107	80-120
Copper	<0.001 mg/L	101	80-120
Manganese	<0.01 mg/L	105	80-120
Molybdenum	<0.005 mg/L	78	80-120
Nickel	<0.005 mg/L	103	80-120
Lead	<0.001 mg/L	94	80-120
Antimony	<0.0005 mg/L	99	80-120
Selenium	<0.001 mg/L	98	80-120
Sn	<0.01 mg/L	85	80-120
Titanium	<0.01 mg/L	87	80-120
Zinc	<0.01 mg/L	105	80-120
Run No 442201 **Analysis/Extraction Date** 2023-05-24 **Analyst** SKH **Method** EPA 351.2			
Total Kjeldahl Nitrogen	<0.100 mg/L	112	70-130
Run No 442269 **Analysis/Extraction Date** 2023-05-24 **Analyst** Z S **Method** SM4500-CNC/MOE E3015			

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Report Number: 1997226
Date Submitted: 2023-05-18
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Project: 2100463
COC #: 222055

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Cyanide (total)	<0.005 mg/L	82	61-139
Run No 442283 **Analysis/Extraction Date** 2023-05-24 **Analyst** AsA **Method** SM2320,2510,4500H/F			
F	<0.10 mg/L	101	90-110
pH		100	90-110
Run No 442294 **Analysis/Extraction Date** 2023-05-25 **Analyst** R_G **Method** SM 5520B/F			
Oil & Grease - Mineral	<1 mg/L	120	70-130
Oil & Grease - Non-mineral	<1 mg/L		70-130
Oil & Grease - Total	<1 mg/L	115	70-130
Run No 442321 **Analysis/Extraction Date** 2023-05-23 **Analyst** SD **Method** EPA 200.8			
Mercury	<0.0001 mg/L	119	80-120
Run No 442322 **Analysis/Extraction Date** 2023-05-23 **Analyst** SD **Method** EPA 200.8			
Silver	<0.0001 mg/L	101	80-120
Run No 442324 **Analysis/Extraction Date** 2023-05-25 **Analyst** IP **Method** SM5530D/EPA420.2			
Phenols	<0.002 mg/L	105	50-120

Guideline = Storm Sewer - Peel *** = Guideline Exceedence**

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Report Number: 1997226
Date Submitted: 2023-05-18
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COC #: 222055

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 442331 **Analysis/Extraction Date** 2023-05-25 **Analyst** SKH **Method** EPA 365.1			
Total P	<0.020 mg/L	106	80-120
Run No 442376 **Analysis/Extraction Date** 2023-05-25 **Analyst** PJ **Method** EPA 8260			
Tetrachloroethane, 1,1,2,2-	<0.5 ug/L	109	60-130
Benzene	<0.5 ug/L	84	60-130
Dichloroethylene, 1,2-cis-	<0.4 ug/L	110	60-130
Chloroform	<0.5 ug/L	103	60-130
Methylene Chloride	<4.0 ug/L	107	60-130
Ethylbenzene	<0.5 ug/L	80	60-130
m/p-xylene	<0.4 ug/L	102	60-130
Methyl Ethyl Ketone	<2 ug/L	120	60-130
o-xylene	<0.4 ug/L	102	60-130
Styrene	<0.5 ug/L	99	60-130
Dichloropropene,1,3-trans-	<0.5 ug/L	96	60-130
Tetrachloroethylene	<0.3 ug/L	110	60-130
Toluene	<0.4 ug/L	108	60-130

Guideline = Storm Sewer - Peel *** = Guideline Exceedence**

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Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997226
Date Submitted: 2023-05-18
Date Reported: 2023-06-08
Project: 2100463
COC #: 222055

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Trichloroethylene	<0.3 ug/L	99	60-130
Run No 442383 **Analysis/Extraction Date** 2023-05-26 **Analyst** PJ **Method** EPA 8260			
Xylene Mixture			
Run No 442400 **Analysis/Extraction Date** 2023-05-26 **Analyst** AaN **Method** SM 4110			
SO4	<1 mg/L	100	90-110
Run No 442809 **Analysis/Extraction Date** 2023-06-02 **Analyst** QL **Method** SUBCONTRACT-SGS			
Nonylphenol Ethoxalate (Total)	<10 ug/L		
Nonylphenols (Total)	<1 ug/L		
Run No 442992 **Analysis/Extraction Date** 2023-06-08 **Analyst** DRA **Method** AMBCOLM1			
Escherichia Coli			

Guideline = Storm Sewer - Peel *** = Guideline Exceedence**

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Report Number: 1997226
Date Submitted: 2023-05-18
Date Reported: 2023-06-08
Project: 2100463
COC #: 222055

Sample Comment Summary

Sample ID: 1687742 BH5	Bacteria sample was taken on June 6th at 13:30hs
Sample ID: 1687743 BH26	Bacteria sample was taken on June 6th at 14:40hs

Guideline = Storm Sewer - Peel *** = Guideline Exceedence**

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Certificate of Analysis

Environment Testing

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
Invoice to: GEI Consultants Inc.
PO#:

Report Number: 1997226
Date Submitted: 2023-05-18
Date Reported: 2023-06-08
Project: 2100463
COC #: 222055
Temperature (C): 9
Custody Seal:

Dear Aiden Belfrage:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Sample Comment Summary

Sample ID: 1687742	BH5	Bacteria sample was taken on June 6th at 13:30hs
Sample ID: 1687743	BH26	Bacteria sample was taken on June 6th at 14:40hs

Report Comments:

Emma-Dawn Ferguson, Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise stated
.
Eurofins Environment Testing Canada Inc. is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at https://directory.cala.ca/

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Certificate of Analysis

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Report Number: 1997226
Date Submitted: 2023-05-18
Date Reported: 2023-06-08
Project: 2100463
COC #: 222055

Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria

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Client: GEI Consultants Inc.
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Attention: M. Aiden Belfrage
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Report Number: 1997226
Date Submitted: 2023-05-18
Date Reported: 2023-06-08
Project: 2100463
COC #: 222055

Guideline = Sanitary Sewer - Peel

Metals

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1687742	Lab I.D. 1687743
Sample Matrix					STRM W	STRM W
Sample Type						
Sample Date					2023-05-18	2023-05-18
Sampling Time					13:05	14:00
Sample I.D.					BH5	BH26
Aluminum	442182	0.01	mg/L	MAC 50	0.06	0.03
Antimony	442182	0.0005	mg/L	MAC 5	<0.0005	<0.0005
Arsenic	442182	0.001	mg/L	MAC 1	<0.001	<0.001
Cadmium	442182	0.0001	mg/L	MAC 0.7	<0.0001	<0.0001
Chromium Total	442182	0.001	mg/L	MAC 5	<0.001	<0.001
Cobalt	442182	0.0002	mg/L	MAC 5	0.0016	0.0014
Copper	442182	0.001	mg/L	MAC 3	<0.001	<0.001
Lead	442182	0.001	mg/L	MAC 3	<0.001	<0.001
Manganese	442182	0.01	mg/L	MAC 5	0.16	0.11
Mercury	442321	0.0001	mg/L	MAC 0.01	<0.0001	<0.0001
Molybdenum	442182	0.005	mg/L	MAC 5	<0.005	<0.005
Nickel	442182	0.005	mg/L	MAC 3	<0.005	<0.005
Selenium	442182	0.001	mg/L	MAC 1	0.001	<0.001
Silver	442322	0.0001	mg/L	MAC 5	<0.0001	<0.0001
Tin	442182	0.01	mg/L	MAC 5	<0.01	<0.01
Titanium	442182	0.01	mg/L	MAC 5	<0.01	<0.01
Zinc	442182	0.01	mg/L	MAC 3	<0.01	<0.01

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Attention: M. Aiden Belfrage
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Date Submitted: 2023-05-18
Date Reported: 2023-06-08
Project: 2100463
COC #: 222055

Guideline = Sanitary Sewer - Peel

Microbiology

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.	
					1687742 STRM W 2023-05-18 13:05 BH5	1687743 STRM W 2023-05-18 14:00 BH26
Escherichia Coli	442992	0	ct/100mL		0	0

Oil and Grease

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.	
					1687742 STRM W 2023-05-18 13:05 BH5	1687743 STRM W 2023-05-18 14:00 BH26
Oil & Grease - Mineral	442294	1	mg/L	MAC 15	<1	<1
Oil & Grease - Non-mineral	442294	1	mg/L	MAC 150	<1	<1
Oil & Grease - Total	442294	1	mg/L		<1	<1

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Others

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1687742 Sample Matrix STRM W Sample Type Sample Date 2023-05-18 Sampling Time 13:05 Sample I.D. BH5	Lab I.D. 1687743 Sample Matrix STRM W Sample Type Sample Date 2023-05-18 Sampling Time 14:00 Sample I.D. BH26
Total Kjeldahl Nitrogen	442201	0.100	mg/L	MAC 100	0.285	0.192
Total P	442331	0.020	mg/L	MAC 10	<0.020	<0.020

Subcontract

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1687742 Sample Matrix STRM W Sample Type Sample Date 2023-05-18 Sampling Time 13:05 Sample I.D. BH5	Lab I.D. 1687743 Sample Matrix STRM W Sample Type Sample Date 2023-05-18 Sampling Time 14:00 Sample I.D. BH26
Nonylphenol Ethoxalate (Total)	442809	10	ug/L	MAC 200	<10	<10
Nonylphenols (Total)	442809	1	ug/L	MAC 20	<1	<1

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Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1687742 Sample Matrix STRM W Sample Type Sample Date 2023-05-18 Sampling Time 13:05 Sample I.D. BH5	Lab I.D. 1687743 Sample Matrix STRM W Sample Type Sample Date 2023-05-18 Sampling Time 14:00 Sample I.D. BH26
Benzene	442376	0.5	ug/L	MAC 10	<0.5	<0.5
Chloroform	442376	0.5	ug/L	MAC 40	<0.5	<0.5
Dichloroethylene, 1,2-cis-	442376	0.4	ug/L	MAC 4000	<0.4	<0.4
Dichloropropene,1,3-trans-	442376	0.5	ug/L	MAC 140	<0.5	<0.5
Ethylbenzene	442376	0.5	ug/L	MAC 160	<0.5	<0.5
Methyl Ethyl Ketone	442376	2	ug/L	MAC 8000	<2	<2
Methylene Chloride	442376	4.0	ug/L	MAC 2000	<4.0	<4.0
Styrene	442376	0.5	ug/L	MAC 200	<0.5	<0.5
Tetrachloroethane, 1,1,2,2-	442376	0.5	ug/L	MAC 1400	<0.5	<0.5
Tetrachloroethylene	442376	0.3	ug/L	MAC 1000	<0.3	<0.3
Toluene	442376	0.4	ug/L	MAC 270	<0.4	0.4
Trichloroethylene	442376	0.3	ug/L	MAC 400	<0.3	<0.3
Xylene Mixture	442383	0.5	ug/L	MAC 1400	<0.5	<0.5
Xylene, m/p-	442376	0.4	ug/L		<0.4	<0.4
Xylene, o-	442376	0.4	ug/L		<0.4	<0.4

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Guideline = Sanitary Sewer - Peel

Inorganics

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1687742	Lab I.D. 1687743
Sample Matrix					STRM W	STRM W
Sample Type						
Sample Date					2023-05-18	2023-05-18
Sampling Time					13:05	14:00
Sample I.D.					BH5	BH26
BOD5	442126	1	mg/L	MAC 300	1	1
Cyanide (total)	442269	0.005	mg/L	MAC 2	<0.005	<0.005
F	442283	0.10	mg/L	MAC 10	0.18	0.11
pH	442283	1.00		MAC 5.5-10.0	7.79	7.82
Phenols	442324	0.002	mg/L	MAC 1.0	<0.002	<0.002
SO4	442400	1	mg/L	MAC 1500	256	105
Total Suspended Solids	442139	2	mg/L	MAC 350	36	8

PCBs

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1687742	Lab I.D. 1687743
Sample Matrix					STRM W	STRM W
Sample Type						
Sample Date					2023-05-18	2023-05-18
Sampling Time					13:05	14:00
Sample I.D.					BH5	BH26
Polychlorinated Biphenyls	442169	0.1	ug/L	MAC 1	<0.1	<0.1

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Semi-Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.	
					1687742 STRM W 2023-05-18 13:05 BH5	1687743 STRM W 2023-05-18 14:00 BH26
Bis(2-ethylhexyl)phthalate	439934	0.4	ug/L	MAC 12	<0.4	<0.4
Dichlorobenzene, 1,2-	439934	0.2	ug/L	MAC 50	<0.2	<0.2
Dichlorobenzene, 1,4-	439934	0.4	ug/L	MAC 80	<0.4	<0.4
Di-n-butylphthalate	439934	1.3	ug/L	MAC 80	<1.3	<1.3

VOCs Surrogates

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.	
					1687742 STRM W 2023-05-18 13:05 BH5	1687743 STRM W 2023-05-18 14:00 BH26
1,2-dichloroethane-d4	442376	0	%		96	93
4-bromofluorobenzene	442376	0	%		78	78
Toluene-d8	442376	0	%		92	92

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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
439934	Dichlorobenzene, 1,2-	<0.2 ug/L	74	20-140				
439934	Dichlorobenzene, 1,4-	<0.4 ug/L	68	20-140				
439934	Bis(2-ethylhexyl)phthalate	<0.4 ug/L	84	20-140		50-140		0-40
439934	Di-n-butylphthalate	<1.3 ug/L	96	20-140				
442126	BOD5	<1 mg/L	98	75-125				0-30
442139	Total Suspended Solids	<2 mg/L	98	90-110			8	0-20
442169	Polychlorinated Biphenyls	<0.1 ug/L	91	60-140		60-140		0-30
442182	Aluminum	<0.01 mg/L	97	80-120		70-130	2	0-20
442182	Arsenic	<0.001 mg/L	88	80-120	58	70-130	0	0-20
442182	Cadmium	<0.0001	101	80-120	68	70-130	0	0-20
442182	Cobalt	<0.0002	103	80-120	52	70-130	3	0-20
442182	Chromium Total	<0.001 mg/L	107	80-120	61	70-130	4	0-20
442182	Copper	<0.001 mg/L	101	80-120	49	70-130	1	0-20
442182	Manganese	<0.01 mg/L	105	80-120	28	70-130	1	0-20
442182	Molybdenum	<0.005 mg/L	78	80-120	64	70-130	0	0-20
442182	Nickel	<0.005 mg/L	103	80-120	50	70-130	0	0-20
442182	Lead	<0.001 mg/L	94	80-120	65	70-130	0	0-20
442182	Antimony	<0.0005	99	80-120	59	70-130	0	0-20
442182	Selenium	<0.001 mg/L	98	80-120	61	70-130	0	0-20
442182	Tin	<0.01 mg/L	85	80-120	71	70-130	0	0-20
442182	Titanium	<0.01 mg/L	87	80-120	36	70-130	0	0-20
442182	Zinc	<0.01 mg/L	105	80-120	55	70-130	0	0-20
442201	Total Kjeldahl Nitrogen	<0.100 mg/L	112	70-130	110	70-130	0	0-20
442269	Cyanide (total)	<0.005 mg/L	82	61-139	102	80-120	0	0-20
442283	F	<0.10 mg/L	101	90-110			0	0-5
442283	pH		100	90-110			0	0-5
442294	Oil & Grease - Mineral	<1 mg/L	120	70-130				
442294	Oil & Grease - Non-mineral	<1 mg/L		70-130				
442294	Oil & Grease - Total	<1 mg/L	115	70-130				
442321	Mercury	<0.0001	119	80-120	74	70-130	0	0-20
442322	Silver	<0.0001	101	80-120	62	70-130	0	0-20
442324	Phenols	<0.002 mg/L	105	50-120	105	80-120	0	0-20

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Project: 2100463
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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
442331	Total P	<0.020 mg/L	106	80-120	103	80-120	4	0-20
442376	Tetrachloroethane, 1,1,2,2-	<0.5 ug/L	109	60-130	110	50-140	0	0-30
442376	Benzene	<0.5 ug/L	84	60-130	120	50-140	0	0-30
442376	Dichloroethylene, 1,2-cis-	<0.4 ug/L	110	60-130	119	50-140	0	0-30
442376	Chloroform	<0.5 ug/L	103	60-130	119	50-140	0	0-30
442376	Methylene Chloride	<4.0 ug/L	107	60-130	103	50-140	0	0-30
442376	Ethylbenzene	<0.5 ug/L	80	60-130	112	50-140	0	0-30
442376	Xylene, m/p-	<0.4 ug/L	102	60-130	112	50-140	0	0-30
442376	Methyl Ethyl Ketone	<2 ug/L	120	60-130	121	50-140	0	0-30
442376	Xylene, o-	<0.4 ug/L	102	60-130	113	50-140	0	0-30
442376	Styrene	<0.5 ug/L	99	60-130	111	50-140	0	0-30
442376	Dichloropropene,1,3-trans-	<0.5 ug/L	96	60-130	111	50-140	0	0-30
442376	Tetrachloroethylene	<0.3 ug/L	110	60-130	112	50-140	0	0-30
442376	Toluene	<0.4 ug/L	108	60-130	125	50-140	0	0-30
442376	Trichloroethylene	<0.3 ug/L	99	60-130	112	50-140	0	0-30
442383	Xylene Mixture							
442400	SO4	<1 mg/L	100	90-110		80-120	0	0-25
442809	Nonylphenol Ethoxalate (Total)	<10 ug/L						
442809	Nonylphenols (Total)	<1 ug/L						
442992	Escherichia Coli							0-500

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Certificate of Analysis

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Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
439934	Dichlorobenzene, 1,2-	GC/MS	2023-05-23	2023-05-23	C_M	B 625/P 8270
439934	Dichlorobenzene, 1,4-	GC/MS	2023-05-23	2023-05-23	C_M	B 625/P 8270
439934	Bis(2-ethylhexyl)phthalate	GC/MS	2023-05-23	2023-05-23	C_M	B 625/P 8270
439934	Di-n-butylphthalate	GC/MS	2023-05-23	2023-05-23	C_M	B 625/P 8270
442126	BOD5	Dissolved O2 Meter	2023-05-19	2023-05-24	M_E	SM 5210B
442139	Total Suspended Solids	Manual	2023-05-23	2023-05-24	SKH	C SM2540
442169	Polychlorinated Biphenyls	GC/ECD	2023-05-23	2023-05-23	R_G	EPA 8081B
442182	Aluminum	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442182	Arsenic	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442182	Cadmium	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442182	Cobalt	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442182	Chromium Total	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442182	Copper	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442182	Manganese	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442182	Molybdenum	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442182	Nickel	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442182	Lead	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442182	Antimony	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442182	Selenium	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442182	Tin	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442182	Titanium	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442182	Zinc	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442201	Total Kjeldahl Nitrogen	AQ-400	2023-05-23	2023-05-24	SKH	EPA 351.2
442269	Cyanide (total)	Skalar CN Analyzer	2023-05-24	2023-05-24	Z_S	SM4500-CNC/MOE E3015
442283	F	Auto Titrator	2023-05-24	2023-05-24	AsA	SM2320,2510,4500H/F
442283	pH	Auto Titrator	2023-05-24	2023-05-24	AsA	SM2320,2510,4500H/F
442294	Oil & Grease - Mineral	Gravimetric	2023-05-23	2023-05-25	R_G	SM 5520B/F
442294	Oil & Grease - Non-mineral	Gravimetric	2023-05-23	2023-05-25	R_G	SM 5520B/F
442294	Oil & Grease - Total	Gravimetric	2023-05-23	2023-05-25	R_G	SM 5520B/F
442321	Mercury	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442322	Silver	ICAPQ-MS	2023-05-23	2023-05-23	SD	EPA 200.8
442324	Phenols	Technicon	2023-05-25	2023-05-25	IP	SM5530D/EPA420.2

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Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
442331	Total P	AQ 400	2023-05-25	2023-05-25	SKH	EPA 365.1
442376	Tetrachloroethane, 1,1,2,2-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Benzene	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dichloroethylene, 1,2-cis-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Chloroform	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Methylene Chloride	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Ethylbenzene	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Xylene, m/p-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Methyl Ethyl Ketone	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Xylene, o-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Styrene	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Dichloropropene,1,3-trans-	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Tetrachloroethylene	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Toluene	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442376	Trichloroethylene	GC-MS	2023-05-25	2023-05-25	PJ	EPA 8260
442383	Xylene Mixture	GC-MS	2023-05-26	2023-05-26	PJ	EPA 8260
442400	SO4	IC	2023-05-26	2023-05-26	AaN	SM 4110
442809	Nonylphenol Ethoxalate (Total)		2023-06-02	2023-06-02	QL	SUBCONTRACT-SGS
442809	Nonylphenols (Total)		2023-06-02	2023-06-02	QL	SUBCONTRACT-SGS
442992	Escherichia Coli	Manual	2023-06-07	2023-06-08	DRA	AMBCOLM1

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 1997226
Date Submitted: 2023-05-18
Date Reported: 2023-06-08
Project: 2100463
COC #: 222055

CWS for Petroleum Hydrocarbons in Soil - Tier 1

Notes:

1. The laboratory method complies with CCME Tier 1 reference method for PHC in soil. It is validated for laboratory use.
2. Where the F1 fraction (C6 to C10) and BTEX are both measured, F1-BTEX is reported.
3. Where the F2 fraction (C10 to C16) and naphthalene are both measured, F2-naphthalene is reported.
4. Where the F3 fraction (C16 to C34) and PAHs* are both measured, F3-PAH is reported.
5. F4G is analyzed if the chromatogram does not descend to baseline before C50. Where F4 (C34 to C50) and F4G are both reported, the higher result is compared to the standard.
6. Unless otherwise stated in the sample comments, the following criteria have been met where applicable:

   - nC6 and nC10 response factors within 30% of response factor for toluene;
   - nC10, nC16, and nC34 response factors within 10% of each other;
   - C50 response factors within 70% of nC10 + nC16 + nC34 average; and,
   - Linearity is within 15%.

7. Unless otherwise stated in the sample comments, sampling requirements and analytical holding times have been met.
8. Gravimetric heavy hydrocarbons (F4G) cannot be added to the C6 and C50 hydrocarbons.
9. *PAHs = phenanthrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene and pyrene.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3010375
Date Submitted: 2024-08-22
Date Reported: 2024-08-29
Project: 2100463
COC #: 916051

Dear Aiden Belfrage:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____
Emma-Dawn Ferguson, Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: https://directory.cala.ca/.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Certificate of Analysis

eurofins | Environment Testing

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3010375
Date Submitted: 2024-08-22
Date Reported: 2024-08-29
Project: 2100463
COC #: 916051

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1740347 SURF W 2024-08-22 BH/MW/05	1740348 SURF W 2024-08-22 BH/MW/05-F
General Chemistry	Total Suspended Solids	2	mg/L			92	8
Metals	Ag	0.0001	mg/L	PWQO 0.0001		<0.0001	<0.0001
	Al (dissolved)	0.01	mg/L	IPWQO 0.075		<0.01	<0.01
	As	0.001	mg/L	PWQO 0.100		0.003	<0.001
	B	0.01	mg/L	IPWQO 0.200		0.29*	0.29*
	Be	0.0005	mg/L	PWQO 0.011		0.0006	<0.0005
	Cd	0.0001	mg/L	PWQO 0.0002		0.0004*	0.0002
	Co	0.0002	mg/L	PWQO 0.0009		0.0411*	0.0295*
	Cr	0.001	mg/L			0.009	<0.001
	Cu	0.001	mg/L	PWQO 0.005		0.010*	0.001
	Fe	0.03	mg/L	PWQO 0.30		6.05*	0.04
	Filtration					Y	Y
	Hg Dissolved	0.0001	mg/L	PWQO 0.0002		<0.0001	<0.0001
	Mo	0.005	mg/L	IPWQO 0.040		<0.005	<0.005
	Ni	0.005	mg/L	PWQO 0.025		0.032*	0.022
	Pb	0.001	mg/L	PWQO 0.005		0.004	<0.001
	Sb	0.0005	mg/L	IPWQO 0.020		<0.0005	<0.0005
	Se	0.001	mg/L	PWQO 0.100		0.004	0.002
	Tl	0.0001	mg/L	IPWQO 0.0003		0.0001	<0.0001
	U	0.001	mg/L	IPWQO 0.005		0.015*	0.015*
	V	0.001	mg/L	IPWQO 0.006		0.012*	<0.001
	W	0.002	mg/L	IPWQO 0.030		<0.002	<0.002
	Zn	0.01	mg/L	PWQO 0.030		0.04*	0.01
	Zr	0.002	mg/L	IPWQO 0.004		0.005*	<0.002

Guideline = PWQO - Ontario *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

Client: GEI Consultants Inc.
647 Welham Rd Unit 14
Barrie, ON
L4N 0B7
Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3010375
Date Submitted: 2024-08-22
Date Reported: 2024-08-29
Project: 2100463
COC #: 916051

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 464919 **Analysis/Extraction Date** 2024-08-27 **Analyst** AaN **Method** EPA 200.8			
Silver	<0.0001 mg/L	117	80-120
Al (dissolved)	<0.01 mg/L	106	80-120
Arsenic	<0.001 mg/L	103	80-120
Boron (total)	<0.01 mg/L	102	80-120
Beryllium	<0.0005 mg/L	107	80-120
Cadmium	<0.0001 mg/L	101	80-120
Cobalt	<0.0002 mg/L	102	80-120
Chromium Total	<0.001 mg/L	104	80-120
Copper	<0.001 mg/L	105	80-120
Iron	<0.03 mg/L	98	80-120
Filtration			
Hg Dissolved	<0.0001 mg/L	100	
Molybdenum	<0.005 mg/L	91	80-120
Nickel	<0.005 mg/L	104	80-120
Lead	<0.001 mg/L	104	80-120
Antimony	<0.0005 mg/L	83	80-120

Guideline = PWQO - Ontario *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

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647 Welham Rd Unit 14
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Attention: M. Aiden Belfrage
PO#:
Invoice to: GEI Consultants Inc.

Report Number: 3010375
Date Submitted: 2024-08-22
Date Reported: 2024-08-29
Project: 2100463
COC #: 916051

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Selenium	<0.001 mg/L	104	80-120
Thallium	<0.0001 mg/L	101	80-120
Uranium	<0.001 mg/L	98	80-120
Vanadium	<0.001 mg/L	98	80-120
W	<0.002 mg/L	93	80-120
Zinc	<0.01 mg/L	106	80-120
Zr	<0.002 mg/L	92	80-120
Run No 464974 **Analysis/Extraction Date** 2024-08-28 **Analyst** MiV **Method** C SM2540			
Total Suspended Solids	<2 mg/L	97	90-110

Guideline = PWQO - Ontario *** = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

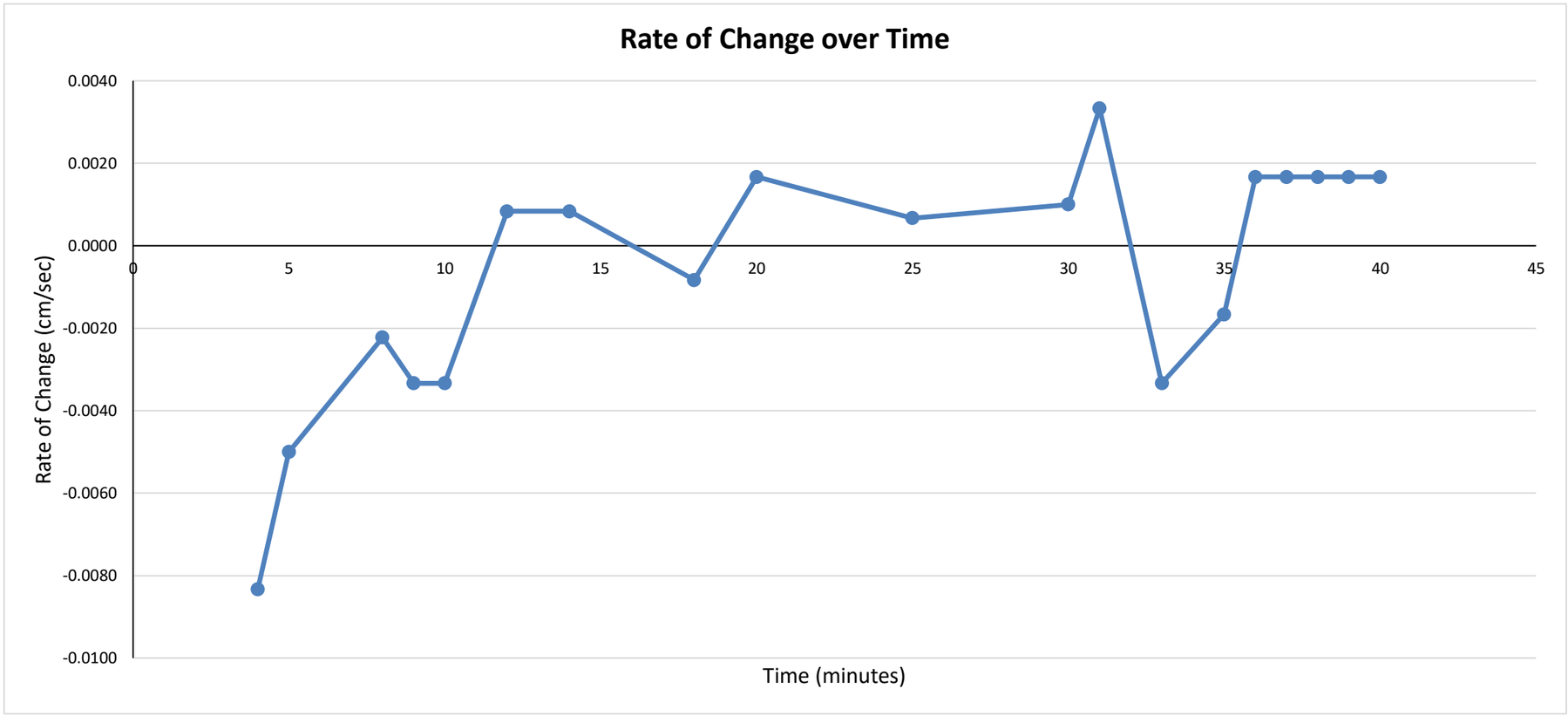
MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Appendix F Guelph Permeameter Testing

Guelph Permeameter
Infiltration Rate Determination

GEI Consultants

Test Location: GP 1



INPUT PARAMETERS

α* =	0.12	cm^{-1}
H =	5	cm
a =	3	cm
X =	2.16	cm^2
R =	0.0017	cm/sec

SHAPE FACTOR

Shape Factor (1, 2 or 3) =	1
Shape Factor Value (cm^{-1}) =	0.803

CALCULATED PARAMETERS

H_a =	1.67	unitless
Q_1 =	0.003672	cm^3/sec

CALCULATED DESIGN VALUES

k_{fs}=	6.68E-06	cm/sec
Φ_m=	5.57E-05	cm^2/s
Infiltration:	22.42	mm/hr
FOS:	2.50	unitless
Design Infiltration:	8.97	mm/hr

Variable Glossary

α* **1)** is the ratio of gravity to capillarity forces during infiltration or drainage
2) determined from table 1 on page 47 of the manual (or the adjacent table)

H **1)** is the water head in the BH
2) determined by the height that the inner tube is pulled up during field operation

a **1)** is the radius of the borehole
2) determine by the size of the auger

X **1)** is the resevoir constant
2) determined by the reservoir knob at the top of the unit
- if the knob is up X = 35.22 (outer and inner reservoir)
- if the knob is down X = 2.16 (inner reservoir)

R **1)** is the steady state rate of flow per minute
2) is determined by timing the drop of water in the Guelph Permeameter

Equation Glossary

Ha is the ratio of head to borehole radius

Q1 is the flow rate

$C_{(1, 2 or 3)}$ is the shape factor which accounts for the saturated area of the soil
- Select C_1 if α* is ≥ 0.12 cm^{-1}
- Select C_2 if α* = 0.04 cm^{-1}
- Select C_3 if α* = 0.01 cm^{-1}

k_{fs} is the field saturated hydraulic conductivity of the soil

Φ_m is an indicator of the capillary pull exerted by the unsaturated soil on the water

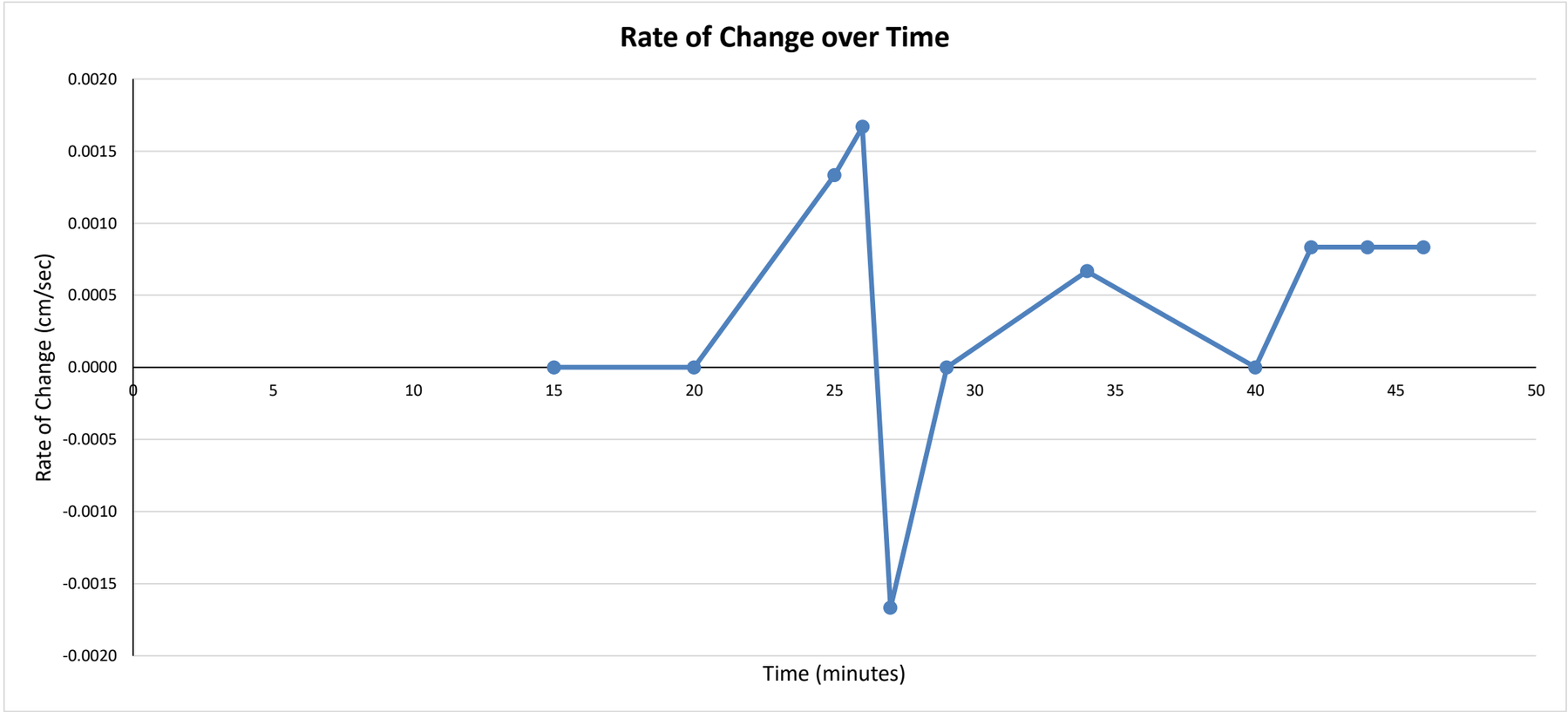
Table 1. Soil texture-structure categories for site-estimation of α* (adapted from Elrick et al., 1989)

Soil Texture - Structure Category	α* (cm^{-1})
Compacted, structureless, clayey or silty materials such as landfill caps and liners, lacustrine or marine sediments, etc.	0.01
Soils which are both fine textured (clayey or silty) and unstructured; may also include some fine sands.	0.04
Most structured soils from clays through loams; also includes unstructured medium and fine sands. The category most frequently applicable for agricultural soils.	0.12
Coarse and gravelly sands; may also include some highly structured soils with large and/or numerous cracks, macropores, etc.	0.36

Guelph Permeameter
Infiltration Rate Determination

GEI Consultants

Test Location: GP 2



INPUT PARAMETERS

α* =	0.12	cm^{-1}
H =	5	cm
a =	3	cm
X =	2.16	cm^2
R =	0.0008	cm/sec

SHAPE FACTOR

Shape Factor (1, 2 or 3) =	1
Shape Factor Value (cm^{-1}) =	0.803

CALCULATED PARAMETERS

H_a =	1.67	unitless
Q_1 =	0.001728	cm^3/sec

CALCULATED DESIGN VALUES

k_{fs}=	3.14E-06	cm/sec
Φ_m=	2.62E-05	cm^2/s
Infiltration:	18.33	mm/hr
FOS:	2.50	unitless
Design Infiltration:	7.33	mm/hr

Variable Glossary

α* **1)** is the ratio of gravity to capillarity forces during infiltration or drainage
2) determined from table 1 on page 47 of the manual (or the adjacent table)

H **1)** is the water head in the BH
2) determined by the height that the inner tube is pulled up during field operation

a **1)** is the radius of the borehole
2) determine by the size of the auger

X **1)** is the resevoir constant
2) determined by the reservoir knob at the top of the unit
- if the knob is up X = 35.22 (outer and inner reservoir)
- if the knob is down X = 2.16 (inner reservoir)

R **1)** is the steady state rate of flow per minute
2) is determined by timing the drop of water in the Guelph Permeameter

Equation Glossary

Ha is the ratio of head to borehole radius

Q1 is the flow rate

$C_{(1, 2 or 3)}$ is the shape factor which accounts for the saturated area of the soil
- Select C_1 if α* is ≥ 0.12 cm^{-1}
- Select C_2 if α* = 0.04 cm^{-1}
- Select C_3 if α* = 0.01 cm^{-1}

k_{fs} is the field saturated hydraulic conductivity of the soil

Φ_m is an indicator of the capillary pull exerted by the unsaturated soil on the water

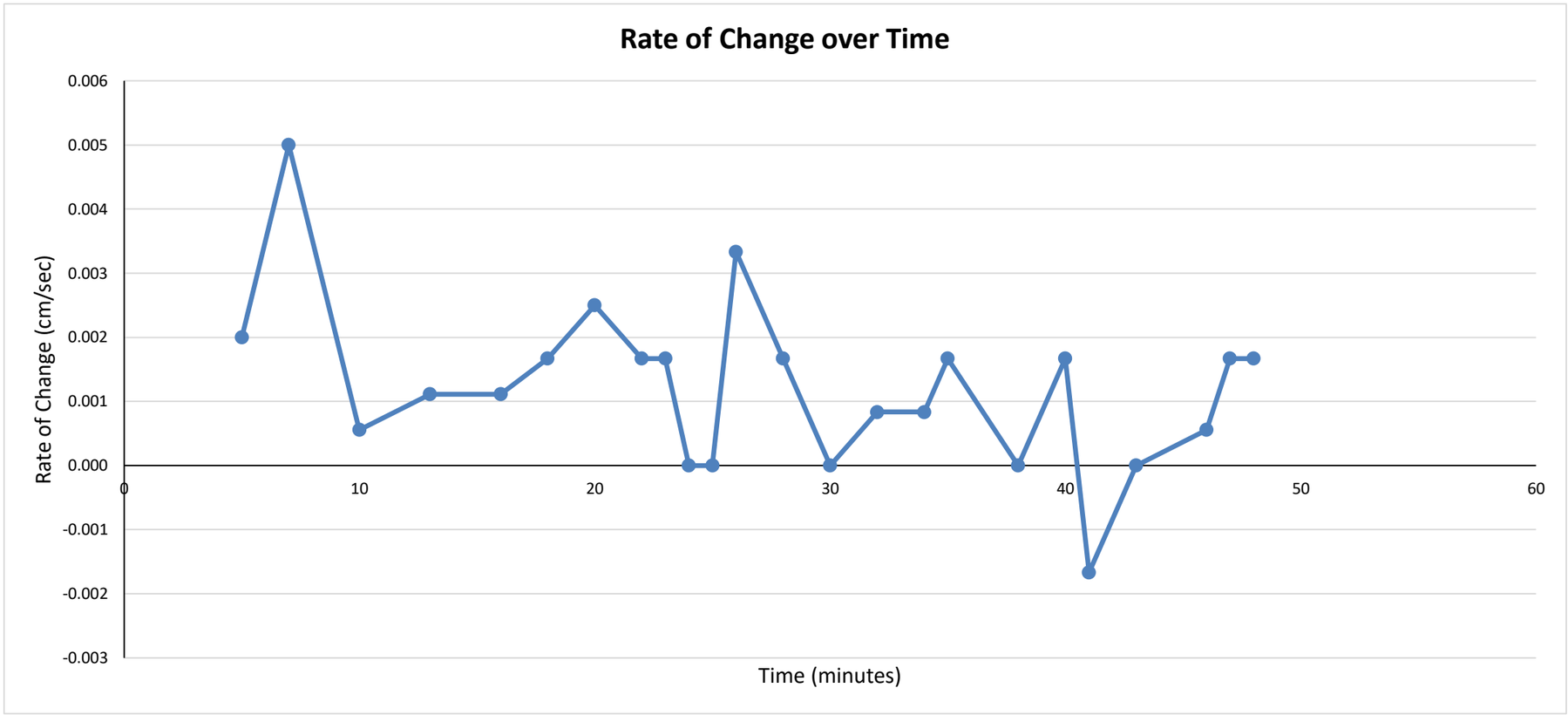
Table 1. Soil texture-structure categories for site-estimation of α* (adapted from Elrick et al., 1989)

Soil Texture - Structure Category	α* (cm^{-1})
Compacted, structureless, clayey or silty materials such as landfill caps and liners, lacustrine or marine sediments, etc.	0.01
Soils which are both fine textured (clayey or silty) and unstructured; may also include some fine sands.	0.04
Most structured soils from clays through loams; also includes unstructured medium and fine sands. The category most frequently applicable for agricultural soils.	0.12
Coarse and gravelly sands; may also include some highly structured soils with large and/or numerous cracks, macropores, etc.	0.36

Guelph Permeameter
Infiltration Rate Determination

GEI Consultants

Test Location: GP 3



INPUT PARAMETERS

α* =	0.12	cm^{-1}
H =	5	cm
a =	3	cm
X =	2.16	cm^2
R =		cm/sec

SHAPE FACTOR

Shape Factor (1, 2 or 3) =	1
Shape Factor Value (cm^{-1}) =	0.803

CALCULATED PARAMETERS

H_a =	1.67	unitless
Q_1 =	0	cm^3/sec

CALCULATED DESIGN VALUES

k_{fs}=	0.00E+00	cm/sec
Φ_m=	0.00E+00	cm^2/s
Infiltration:	0.00	mm/hr
FOS:	2.50	unitless
Design Infiltration:	0.00	mm/hr

Variable Glossary

α* **1)** is the ratio of gravity to capillarity forces during infiltration or drainage
2) determined from table 1 on page 47 of the manual (or the adjacent table)

H **1)** is the water head in the BH
2) determined by the height that the inner tube is pulled up during field operation

a **1)** is the radius of the borehole
2) determine by the size of the auger

X **1)** is the resevoir constant
2) determined by the reservoir knob at the top of the unit
- if the knob is up X = 35.22 (outer and inner reservoir)
- if the knob is down X = 2.16 (inner reservoir)

R **1)** is the steady state rate of flow per minute
2) is determined by timing the drop of water in the Guelph Permeameter

Equation Glossary

Ha is the ratio of head to borehole radius

Q1 is the flow rate

$C_{(1, 2 or 3)}$ is the shape factor which accounts for the saturated area of the soil
- Select C_1 if α* is ≥ 0.12 cm^{-1}
- Select C_2 if α* = 0.04 cm^{-1}
- Select C_3 if α* = 0.01 cm^{-1}

k_{fs} is the field saturated hydraulic conductivity of the soil

Φ_m is an indicator of the capillary pull exerted by the unsaturated soil on the water

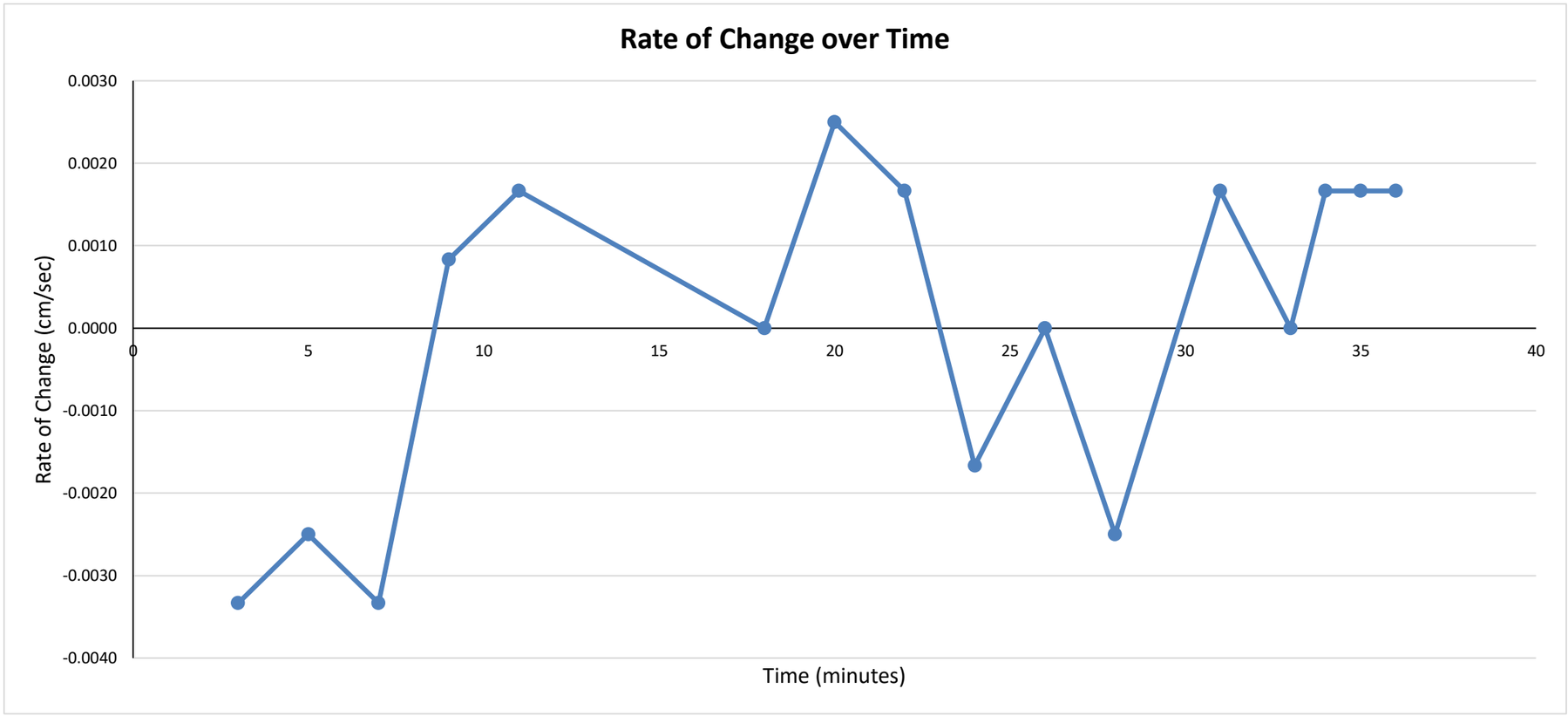
Table 1. Soil texture-structure categories for site-estimation of α* (adapted from Elrick et al., 1989)

Soil Texture - Structure Category	α* (cm^{-1})
Compacted, structureless, clayey or silty materials such as landfill caps and liners, lacustrine or marine sediments, etc.	0.01
Soils which are both fine textured (clayey or silty) and unstructured; may also include some fine sands.	0.04
Most structured soils from clays through loams; also includes unstructured medium and fine sands. The category most frequently applicable for agricultural soils.	0.12
Coarse and gravelly sands; may also include some highly structured soils with large and/or numerous cracks, macropores, etc.	0.36

Guelph Permeameter
Infiltration Rate Determination

GEI Consultants

Test Location: GP 4



INPUT PARAMETERS

α* =	0.12	cm^{-1}
H =	5	cm
a =	3	cm
X =	2.16	cm^2
R =	0.0017	cm/sec

SHAPE FACTOR

Shape Factor (1, 2 or 3) =	1
Shape Factor Value (cm^{-1}) =	0.803

CALCULATED PARAMETERS

H_a =	1.67	unitless
Q_1 =	0.003672	cm^3/sec

CALCULATED DESIGN VALUES

k_{fs}=	6.68E-06	cm/sec
Φ_m=	5.57E-05	cm^2/s
Infiltration:	22.42	mm/hr
FOS:	2.50	unitless
Design Infiltration:	8.97	mm/hr

Variable Glossary

α* **1)** is the ratio of gravity to capillarity forces during infiltration or drainage
2) determined from table 1 on page 47 of the manual (or the adjacent table)

H **1)** is the water head in the BH
2) determined by the height that the inner tube is pulled up during field operation

a **1)** is the radius of the borehole
2) determine by the size of the auger

X **1)** is the resevoir constant
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- if the knob is up X = 35.22 (outer and inner reservoir)
- if the knob is down X = 2.16 (inner reservoir)

R **1)** is the steady state rate of flow per minute
2) is determined by timing the drop of water in the Guelph Permeameter

Equation Glossary

Ha is the ratio of head to borehole radius

Q1 is the flow rate

$C_{(1, 2 or 3)}$ is the shape factor which accounts for the saturated area of the soil
- Select C_1 if α* is ≥ 0.12 cm^{-1}
- Select C_2 if α* = 0.04 cm^{-1}
- Select C_3 if α* = 0.01 cm^{-1}

k_{fs} is the field saturated hydraulic conductivity of the soil

Φ_m is an indicator of the capillary pull exerted by the unsaturated soil on the water

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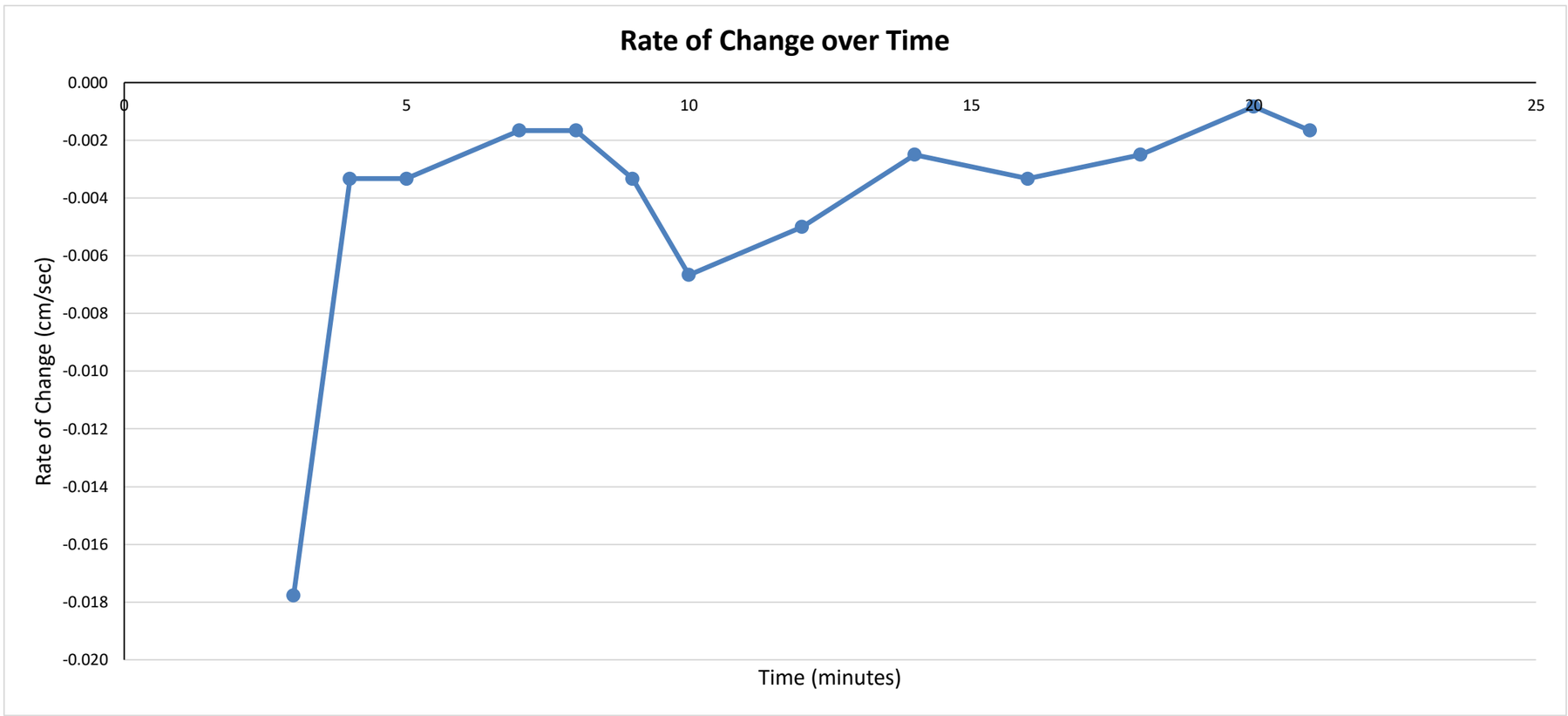
Soils which are both fine textured (clayey or silty) and unstructured; may also include some fine sands.	0.04
Most structured soils from clays through loams; also includes unstructured medium and fine sands. The category most frequently applicable for agricultural soils.	0.12
Coarse and gravelly sands; may also include some highly structured soils with large and/or numerous cracks, macropores, etc.	0.36

Guelph Permeameter
Infiltration Rate Determination

GEI Consultants

Test Location: GP 5



INPUT PARAMETERS

α* =	0.12	cm^{-1}
H =	5	cm
a =	3	cm
X =	2.16	cm^2
R =		cm/sec

SHAPE FACTOR

Shape Factor (1, 2 or 3) =	1
Shape Factor Value (cm^{-1}) =	0.803

CALCULATED PARAMETERS

H_a =	1.67	unitless
Q_1 =	0	cm^3/sec

CALCULATED DESIGN VALUES

k_{fs}=	0.00E+00	cm/sec
Φ_m=	0.00E+00	cm^2/s
Infiltration:	0.00	mm/hr
FOS:	2.50	unitless
Design Infiltration:	0.00	mm/hr

Variable Glossary

α* **1)** is the ratio of gravity to capillarity forces during infiltration or drainage
2) determined from table 1 on page 47 of the manual (or the adjacent table)

H **1)** is the water head in the BH
2) determined by the height that the inner tube is pulled up during field operation

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- if the knob is down X = 2.16 (inner reservoir)

R **1)** is the steady state rate of flow per minute
2) is determined by timing the drop of water in the Guelph Permeameter

Equation Glossary

Ha is the ratio of head to borehole radius

Q1 is the flow rate

$C_{(1, 2 or 3)}$ is the shape factor which accounts for the saturated area of the soil
- Select C_1 if α* is ≥ 0.12 cm^{-1}
- Select C_2 if α* = 0.04 cm^{-1}
- Select C_3 if α* = 0.01 cm^{-1}

k_{fs} is the field saturated hydraulic conductivity of the soil

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Soils which are both fine textured (clayey or silty) and unstructured; may also include some fine sands.	0.04
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Coarse and gravelly sands; may also include some highly structured soils with large and/or numerous cracks, macropores, etc.	0.36

Appendix G Construction Dewatering Calculations

Equivalent Well Radius Method

Zone 1 - Typical Site Servicing

Inputs

Rs (m)	Ro (m)	H (m)	h (m)	k (m/s)	Trench Length, x (m)	Trench Width, b (m)
3.4	11.5	6.4	1.0	5.00E-07	100	6

Unconfined (Equation 6.10b)

Elevations (m)	
Ground Surface	244.7
Highest Water Level	244.6
Base of Excavation	239.7
Drawdown Target	239.2
Aquifer Bottom	238.2

5.4

Groundwater Flows		
Flow Rate, Q=	0.0003913	m3/s
Q=	33,809	L/day
Safety Factor	2	
Q factored =	**67,618**	L/day

Precipitation		
Rainfall Event	10	mm
Excavation Area	600	m2
Rainfall Q =	**6,000**	L/day

TOTAL Factored Q =	**73,618**	**L/day**

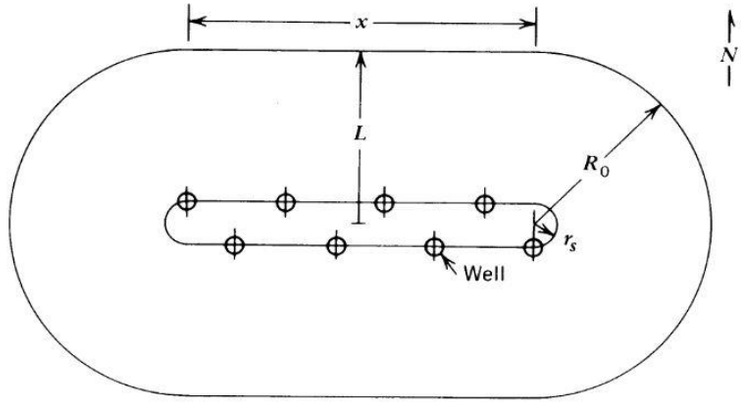

Figure 6.8 Approximate analysis of long, narrow systems.

The total flow to the system may be approximated by adding Eqs. 6.1 and 6.6 for a confined aquifer, or Eqs. 6.3 and 6.7 for a water table aquifer:

$$Q = \frac{2\pi KB(H - h)}{\ln R_0/r_s} + 2\left[\frac{xKB(H - h)}{L}\right] \qquad (6.10a)$$

$$Q = \frac{\pi K(H^2 - h^2)}{\ln R_0/r_s} + 2\left[\frac{xK(H^2 - h^2)}{2L}\right] \qquad (6.10b)$$

Equivalent Well Radius Method

Zone 2 - Largest Residential Block

Inputs

Rs (m)	Ro (m)	H (m)	h (m)	k (m/s)	Trench Length, x (m)	Trench Width, b (m)
29.3	7.2	4.4	1.0	5.00E-07	248	52

Unconfined (Equation 6.10b), excluding second term

Elevations (m)		
Ground Surface	244.7	
Highest Water Level	244.6	
Base of Excavation	241.7	
Drawdown Target	241.2	3.4
Aquifer Bottom	240.2	

Groundwater Flows		
Flow Rate, Q=	0.0001312	m3/s
Q=	11,336	L/day
Safety Factor	2	
Q factored =	**22,672**	L/day

Precipitation		
Rainfall Event	10	mm
Excavation Area	12896	m2
Rainfall Q =	**128,960**	L/day

TOTAL Factored Q =	**151,632**	**L/day**

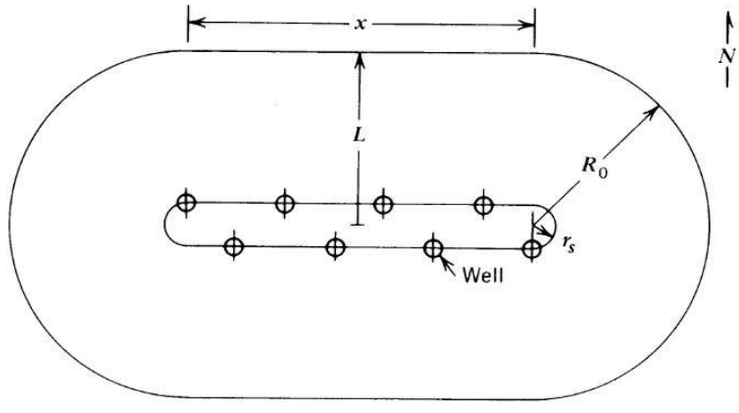

Figure 6.8 Approximate analysis of long, narrow systems.

The total flow to the system may be approximated by adding Eqs. 6.1 and 6.6 for a confined aquifer, or Eqs. 6.3 and 6.7 for a water table aquifer:

$$Q = \frac{2\pi KB(H - h)}{\ln R_0/r_s} + 2\left[\frac{xKB(H - h)}{L}\right] \qquad (6.10a)$$

$$Q = \frac{\pi K(H^2 - h^2)}{\ln R_0/r_s} + 2\left[\frac{xK(H^2 - h^2)}{2L}\right] \qquad (6.10b)$$

Equivalent Well Radius Method

Zone 3 - Largest Urban Block

Inputs

Rs (m)	Ro (m)	H (m)	h (m)	k (m/s)	Trench Length, x (m)	Trench Width, b (m)
50.2	42.8	6.6	1.0	6.50E-06	281	89

Unconfined (Equation 6.10b), excluding second term

Elevations (m)

Ground Surface	229
Highest Water Level	227.1
Base of Excavation	222
Drawdown Target	221.5
Aquifer Bottom	220.5

5.6

Groundwater Flows		
Flow Rate, Q=	0.0050388	m3/s
Q=	435,355	L/day
Safety Factor	2	
Q factored =	**870,711**	L/day

Precipitation		
Rainfall Event	10	mm
Excavation Area	25009	m2
Rainfall Q =	**250,090**	L/day

TOTAL Factored Q =	**1,120,801**	**L/day**

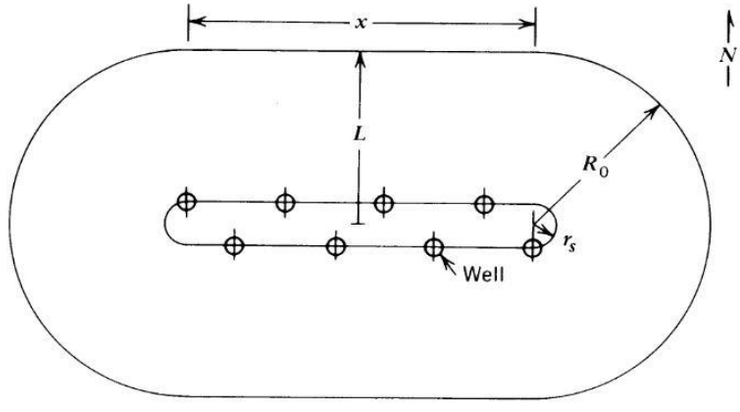

Figure 6.8 Approximate analysis of long, narrow systems.

The total flow to the system may be approximated by adding Eqs. 6.1 and 6.6 for a confined aquifer, or Eqs. 6.3 and 6.7 for a water table aquifer:

$$Q = \frac{2\pi KB(H - h)}{\ln R_0/r_s} + 2\left[\frac{xKB(H - h)}{L}\right] \qquad (6.10a)$$

$$Q = \frac{\pi K(H^2 - h^2)}{\ln R_0/r_s} + 2\left[\frac{xK(H^2 - h^2)}{2L}\right] \qquad (6.10b)$$

Equivalent Well Radius Method

Zone 4 - SWM Facility 3

Inputs

Rs (m)	Ro (m)	H (m)	h (m)	k (m/s)	Trench Length, x (m)	Trench Width, b (m)
72.2	8.7	5.1	1.0	5.00E-07	177	128

Unconfined (Equation 6.10b), excluding second term

Elevations (m)	
Ground Surface	242.1
Highest Water Level	239.7
Base of Excavation	236.1
Drawdown Target	235.6
Aquifer Bottom	234.6

3.1

Groundwater Flows		
Flow Rate, Q=	0.0008544	m3/s
Q=	73,824	L/day
Safety Factor	2	
Q factored =	**147,648**	L/day

Precipitation		
Rainfall Event	10	mm
Excavation Area	22656	m2
Rainfall Q =	**226,560**	L/day

TOTAL Factored Q =	**374,208**	**L/day**

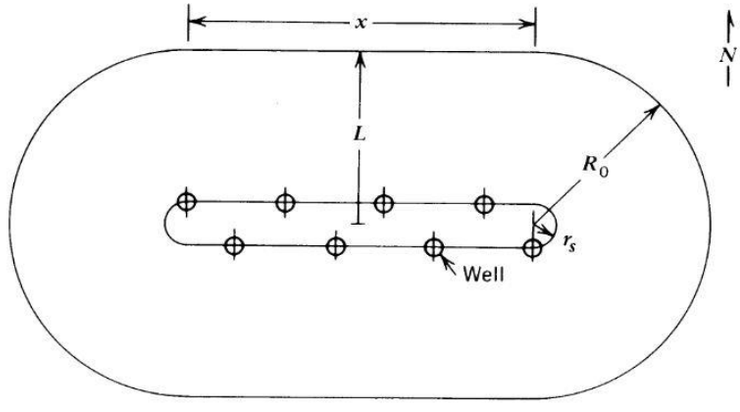

Figure 6.8 Approximate analysis of long, narrow systems.

The total flow to the system may be approximated by adding Eqs. 6.1 and 6.6 for a confined aquifer, or Eqs. 6.3 and 6.7 for a water table aquifer:

$$Q = \frac{2\pi KB(H - h)}{\ln R_0/r_s} + 2\left[\frac{xKB(H - h)}{L}\right] \qquad (6.10a)$$

$$Q = \frac{\pi K(H^2 - h^2)}{\ln R_0/r_s} + 2\left[\frac{xK(H^2 - h^2)}{2L}\right] \qquad (6.10b)$$

Equivalent Well Radius Method

Zone 5 - SWM Facility 7

Inputs

Rs (m)	Ro (m)	H (m)	h (m)	k (m/s)	Trench Length, x (m)	Trench Width, b (m)
108.3	4.5	3.1	1.0	5.00E-07	372	192

Unconfined (Equation 6.10b), excluding second term

Elevations (m)	
Ground Surface	232.8
Highest Water Level	228.4
Base of Excavation	226.8
Drawdown Target	226.3
Aquifer Bottom	225.3

Groundwater Flows		
Flow Rate, Q=	0.0010546	m3/s
Q=	91,115	L/day
Safety Factor	2	
Q factored =	**182,230**	L/day

Precipitation		
Rainfall Event	10	mm
Excavation Area	71424	m2
Rainfall Q =	**714,240**	L/day

TOTAL Factored Q =	**896,470**	**L/day**

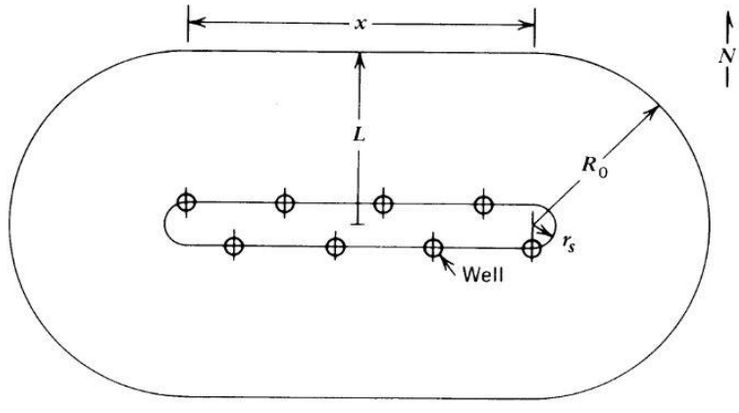

Figure 6.8 Approximate analysis of long, narrow systems.

The total flow to the system may be approximated by adding Eqs. 6.1 and 6.6 for a confined aquifer, or Eqs. 6.3 and 6.7 for a water table aquifer:

$$Q = \frac{2\pi KB(H - h)}{\ln R_0/r_s} + 2\left[\frac{xKB(H - h)}{L}\right] \qquad (6.10a)$$

$$Q = \frac{\pi K(H^2 - h^2)}{\ln R_0/r_s} + 2\left[\frac{xK(H^2 - h^2)}{2L}\right] \qquad (6.10b)$$

Equivalent Well Radius Method

Zone 6 - SWM Facility 8

Inputs

Rs (m)	Ro (m)	H (m)	h (m)	k (m/s)	Trench Length, x (m)	Trench Width, b (m)
102.7	7.4	4.5	1.0	5.00E-07	198	182

Unconfined (Equation 6.10b), excluding second term

Elevations (m)	
Ground Surface	237.5
Highest Water Level	234.5
Base of Excavation	231.5
Drawdown Target	231
Aquifer Bottom	230

Groundwater Flows		
Flow Rate, Q=	0.0009465	m3/s
Q=	81,777	L/day
Safety Factor	2	
Q factored =	**163,554**	L/day

Precipitation		
Rainfall Event	10	mm
Excavation Area	36036	m2
Rainfall Q =	**360,360**	L/day

TOTAL Factored Q =	**523,914**	**L/day**

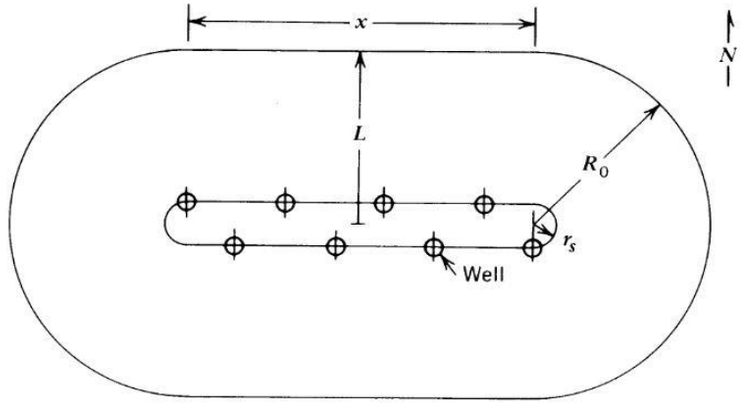

Figure 6.8 Approximate analysis of long, narrow systems.

The total flow to the system may be approximated by adding Eqs. 6.1 and 6.6 for a confined aquifer, or Eqs. 6.3 and 6.7 for a water table aquifer:

$$Q = \frac{2\pi KB(H - h)}{\ln R_0/r_s} + 2\left[\frac{xKB(H - h)}{L}\right] \qquad (6.10a)$$

$$Q = \frac{\pi K(H^2 - h^2)}{\ln R_0/r_s} + 2\left[\frac{xK(H^2 - h^2)}{2L}\right] \qquad (6.10b)$$

Appendix H Groundwater Taking Plan

Groundwater Taking Plan

This plan, as required under the Ontario Water Resources Act, Section 34 - 34.11 and Ontario Regulation (O. Reg.) 387/04 (Water Taking and Transfer) and/or O. Reg. 63/16 – Registration Under Part II.2 of the Act – Water Taking, provides a general outline of the dewatering plan for the site to satisfy the Permit To Take Water (PTTW) and/or Environmental Activity and Sector Registry (EASR) requirements and that a detailed plan will be generated as needed by the contractor and their dewatering subcontractor that will include detailed treatment and monitoring measures.

Based on the conditions at and around the site, the target receiver for any dewatering discharge will be the surface and/or storm and/or sanitary sewers. Should discharge be planned for either of the sewer systems, the contractor and/or its dewatering subcontractor will need to ensure that all permissions and/or permits are obtained to allow for discharge to that sewer and that all dewatering discharge meets the appropriate chemistry and discharge flow requirements imposed for that system.

Ultimately the method(s) employed to complete the dewatering will be left up to the contractor and/or its dewatering contractor to determine what will work best for them to achieve the dry working conditions that they require.

It is noted that these dewatering estimates are considered preliminary and do not reflect any current plans for the site. The following values should be used for discussion and preliminary planning purposes only until site servicing plans and/or building basement or foundation designs are available.

<u>Construction Dewatering Discharge Rates and Zones of Influence</u>

The Radii of Influence were estimated in Section 5.1 and the details are summarized below.

Dewatering Zone		Static Saturated Head Above Aquifer Bottom	Hydraulic Conductivity	Radius of Influence
		H (m)	K (m/s)	R_0 (m)
1	Typical Site Servicing	6.4	5.0×10^{-7}	11.5
2	Largest Residential Block	4.4	5.0×10^{-7}	7.2
3	Largest Urban Block	6.6	6.5×10^{-6}	42.8
4	SWM Facility 3	5.1	5.0×10^{-7}	8.7
5	SWM Facility 7	3.1	5.0×10^{-7}	4.5
6	SWM Facility 8	4.5	5.0×10^{-7}	7.5

The estimated water taking rates are below.

Dewatering Zone		Construction Dewatering Flow Rate		
		As Calculated	Including FOS[1]	Including FOS and Rainfall Event[2,3]
		L/day		
1	Typical Site Servicing	33,809	67,618	73,618
2	Largest Residential Block	11,336	22,672	151,632
3	Largest Urban Block	435,355	870,711	1,120,801
4	SWM Facility 3	73,824	147,648	374,208
5	SWM Facility 7	91,115	182,230	896,470
6	SWM Facility 8	81,777	163,554	523,914

Notes:

1. A Factor of Safety (FOS) of 2.0 is included to account for seasonal fluctuations in the groundwater table, initial removal of groundwater from storage and variation in hydrogeological properties beyond those encountered during this study.
2. A 10 mm rainfall event was included in the water-taking calculation.
3. It is noted that under specific conditions, if the water taking is 100% storm water registration on the EASR may not be required, however if water taking consists of any mixture of storm water and groundwater typical registry or ermitting is likely required.

For long-term dewatering, a PTTW is required where the water taking rates exceed 50,000 L/day. As each neighbourhood area residential unit / lot is expected to be a freehold property, the water taking rates can be assessed individually (i.e., on a lot-by-lot basis). Based on the estimates PTTW is not anticipated for the neighbourhood area residential lots.

Impact Assessment

Land Stability and Settlement

Construction dewatering has the potential to result in ground settlement which could damage buried utilities, building foundations, or cause subsidence in adjacent lands. Settlement of the soil within the zone of influence can be calculated based on the increase in effective stress (10 kPa per m of drawdown) from reducing the pore water pressures. The maximum settlement will occur adjacent to the dewatering system where the maximum drawdown occurs and decrease exponentially to zero towards the radius of influence limit.

At this site, groundwater drawdowns ranging from 1.1 to 5.6 m have been assumed during construction. For a maximum groundwater drawdown of 5.6 m, a corresponding increase in effective stress of 56 kPa is calculated. Based on the soil conditions (very stiff to hard / very dense glacial till), it is estimated that this magnitude of effective stress increase/groundwater drawdown will result in less than 5 mm of ground settlement. Given the magnitude of settlement and the rural nature of the site (limited nearby infrastructure or buildings which are the main consideration for settlement related

concerns), the risk of settlement related impacts to nearby buildings from the construction dewatering is considered to be very low.

The estimated settlement does not include potential settlement associated with ground loss due to pumping of fines through the system. It is imperative that any dewatering systems (e.g., well-points, deep wells, sump pumps) shall be installed adequately to ensure no soil is conveyed through the system. Sufficient filtering techniques are incorporated at the entry point to avoid migration fines in the pumping/dewatering system. The turbidity of pumped water should be monitored daily to ensure that only minimal fines are being conveyed through the system.

Potential Impact on Nearby Groundwater Users

Fifty-three (53) water well records were identified on-site and within 500 m of the site. A summary of these well records is provided below.

Well Use	Number of Records	Year(s) Installed	Depth of Water Encountered	Well Screen / Open Hole (Media & Depth)
Domestic and/or Livestock	33	1947 to 1985	6.1 to 48.8 m	Overburden: 28.3 to 46.6 m Bedrock: 45.7 to 46.6 m
Other, Not Used, and/or Not Listed	20	1960 to 2021	2.4 to 45.7 m	Overburden: 6.7 to 18.9 m

The stratigraphic descriptions within the MECP monitoring well records are often inaccurate due to the methodology in which they are determined (observations of cuttings without depositional context and possibly some mixture between layers, plus no consistency between descriptions of soils between drillers). While this may be the case, an overall sense of the regional stratigraphy can be determined by looking at commonalities between most stratigraphic descriptions and where the wells were terminated in an aquifer. The well records typically indicate silty sand or sandy silt (potentially glacial till in some locations), then clay, then sand and gravel, then shale. Bedrock was encountered in several wells at depths ranging from 11.6 to 61.3 m below existing grade. The noted domestic water supply wells were installed in sand or sand and gravel units typically screened between 28.3 to 46.6 ms below existing grade. It is noted one (1) well was screened in the bedrock from 45.7 to 46.6 ms below existing grade. It is expected that any existing private water supply wells (used for domestic or livestock purposes) on and/or within 500 m of the site may still be in use. Based on the well records with available well screen information the deeper sand and gravel units would most likely be part of the Oak Ridges Aquifer Complex (ORAC). A larger portion of groundwater recharge for the ORAC would

most likely not come from surface water as approximately 7.6 to 57.6 m of clay and silt glacial till (Halton Till) is overlying the aquifer reducing local infiltration and recharge.

As dewatering is expected to be temporary and near the ground surface, it is anticipated that any water supply wells within 500 m of the site will not be affected by the temporary dewatering near the ground surface.

Potential Impact on Nearby Waterbodies or Other Surface Water Features

Minimal impacts to groundwater levels or flow directions, headwater drainage features on site, deeper aquifers, or other environmental features are expected due to the construction dewatering being temporary (short-term), with the radii of influence for drawdown being relatively small, and only a limited area being dewatered at any given time during construction.

For long-term dewatering, each neighborhood area residential unit / lot is expected to be a freehold property, the water taking rates can be assessed individually (i.e., on a lot-by-lot basis). Based on the estimates discussed above minimal impacts to groundwater levels or flow directions, headwater drainage features on site, deeper aquifers, or other environmental features are expected due to the flow rates being relatively small for the neighborhood area residential lots. However, impacts can be expected for the urban corridor development for the foundation drainage of basements based on the estimated flow rates. It is recommended the subsurface portions (e.g., basements, parking structures) as waterproofed structures and thereby avoiding reliance on drainage for the urban corridor.

As no Areas of Natural and Scientific Interest (ANSIs) within 500 m of the site and the water removed will be returned to the West Humber River watershed. It is not anticipated that the proposed construction dewatering or long-term dewatering activity will have a negative impact on the overall groundwater flow to the surrounding area.

Water Quantity, Quality and Groundwater Level Monitoring Program

Discharge Options

Based on the groundwater quality analysis conducted to date, the discharge from dewatering operations can either be directed to the surface or Region of Peel storm or sanitary sewers, provided that the groundwater quality meets the applicable sewer usage bylaw and PWQO during dewatering activities.

If the groundwater quality of the construction dewatering discharge fails to meet the applicable standards, treatment options should be assessed, and/or the system should be shut down.

Treatment of the dewatering discharge water by filtration (using a decantation tank and/or silt bag at a minimum) to remove sediment and fines is expected to improve water quality by reducing the concentrations of Total Suspended Solids and/or metals. However, additional treatment may be necessary for the groundwater to meet the applicable sewer use bylaw and/or PWQO.

The purpose of sampling for the municipal sewer use bylaw criteria is to aid in the execution of a future municipal sewer use agreement, should groundwater be discharged to the local municipal sewer system(s).

The purpose of sampling for PWQO metals and TSS are for the evaluation of the groundwater to discharge into the natural environment and/or into sewer systems in which municipal discharge water quality standards do not currently exist.

The contractor is responsible for designing and operating a treatment system for the collected discharge using their own methods to ensure compliance with the applicable standard. In particular, the contractor should be aware of the following parameters that may require additional treatment, depending on the discharge location selected:

- TSS
- Manganese
- Aluminum
- Boron
- Silver
- Cobalt
- Copper
- Iron
- Lead
- Uranium
- Vanadium
- Zinc
- Zirconium
- Thallium

Although Provincial Water Quality Objectives (PWQO) and interim PWQO are not legally binding standards, they serve as the foundation for establishing acceptable wastewater loading limits on a site-specific basis (such as the natural environment and/or sewer systems in which municipal discharge water quality standards do not currently exist). The Ontario Ministry of the Environment, Conservation and Parks (MECP) has acknowledged that applying PWQOs can pose challenges, especially in regard to the limits of PHCs and VOCs. These challenges include instances where PWQOs may fall below the laboratory limits of detection, or PWQOs may be more stringent than background concentrations (even in water bodies with apparently thriving aquatic ecosystems).

Should the quality groundwater discharged during dewatering exceed the PWQO, additional treatment measured from the dewatering contractor may be required before discharging to the natural environment is advisable and/or approved, and as such discharge to local sewers may be a more efficient option for groundwater discharge during dewatering operations.

If surface discharge is required, it is imperative to establish the natural background levels of parameters within nearby water bodies or features (such as the local creeks) before dewatering begins. Furthermore, continuous water quality monitoring should be conducted regularly during and after groundwater discharge activities.

<u>Water Quality Monitoring and Potential Treatment Plan</u>

The monitoring plan for discharge to the surface and/or sewers is outlined on Table H-1.

Groundwater Level Monitoring Program

The ground water level monitoring program is outlined on Table H-2.

Discharge Rate Monitoring

The total groundwater volume pumped must be measured and recorded daily by the dewatering contractor. The water taking rates should be measured using an electronic device, and the daily water volumes must be reported to MECP on the Water Taking and Reporting System (WTRS) or through the Regulatory Self Reporting System. The volume of water taken daily for each dewatered work area shall be reported to the ministry on or before March 31 in each year, for each location from which water was taken in the previous calendar year. If no water is taken, then a "no taking" report must be entered.

The contractor will maintain a record of all water takings. This record will include the dates and duration of water takings, and the total measured volume of water pumped per day for each day that water is taken and will be updated and reported to the Client weekly. Daily precipitation must also be recorded by the contractor. The records must be kept up to date and available at or near the site and provided to the MECP upon request.

Summary of Qualifications

Aiden Belfrage, B.E.S.

Mr. Belfrage is a Hydrogeological Project Manager with 8 years of experience specializing in environmental, hydrogeological and geotechnical investigations. Mr. Belfrage's environmental experience includes excess soil management, Phase One and Phase Two ESAs groundwater sampling, air sampling passive and active, sub slab vapor sampling, designated substance survey, near surface permeability testing, supervision of cleanup/remediation of soil and groundwater. His hydrogeological experience includes local and regional scale groundwater assessments, water budgets, supervising the installation, development, sampling and decommission of monitoring wells, in-situ borehole permeability testing, assessment of groundwater surface-surface water interactions, determination of ground water flow characteristics, execution of aquifer tests in water wells and preparation of hydrogeological reports. His experience in geotechnical investigations includes organization and execution of geotechnical subsurface investigations, material testing, laboratory testing and preparation of geotechnical reports.

Kim Pickett, M. Ed., C.E.T, LET

Ms. Pickett is an experienced project manager with over 20 years' experience in both the public and private sectors. Ms. Pickett holds a Master of Education degree from Yorkville University, an undergraduate degree in Geoscience from McMaster University and a diploma in Environmental Engineering Technology from Confederation College. Ms. Pickett has been involved in numerous environmental projects and hydrogeological assessments. Ms. Pickett brings a strong balance of

theoretical knowledge combined with practical on-site experience. Along with her technical abilities, Ms. Pickett is well versed in project management, proposal preparation and client liaison. In addition, due to various roles within a municipal setting, Ms. Pickett has significant experience with public consultation, public meetings, and liaising with stakeholders on a number of environmental and hydrogeological projects.

Mr. Geoffrey White, P.Eng., is a senior geotechnical engineer with 28 years of interdisciplinary professional experience Mr. White specializes in geotechnical engineering, with experience in geoenvironmental project, hydrogeological projects and support for materials inspection and testing.

His hydrogeological experience includes long-term/short-term groundwater and surface water monitoring, local scale groundwater assessments, water budgets, supervising the installation, development, sampling and decommissioning of monitoring wells, and determination of groundwater flow characteristics.

Date of Plan Preparation: This plan was prepared on the date January 29, 2025

Table H-1. Water Quality Monitoring Plan for Dewatering Discharge to Surface or Storm and/or Sanitary Sewers[1]

Time Period	Monitoring Location	Parameters[2]	Monitoring Frequency[3]	Trigger for Mitigation	Mitigation Measures / Comments
Trial Dewatering or at the Start of Construction	Dewatering System Discharge Upstream And Downstream Of Any Discharge Directed To Local Water Bodies / Water Courses	Applicable Sewer Use Bylaw Criteria PWQO Metals and TSS O.Reg. 153/04 PHCs and VOC	Once during trial dewatering or on the first day of dewatering (with rushed samples)	Exceeds the Applicable Sewer Use Bylaw Criteria, PWQO, or O.Reg. 153/04 SCS: ● No ● Yes – Proceed to Mitigation Measures / Comments	Modify treatment method and/or shut down.
		Turbidity	Daily until stable (minimum 5 samples) then weekly	Exceeds 8 NTU above the baseline levels: ● No ● Yes – Proceed to Mitigation Measures / Comments	Modify treatment method and/or shut down.
During Construction Dewatering	Dewatering System Discharge Upstream And Downstream Of Any Discharge Directed To Local Water Bodies / Water Courses	Applicable Sewer Use Bylaw Criteria PWQO Metals and TSS O.Reg. 153/04 PHCs and VOC	Weekly then every four weeks after 3 consecutive weekly compliant samples	Exceeds the Applicable Sewer Use Bylaw Criteria, PWQO, or O.Reg. 153/04 SCS: ● No ● Yes – Proceed to Mitigation Measures / Comments	Modify treatment method and/or shut down.
		Turbidity	Daily until stable (minimum 5 samples) then weekly	Exceeds 8 NTU above the baseline levels: ● No ● Yes – Proceed to Mitigation Measures / Comments	

Time Period	Monitoring Location	Parameters[2]	Monitoring Frequency[3]	Trigger for Mitigation	Mitigation Measures / Comments
		Hydrocarbon sheen in discharge	Daily	Hydrocarbon sheen observed ● No ● Yes – Proceed to Mitigation Measures / Comments	Stop dewatering until the source can be determined and remediate prior to continuing to discharge.
		Total groundwater pumping / discharge rate	Daily with electronic device	Flows exceeds the permitted rate (e.g., due to heavy rainfall event) ● No ● Yes – Proceed to Mitigation Measures / Comments	Temporarily reduce pumping rate or shorten the length of trench being dewatered until rate drops below the permitted rate.
		Record the daily precipitation at the construction site	Daily	N/A	N/A
		Signs of erosion, sediment, or flooding	Daily	Sedimentation, erosion, flooding observed. ● No ● Yes – Proceed to Mitigation Measures / Comments	Reduce pumping and/or improve sediment/erosion control measures.
		Settlement / Subsidence of nearby land	Daily	Visual indication of settlement/subsidence ● No ● Yes – Proceed to Mitigation Measures / Comments	Reduce pumping and consult both dewatering contractor and geotechnical engineer

Time Period	Monitoring Location	Parameters[2]	Monitoring Frequency[3]	Trigger for Mitigation	Mitigation Measures / Comments
		N/A	N/A	Complaint received with respect to water taking and pertains to natural environment. ● No ● Yes – Proceed to Mitigation Measures / Comments	Document and evaluate if actually related to dewatering, implement mitigation measures. Submit complaint and mitigation measures to local MECP office

Notes: All items and observations during dewatering should be recorded in a log on site, accessible for inspection.

1. It is recommended that discharge be treated by a sediment control facility such as a decantation tank and filtration bags at a minimum. Means and methods determined by the contractor.
2. Parameters may be removed from future testing after three consecutive compliant results and with agreement by QP. If dewatering moves to a different location all initial parameters may need to be retested at the discretion of the QP. Additionally, at the discretion of the QP, parameter sets required to be sampled can be added or removed to reflect the planned/approved discharge location (such as sanitary sewer, storm sewer or to the natural environment, etc.). Additionally, parameters not applicable to the approved discharge location can be removed with the approval of the QP.
3. If dewatering moves to a different location or a non-compliant result is detected, the sampling may need to return to the initial frequency at the QP's discretion

Table H-2. Summarized Groundwater Level Monitoring Plan

Time Period	Monitoring Location	Method	Monitoring Frequency	Trigger for Mitigation	Mitigation Measures / Comments
Trial Dewatering or at the Start of Construction	On-Site Monitoring Wells Upstream And Downstream Of Any Discharge Directed To Local Water Bodies / Water Courses	Water Level Meter	At a minimum, once prior to dewatering	None.	Together with previous measurements establish baseline water levels.
During Construction	On-Site Monitoring Wells Upstream And Downstream Of Any Discharge Directed To Local Water Bodies / Water Courses	Water Level Meter	Every two weeks	Water level drops more than 2 m below the target dewatering elevation	Reduce pumping
Post-Construction	On-Site Monitoring Wells Upstream And Downstream Of Any Discharge Directed To Local Water Bodies / Water Courses	Water Level Meter	Every two weeks for four weeks, then every four weeks until 90% recovery	Water level recovery less than 90% of baseline level	Continue monitoring

Appendix I Groundwater Discharge Plan

Discharge Plan

This plan, as required under the Ontario Water Resources Act, Section 34 - 34.11 and Ontario Regulation (O.Reg.) 387/04 (Water Taking and Transfer) and/or O.Reg. 63/16 – Registration Under Part II.2 of the Act – Water Taking, provides a general outline of the discharge plan for the site to satisfy the PTTW and/or EASR requirements and that a detailed plan will be generated as needed by the contractor and their dewatering subcontractor that will include detailed treatment and monitoring measures.

Based on the conditions at and around the site, the target receiver for any dewatering discharge will be the surface or future sewers. Should discharge be planned for either of the sewer systems, the contractor and/or its dewatering subcontractor will need to ensure that all permissions and/or permits are obtained to allow for discharge to that sewer and that all dewatering discharge meets the appropriate chemistry and discharge flow requirements imposed for that system.

Ultimately the treatment and discharge method(s) employed during dewatering will be left up to the contractor and/or its dewatering contractor to determine.

It is noted that these dewatering estimates are considered preliminary and do not reflect any current plans for the site. The following values should be used for discussion and preliminary planning purposes only until site servicing plans and/or building basement or foundation designs are available.

Construction Dewatering Discharge Rate

The temporary-dewatering discharge rates were estimated in Section 5.1 and the details are summarized below.

Dewatering Zone		Construction Dewatering Flow Rate		
		As Calculated	Including FOS[1]	Including FOS and Rainfall Event[2,3]
		L/day		
1	Typical Site Servicing	33,809	67,618	73,618
2	Largest Residential Block	11,336	22,672	151,632
3	Largest Urban Block	435,355	870,711	1,120,801
4	SWM Facility 3	73,824	147,648	374,208
5	SWM Facility 7	91,115	182,230	896,470
6	SWM Facility 8	81,777	163,554	523,914

Notes:

1. A Factor of Safety (FOS) of 2.0 is included to account for seasonal fluctuations in the groundwater table, initial removal of groundwater from storage and variation in hydrogeological properties beyond those encountered during this study.
2. A 10 mm rainfall event was included in the water-taking calculation.
3. It is noted that under specific conditions, if the water taking is 100% storm water registration on the EASR may not be required, however if water taking consists of any mixture of storm water and groundwater typical registry or permitting is likely required.

Proposed Discharge Method and Location

It is understood that the preferred discharge location would be the surface or future sewers. Dewatering discharge will be directed by hose or pipe from the dewatering system to any pre-treatment systems (such as a sediment tank and silt bag), and then by hose or pipe to the preferred discharge location.

In the event of a significant rainfall event (100-year storm event), on-site excavation will cease until the dewatering system can be re-evaluated and/or storm water flow subsides.

Erosion and Sediment Control Measures

The construction dewatering setup will include sediment and erosion control measures, and sufficient filtration to ensure removal of suspended solids prior to discharge in accordance with typical Best Management Practices and to be sufficient to meet relevant receptor requirements.

Statements

If discharge is directed to the surface or future sewers with adherence to the water quantity and quality monitoring program outlined in the Water Taking Plan in Appendix H, no adverse effect on the environment is expected.

The discharge water temperature was considered in determining the method of transfer and discharge and is not expected to have an adverse impact.

Summary of Qualifications

Aiden Belfrage, B.E.S.

Mr. Belfrage is a Hydrogeological Project Manager with 8 years of experience specializing in environmental, hydrogeological and geotechnical investigations. Mr. Belfrage's environmental experience includes excess soil management, Phase One and Phase Two ESAs groundwater sampling, air sampling passive and active, sub slab vapor sampling, designated substance survey, near surface permeability testing, supervision of cleanup/remediation of soil and groundwater. His hydrogeological experience includes local and regional scale groundwater assessments, water budgets, supervising the installation, development, sampling and decommission of monitoring wells, in-situ borehole permeability testing, assessment of groundwater surface-surface water interactions, determination of ground water flow characteristics, execution of aquifer tests in water wells and preparation of

hydrogeological reports. His experience in geotechnical investigations includes organization and execution of geotechnical subsurface investigations, material testing, laboratory testing and preparation of geotechnical reports.

Kim Pickett, M. Ed., C.E.T, LET

Ms. Pickett is an experienced project manager with over 20 years' experience in both the public and private sectors. Ms. Pickett holds an undergraduate degree in Geoscience from McMaster University and a diploma in Environmental Engineering Technology from Confederation College. Ms. Pickett also holds a Master of Education degree from Yorkville University. Ms. Pickett has been involved in numerous environmental projects and hydrogeological assessments. Ms. Pickett brings a strong balance of theoretical knowledge combined with practical on-site experience. Along with her technical abilities, Ms. Pickett is well versed in project management, proposal preparation and client liaison. In addition, due to various roles within a municipal setting, Ms. Pickett has significant experience with public consultation, public meetings, and liaising with stakeholders on a number of environmental and hydrogeological projects.

Date of Plan Preparation: This plan was prepared on the date January 29, 2025

Appendix J Preliminary Water Balance Calculations

Land Use Description	Area (ha)	Runoff Coefficient	Imperviousness	% of Draft Plan Area	Roof Area (%)
Low Density Residential	33.31	0.68	69%	24%	44%
Semi-Detached Residential	41.35	0.70	71%	30%	44%
Townhouse Residential	38.36	0.75	79%	28%	48%
Parks, Village Squares & Servicing Blocks	5.52	0.40	29%	4%	Not Applicable
Open Space & Wetland	2.46	0.25	7%	2%	Not Applicable
SWM Ponds	14.05	0.69	70%	10%	Not Applicable
Schools	2.91	0.75	79%	2%	Not Applicable
Total (post-development)	**137.96**	**0.69**	**70%**	**100%**	**N/A**

Water Balance Analysis
Wildfield Village, Solmar Lands, Caledon, ON
Project No.: 2408195

Wildfield Village, Solmar Lands, Caledon, ON

MONTHLY AND YEARLY WATER BALANCE COMPONENTS

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
Potential Evapotranspiration Calculation	Average Temperature: T (^{o}C)	-6.60	-4.80	-0.40	6.60	12.90	18.10	20.80	19.60	15.40	9.00	3.10	-2.80	7.60
	Heat Index: i=(T/5)$^{1.514}$	0.00	0.00	0.00	1.52	4.20	7.01	8.66	7.91	5.49	2.43	0.48	0.00	37.7
	Unadjusted Potential Evapotranspiration: U (mm)	0.0	0.0	0.0	29.5	61.5	89.1	103.7	97.2	74.7	41.5	12.9	0.0	510.1
	Adjusting Factor for U (Latitude 44^{o})	0.81	0.81	1.02	1.13	1.27	1.28	1.30	1.20	1.04	0.94	0.80	0.76	-
	Adjusted Potential Evapotranspiration - PET (mm)	0.0	0.0	0.0	33.4	78.1	114.0	134.9	116.7	77.6	39.0	10.3	0.0	604.0
Pervious Components	Precipitation: P (mm)	50.30	44.20	49.20	63.30	79.10	76.30	70.40	80.40	84.60	66.50	78.30	57.40	799.80
	Adjusted Potential Evapotranspiration: PET (mm)	0.0	0.0	0.0	33.4	78.1	114.0	134.9	116.7	77.6	39.0	10.3	0.0	604.0
	P - PET	50.3	44.2	49.2	29.9	1.0	-37.7	-64.5	-36.3	7.0	27.5	68.0	57.4	196.0
	Change in Soil Moisture Storage (mm)	0.0	0.0	0.0	0.0	0.0	-37.7	-64.5	-36.3	7.0	27.5	0.0	0.0	-
	Water Holding Capacity Agri. (max. 75 mm)	75.0	75.0	75.0	75.0	75.0	37.3	0.0	0.0	7.0	34.5	75.0	75.0	-
	Water Holding Capacity Treed (max. 350 mm)	350.0	350.0	350.0	350.0	350.0	312.3	247.8	211.5	218.5	246.0	314.0	350.0	-
	Water Surplus Available for Infiltration or Runoff Agri.	50.3	44.2	49.2	29.9	1.0	0.0	0.0	0.0	0.0	0.0	27.5	57.4	259.5
	Water Surplus Available for Infiltration or Runoff Treed.	50.3	44.2	49.2	29.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	21.4	196.0
	Agr: Potential Infiltration based on MECP Infiltration Factor (mm)	17.6	15.5	17.2	10.5	0.4	0.0	0.0	0.0	0.0	0.0	9.6	20.1	90.8
	Agr: Potential Surface Water Runoff (mm)	32.7	28.7	32.0	19.5	0.7	0.0	0.0	0.0	0.0	0.0	17.8	37.3	168.7
	Treed: Potential Infiltration based on MECP Infiltration Factor (mm)	20.1	17.7	19.7	12.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	8.6	78.4
	Treed: Potential Surface Water Runoff (mm)	30.2	26.5	29.5	18.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	12.8	117.6
Impervious Components	Potential Evaporation: PE (mm), Assume 15%	-												120.0
	Potential Surface Water Runoff: P - PE (mm)	-												679.8

PRE- AND POST-DEVELOPMENT WATER BALANCE (NO LOW IMPACT DEVELOPMENT MEASURES IN PLACE)

		Total Land Area (m^2)	Impervious Factor	Impervious Area (m^2)	Pervious Area (m2)	Runoff (m^3/annum)	Infiltration (m^3/annum)	**Runoff Increase Pre to Post**
Existing Land Use (Pre-Development)	Agricultural	1,310,620	5%	65531.00	1245089.0	254561.2	113083.0	See Page 2
	Treed	68,980	0%	0.00	68980.0	8113.5	5409.0	**Infiltration Decrease Pre to Post**
	TOTAL	1,379,600	5%	65,531	1,314,069	262,675	118,492	See Page 2
Proposed Land Use (Post-Development)	See Page 2							**Infiltration Required to Meet Pre-Development Conditions (m^3)**
								See Page 2

Notes
1. Both potential infiltration and surface water runoff are independent of temperature
2. Assumption is in January maximum soil moisture storage value is present (75 to 300mm)
3. Water Holding Capacity & Infiltration Factors taken from Table 3.1 of MOE SWMPDM, 2003
4. Average Temp. and Precip. taken from Environment Canada station "Woodbridge" between 1981 and 2010

	Site Description		**Infiltration Factor**	
Infiltration Criteria	**Agricultural**	**Treed**	**Agricultural**	**Treed**
Topography	Steeply Rolling Land - Ave	Steeply Rolling Land - Ave	0.15	0.15
Soils	Tight Impervious Clay	Tight Impervious Clay	0.1	0.1
Cover	Cultivated Land/AGR/ANT	Wetland/Meadow/MAS/M	0.1	0.15
		Sum of Infiltration Factors	**0.35**	**0.4**

Water Balance Analysis
Wildfield Village, Solmar Lands, Caledon, ON
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Wildfield Village, Solmar Lands, Caledon, ON

MONTHLY AND YEARLY WATER BALANCE COMPONENTS (Post-Development)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
Potential Evapotranspiration Calculation	Average Temperature: T (^{o}C)	-6.6	-4.8	-0.4	6.6	12.9	18.1	20.8	19.6	15.4	9	3.1	-2.8	7.6
	Heat Index: i=(T/5)$^{1.514}$	0.00	0.00	0.00	1.52	4.20	7.01	8.66	7.91	5.49	2.43	0.48	0.00	37.7
	Unadjusted Daily Potential Evapotranspiration: U (mm)	0.0	0.0	0.0	29.5	61.5	89.1	103.7	97.2	74.7	41.5	12.9	0.0	510.1
	Adjusting Factor for U (Latitude 44^{o})	0.81	0.81	1.02	1.13	1.27	1.28	1.30	1.20	1.04	0.94	0.80	0.76	-
	Adjusted Potential Evapotranspiration - PET (mm)	0.0	0.0	0.0	33.4	78.1	114.0	134.9	116.7	77.6	39.0	10.3	0.0	604.0
Pervious Components	Precipitation: P (mm)	50.3	44.2	49.2	63.3	79.1	76.3	70.4	80.4	84.6	66.5	78.3	57.4	800.0
	Adjusted Potential Evapotranspiration: PET (mm)	0.0	0.0	0.0	33.4	78.1	114.0	134.9	116.7	77.6	39.0	10.3	0.0	604.0
	P - PET	50.3	44.2	49.2	29.9	1.0	-37.7	-64.5	-36.3	7.0	27.5	68.0	57.4	196.0
	Change in Soil Moisture Storage (mm)	0.0	0.0	0.0	0.0	0.0	-37.7	-64.5	-36.3	7.0	27.5	0.0	0.0	-
	Water Holding Capacity (max. 75 mm)	75.0	75.0	75.0	75.0	75.0	37.3	0.0	0.0	7.0	34.5	75.0	75.0	-
	Water Surplus Available for Infiltration or Runoff	50.3	44.2	49.2	29.9	1.0	0.0	0.0	0.0	0.0	0.0	27.5	57.4	259.5
	Potential Infiltration based on MECP Infiltration Factor (mm)	25.2	22.1	24.6	15.0	0.5	0.0	0.0	0.0	0.0	0.0	13.7	28.7	129.7
	Potential Surface Water Runoff (mm)	25.2	22.1	24.6	15.0	0.5	0.0	0.0	0.0	0.0	0.0	13.7	28.7	129.7
Impervious Components	Precipitation: P (mm)	-												800.0
	Potential Evaporation: PE (mm), Assume 15%	-												120.0
	Potential Surface Water Runoff: P - PE (mm)	-												680.0

POST-DEVELOPMENT WATER BALANCE (NO LOW IMPACT DEVELOPMENT MEASURES IN PLACE)

		Total Land Area (m^2)	Impervious Factor	Impervious Area (m^2)	Pervious Area (m^2)	Runoff (m^3/annum)	Infiltration (m^3/annum)	**Runoff Increase Pre to Post**
Existing Land Use (Pre-Development)	See Page 1							170%
								Infiltration Decrease Pre to Post
								-55%
Proposed Land Use (Post-Development)	Low Density Residential	333,100	69%	229,839	103,261	169,688	13,398	**Infiltration Required to Meet Pre-Development Conditions (m^3)**
	Semi-Detached Residential	413,500	71%	293,585	119,915	215,196	15,559	
	Townhouse Residential	383,600	79%	303,044	80,556	216,522	10,452	
	Parks, Village Squares & Servicing Blocks	55,200	29%	16,008	39,192	15,971	5,085	
	Open Space & Wetland	24,600	7%	1,722	22,878	4,139	2,968	64,768
	SWM Ponds	140,500	70%	98,350	42,150	72,347	5,469	
	Schools	29,100	79%	22,989	6,111	16,425	793	
	TOTAL	1,379,600	70%	965,537	414,063	710,289	53,724	

Notes

1. Both potential infiltration and surface water runoff are independent of temperature
2. Assumption is in January maximum soil moisture storage value is present (75mm)
3. Water Holding Capacity & Infiltration Factors taken from Table 3.1 of MOE SWMPDM, 2003
4. Average Temp. and Precip. taken from Environment Canada station "Woodbridge" between 1981 and 2010
5. Adjusting Factor for U based on Lorente, 1961

Infiltration Criteria	**Site Description - Post Development**	**Infiltration Factor**
Topography	Flat Land - Average Slope Less Than 0.6 m/km	0.3
Soils	Tight Impervious Clay	0.1
Cover	Cultivated Land/AGR/ANTH/CGL	0.1
	Sum of Infiltration Factors	**0.5**